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IMPLEMENTATION COMPLETION AND RESULTS REPORT

H743-TO / D106-TO
GRANTS

IN THE AMOUNT OF SDR17,700,000 MILLION
(US\$27,840,000 EQUIVALENT)

AND

5770-TO
CREDIT

IN THE AMOUNT OF SDR4,900,000 MILLION
(US\$6,620,000 EQUIVALENT)

AND

PRIF MULTI-DONOR TRUST FUND CO-FINANCING

TF-12702 / TF-A1644
GRANTS

IN THE AMOUNT OF US\$1,630,000

TO THE

Ministry of Finance and National Planning

FOR THE

Pacific Aviation Investment - Tonga
June 30, 2020

Transport Global Practice
East Asia And Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective Dec 31, 2019)

Currency Unit = TOP

TOP2.28 = US\$1

US\$1.38 = SDR1

FISCAL YEAR

July 1 - June 30

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ABBREVIATIONS AND ACRONYMS

ADS-B	Automatic Dependent Surveillance Broadcast
ATC	Air Traffic Control
AUD	Australian Dollar
CAD	Civil Aviation Division
CEO	Chief Executive Officer
COVID-19	Novel coronavirus 2019
EI	Effective Implementation
EMP	Environmental Management Plan
FM	Financial Management
FY	Fiscal Year
GBV	Gender Based Violence
GDP	Gross Domestic Product
GoT	Government of (the Kingdom of) Tonga
ICAO	International Civil Aviation Organization
IDA	International Development Association
IFR	Interim Financial Report
ISR	Implementation Status Report
M&E	Monitoring and Evaluation
MOI	Ministry of Infrastructure
PAD	Project Appraisal Document
PAIP	Pacific Aviation Investment Program
PASO	Pacific Aviation Safety Office
PDO	Project Development Objective
PIC	Pacific Island Country
PMS	Pavement Management System
PRIF	Pacific Regional Infrastructure Facility
RPF	Regional Partnership Framework
SDR	Special Drawing Rights
SSL	Safety and Security Levy
TAIP	Tonga Aviation Investment Project
TAL	Tonga Airports Limited
TBU	Fua'amotu Airport
TFSU	Technical and Fiduciary Services Unit
TOP	Tongan Pa'anga
TSDF	Tonga Strategic Development Framework
USD (US\$)	United States Dollar
USOAP	Universal Safety Oversight Audit Program
VAV	Lupepau'u Airport (Vava'u)
VSAT	Very Small Aperture Terminal
WBG	World Bank Group

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P128939	Pacific Aviation Investment - Tonga
Country	Financing Instrument
Tonga	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Ministry of Finance and National Planning	Tonga Airport Ltd

Project Development Objective (PDO)

Original PDO

The project development objective is to improve operational safety and oversight of international air transport infrastructure.



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing			
IDA-H7430	27,210,000	27,210,000	24,456,549
TF-12702	1,320,000	1,320,000	1,320,000
IDA-57700	6,620,000	6,620,000	6,829,449
IDA-D1060	630,000	630,000	695,502
TF-A1644	310,000	260,655	260,655
Total	36,090,000	36,040,655	33,562,155
Non-World Bank Financing			
Borrower/Recipient	4,280,000	0	4,158,880
Total	4,280,000	0	4,158,880
Total Project Cost	40,370,000	36,040,655	37,721,035

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
13-Dec-2011	14-Mar-2012	14-Dec-2014	31-Dec-2016	31-Dec-2019

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions
09-Mar-2016	19.60	Additional Financing Change in Results Framework Change in Components and Cost Change in Loan Closing Date(s)
27-Nov-2018	28.08	Change in Components and Cost Change in Loan Closing Date(s) Change in Implementation Schedule Other Change(s)

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Satisfactory	Satisfactory	Modest

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	17-Mar-2012	Satisfactory	Satisfactory	0
02	08-Dec-2012	Satisfactory	Satisfactory	1.33
03	29-May-2013	Satisfactory	Moderately Satisfactory	2.03
04	31-Dec-2013	Satisfactory	Moderately Satisfactory	3.22
05	13-Jun-2014	Satisfactory	Satisfactory	3.98
06	22-Dec-2014	Satisfactory	Satisfactory	6.90
07	29-Jun-2015	Satisfactory	Satisfactory	11.90
08	30-Dec-2015	Satisfactory	Satisfactory	16.42
09	29-Jun-2016	Satisfactory	Satisfactory	22.24
10	20-Dec-2016	Satisfactory	Satisfactory	23.56
11	23-Jun-2017	Satisfactory	Satisfactory	23.79
12	30-Nov-2017	Satisfactory	Satisfactory	24.57
13	22-Jun-2018	Satisfactory	Moderately Satisfactory	25.98
14	21-Dec-2018	Satisfactory	Moderately Satisfactory	28.18
15	20-Jun-2019	Satisfactory	Satisfactory	31.01

**SECTORS AND THEMES****Sectors**

Major Sector/Sector (%)

Transportation 100

Public Administration - Transportation 23

Aviation 77

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)

Private Sector Development 39

Regional Integration 39

Finance 5

Finance for Development 5

Disaster Risk Finance 5

Public Sector Management 23

Public Administration 23

Administrative and Civil Service Reform 23

Social Development and Protection 100

Fragility, Conflict and Violence 100

Urban and Rural Development 15

Disaster Risk Management 15

Disaster Response and Recovery 5

Disaster Risk Reduction 5

Disaster Preparedness 5

Environment and Natural Resource Management 19

Climate change 19

Mitigation 19



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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

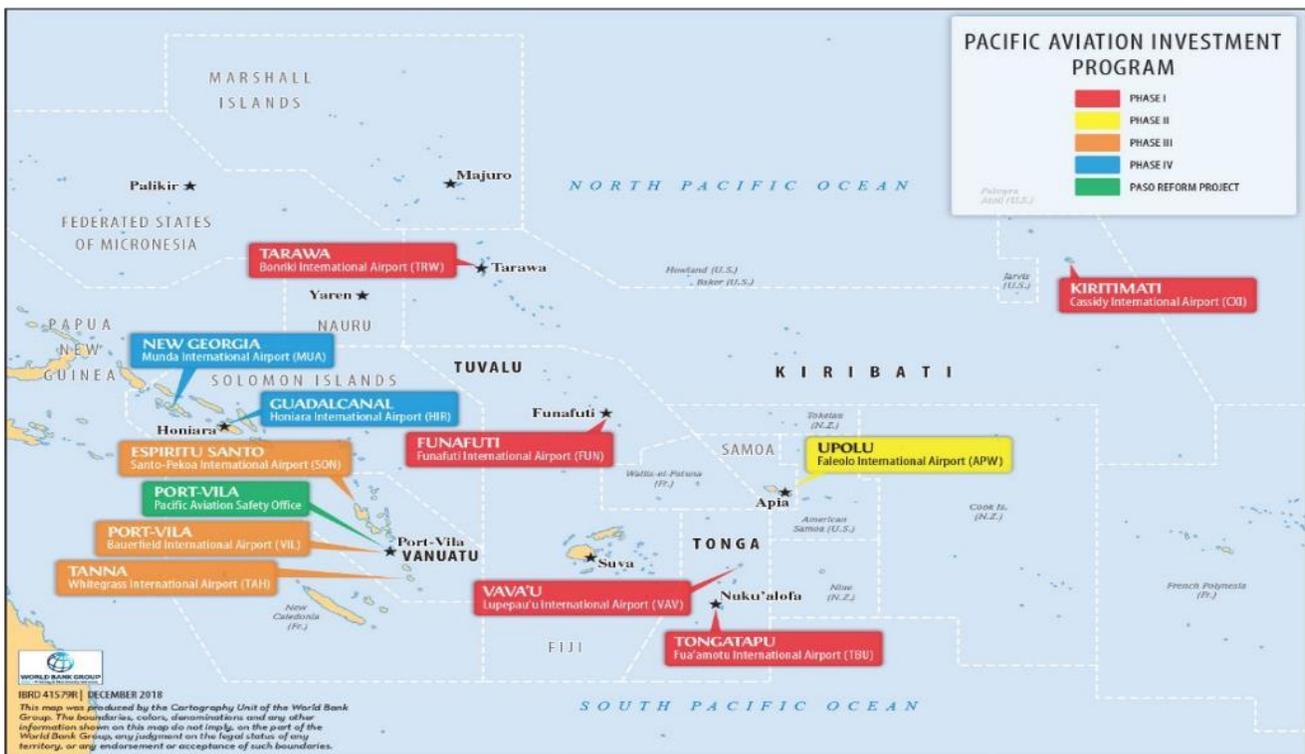
1. The Kingdom of Tonga is a small Pacific Island Country (PIC) comprising of 169 islands, 36 of which are inhabited, and its total surface area is about 750 square km (290 sq. mi) scattered over 700,000 square km (270,000 sq. mi) of the southern Pacific Ocean. Most of the population (approx. 106,000 at appraisal) are based in the main island of Tongatapu; other island groupings include 'Eua, Ha'apai, Vava'u, and the Niuas. Its location makes Tonga one of the most geographically remote nations from major centers of economic activity in the world.
2. At appraisal, Tonga's economy had been fluctuating, with an average Gross Domestic Product (GDP) growth rate of 1.3 percent per annum over the preceding 15 years. Tonga's small size, geographic dispersion and limited natural resources means the country has a narrow economic base, making it particularly vulnerable to external economic fluctuations. In 2011, GDP per capita was US\$4,084.62.¹ Agriculture, fishing and tourism accounted for most export earnings and it had a high dependency on external aid (averaging US\$205 per-capita annually over 1999-2002) and remittances from the estimated 100,000 Tongans living abroad.
3. Air transport played a key role in the economic and social fabric of the country, providing vital national, regional and international connectivity. Air services were essential for the import and export of goods, and a pre-requisite for tourism development. Should natural disasters strike, airports capable of servicing international flights are indispensable to any humanitarian relief campaign, as was seen prior to appraisal such as the 2001/2002 Cyclone Waka which caused US\$51 million in damages, or the 2004 Cyclone Heta which caused an estimated US\$150 million in damages across Tonga, Niue and American Samoa. d
4. Recognizing the key role of transport, the Government of Tonga (GoT), alongside an IDA Economic and Sector Working group had undertaken a series of reviews between 2004-2006, including a comprehensive analysis of the multi-modal transport sector and options for rationalizing the aviation sector. Many recommendations from these reviews were adopted into the GoT Strategic Development Plan Eight (2006/7-2008/9). In 2008 the Transport Sector Consolidation Project – TSCP (P096931) was approved and included an objective to “improve the level of compliance of the civil aviation and maritime subsector entities with international safety and security standards”. Following on from this work, several safety and security requirements were identified at the two main international airports; Fua'amotu Airport (TBU) and Lupepau'u Airport (VAV) in Tongatapu and Vava'u, respectively. These investments were required to meet International Civil Aviation Organization (ICAO) safety and security standards and recommended practices, as well as airline safety and security standards which regional and international airlines required to fly into Tonga. These investments would ensure access to international markets and tourism could be maintained.

¹ www.worldbank.org/data GDP per capita (current US\$)



5. **The Pacific Aviation Investment Program (PAIP).** The Tonga Aviation Investment Project (TAIP) was one of the original three projects under the ongoing PAIP, a regional, horizontal Adaptable Program Loan that consists of a series of projects designed to ensure that critical aviation infrastructure meets operational safety requirements, as well as to strengthen regulatory compliance of international air transport of the participating Pacific Island Countries. PAIP supports the focus of the World Bank’s Regional Engagement Framework for Pacific Islands on mitigating the effects of economic isolation through, among others, reduced barriers to trade and investment, promotion of tourism, human resource development and mobility and improved environmental management.

Figure 1 Pacific Aviation Investment Program (PAIP)²

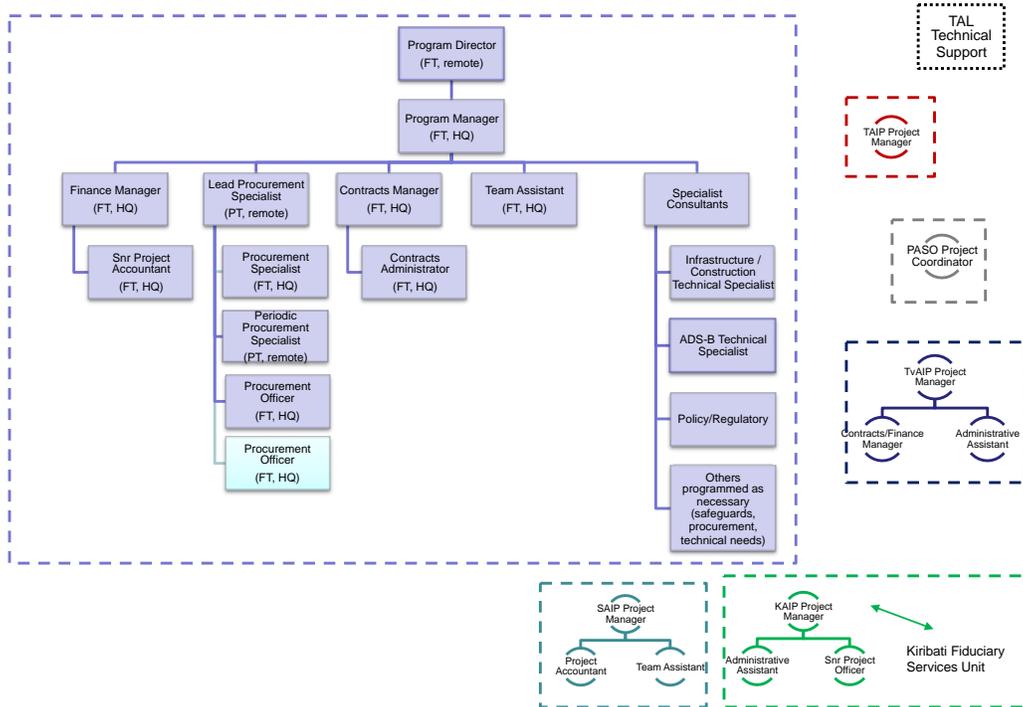


6. Most Pacific island countries are small with limited human capacity and no experience in implementing major infrastructure projects. As these countries faced similar challenges in their aviation sectors, a regional approach was adopted for PAIP to provide the impetus for harmonization of aviation policy and standards, as well as safety and security infrastructure with clear benefits to participating countries and the region as a whole. As a regional program, PAIP was able to leverage significant regional IDA. Through PAIP, the World Bank, other donor partners, and participating PICs are investing over US\$300 million between 2012 and 2022 to improve the infrastructure at twelve airports in six countries across the region (see Figure 1). For the successful delivery of the program, the PAIP Technical and Fiduciary Services Unit (TFSU) was established to act as the central team leading all aspects of procurement and overall PAIP implementation supported by Project Support Teams (PST).

² Map clearance provided by WBG Global Corporate Solutions on Tuesday May 12, 2020 for three months thereafter.



Figure 2 Technical and Fiduciary Services Unit (TFSU) Structure and Relationship to Other PAIP Projects



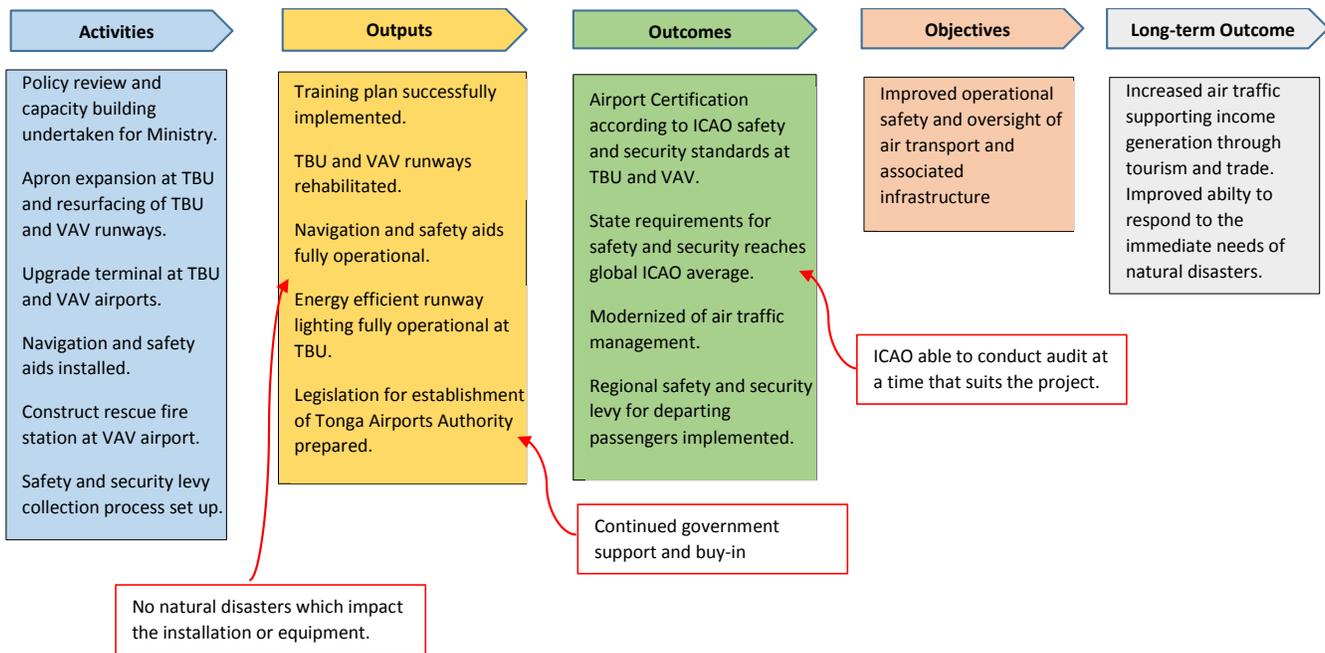
7. PAIP, and TAIIP as part of it, was the first regional investment in the Pacific and, as highlighted in the PIC9 RPF, regional approaches allow Pacific Island countries to “benefit from economies of scale through bulk procurement, centralized implementation arrangements, and WBG resources can effectively be deployed to support multiple countries”. Spill-over benefits were also created such as south-south learning opportunities, safer and more connected aviation sectors across participating countries, and the creation of a project structure and framework, into which new countries could join.

8. **Higher level objectives to which the project contributed.** TAIIP was aligned with the Government of Tonga’s key development strategies at the time, including the National Infrastructure Investment Plan (October 2010) and the Strategic Development Framework (2011-2014). Both highlighted the need to further invest in the safety and reliability of the country’s air transport infrastructure.

9. TAIIP was also aligned with the World Bank’s Tonga Country Assistance Strategy (FY2011 – 2014) (Report #56630) which highlighted the need to mainstream disaster risk reduction and climate change adaptation into infrastructure planning and management. It also contributed to two of the three key themes: i) Generating opportunities through greater global and regional integration; and, ii) building resilience against shocks. Finally, the project contributed to the reduction of poverty and the increase of shared prosperity through i) improving the ability to quickly respond to natural disasters through international airport links which can provide a much-needed immediate response, ii) increasing access for sustainable tourism which provides income to many families and communities in Tonga, and iii) improving the national, regional and international connectivity of the country, allowing the movement of goods and people and supporting business development.



Theory of Change (Results Chain)



Project Development Objectives (PDOs)

10. The PDO, as stated in both the Project Appraisal Document (PAD) and Financing Agreement was to improve the operational safety and oversight of international air transport infrastructure.

Key Expected Outcomes and Outcome Indicators

11. The PDO was measured through four indicators: i) regulatory certification of safety and security at project airports; ii) state requirements for safety and security reaches global ICAO average; iii) modernization of air traffic management; and iv) implementation of a regional safety and security levy for departing international passengers.

12. All three of the original projects in the PAIP Series of Projects used the same indicators—a reflection that most of the finance for PAIP came from regional IDA with harmonization of indicators as one of the expectations with this financing. Annex 1 (Results Framework) provides more details on the outcomes and indicators.

Components

13. At appraisal, the total project cost was estimated to be US\$32.81 million, including contingencies. This was financed by a grant of SDR17.2 million (US\$27.21 million equivalent) from the International Development Association (IDA)³, US\$4.28 million from the GoT, and US\$1.32 million from the Pacific Regional Infrastructure Facility (PRIF)⁴. As

³ Regional IDA accounted for 89 percent of IDA financing.

⁴ PRIF financing consisted of US\$0.35 million for the purchase of oversight services from PASO, US\$0.35 million to finance PASO restructure efforts, and the balance for regional studies under PAIP.



outlined in paragraph 24, additional financing was also approved in 2016. See Annex 3 for estimated and actual costs by component.

14. Consistent with the other PAIP projects, TAIP had four components:

15. **Component A: Aviation Infrastructure Investments** (estimated cost at appraisal US\$24.43 million including contingencies⁵).

This component invested in the aviation infrastructure at Fua'amotu and Vava'u airports. Activities included i) rehabilitating airport runways, taxiways and aprons; ii) installing new navigation aids, automatic weather monitoring, safety and security equipment at the Fua'amotu and Vava'u airports; iii) provision of renewable power through the implementation of a photovoltaic panel for on-site power generation at Vava'u airport; iv) improvements to terminals to reduce electrical consumption through both passive and technological means; v) provision of airport facilities to collect and store rain water from roof areas to reduce the amount of water needed from the grid and preserve natural water resources; vi) security improvements such as improved fencing, access control, installation of a building management system, a flight information display system, closed-circuit television and X-ray equipment for hand baggage; vii) upgrading of runway lighting, viii) provision of fire safety equipment, ix) provision of the Pacific Aviation Safety Network at Vava'u airport, x) provision of portable refueling equipment for Vava'u airport; and xi) provision of the design and supervision consulting services required for carrying out such investments.

16. **Component B: Aviation Sector Reform and Training** (estimated cost at appraisal US\$1.70 million including contingencies).

This component included the provision of technical assistance to Tonga Airports Limited (TAL), the Ministry of Transport (MOT), other line Ministries and the Pacific Aviation Safety Office (PASO). Technical assistance included: i) strengthening capabilities for aviation sector management, policy, safety and security oversight; ii) drafting the legislation needed to improve the long-term status of TAL's operations; iii) training on aviation policy, management and operations; iv) carrying out a baseline audit of the safety and security at Fua'amotu and Vava'u airports and review progress in the implementation of the ICAO Corrective Action Plan by TAL and the Government of Tonga; v) carrying out safety and security oversight audits; vi) preparation of a business plan for PASO's operations; and vii) implementation of restructuring measures arising from PASO's business plan.

17. **Component C: Strengthening Airport Operations and Management Capacity** (estimated cost at appraisal US\$0.55 million including contingencies).

This component was to coordinate regional studies during the first phase of the program. Studies included: i) options for regional aviation supply across Pacific Island countries, including future travel demand patterns and the types of aviation services which would be most appropriate for these needs; ii) long-term sustainability of aviation infrastructure and ways in which financing could realistically be achieved; and iii) analysis of the Flight Information Region for improving the allocation of revenues.

18. **Component D: Program Support** (estimated cost at appraisal US\$1.85 million including contingencies).

This component was for support required by Tonga, as well as other countries under the program. It included

⁵ Component costs do not include the GoT contribution (US\$4.28 million) which was contributed in forgone taxes.



technical, advisory and administrative support to TAL, including the PAIP TFSU (a regional project implementation support team), line Ministries and associated operation costs and implementation staff costs.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

19. There were no changes to the project's development objective.

Revised PDO Indicators

20. The end target dates for PDO and intermediate level indicators were extended twice, with a cumulative extension of three years. Intermediate level indicators were added to reflect the expansion of the project's scope in 2016, these are noted in Annex 1 (Results Framework).

Revised Components

21. Through an additional financing and restructuring in 2016 the project's activities were expanded under Component A (Aviation Infrastructure Improvements). Component costs were also amended to reflect the additional financing and activities. The Additional Financing was also to close a financing gap experienced by the project due to reasons (listed below) including the high mobilization costs of civil works.

22. Additional activities under Component A include:

- **Air Traffic Control Tower at Fua'amotu International Airport** (including design and supervision). The original airport tower did not meet the compliance requirements of the airport operations certificate due to hindered sightlines and lack of ground lighting and communications equipment. Through the Tonga Transport Sector Consolidation Project (P096931) the optimal location for a new Control Tower had been identified.
- **Air Traffic Control equipment for the new control tower at Fua'amotu International Airport**. This included new technologies to meet safety standards and airport certification requirements.

23. Through project savings, additional activities were also included under Components A and C as part of the November 2018 restructuring. These include:

- Terminal renovations at the Vava'u International Airport and the construction of a cargo shed at Fua'amotu.
- The design of a regional airfield pavement management system (APMS). Done in the context of the broader PAIP the APMS was designed to support participating Governments to plan the maintenance and repair of a network of roads (or airport runways) in order to optimize pavement conditions over all concerned assets.

Other Changes

24. In 2016, Additional Financing was approved for the project, including an IDA credit/grant blend of SDR5.4 million (US\$7.25 million equivalent) and a PRIF grant of US\$0.31 million. In November 2018, the closing dates for IDA Grant IDA-57700; IDA Credit IDA-D1060; and PRIF grant TF-A1644 were extended from December 31, 2018 to December 31,



2019. All three sources of financing were from the Additional Financing approved in 2016. The original financing closing dates were not extended as it was anticipated that they would be fully disbursed by the end of 2018 and they were.

Rationale for Changes and Their Implication on the Original Theory of Change

25. Several factors contributed to changes in the project. Currency exchange fluctuations, as well as the high cost of mobilizing civil works contractors in a country as remote as Tonga, meant there was a budget shortfall for some of the key activities, on which the achievement of the PDO depended.

26. The Government also requested additional IDA be allocated to the project (which, at that time, was in the form of Credit) to allow the expansion of activities. These activities did not have a significant impact on the theory of change, apart from strengthening the rationale and sustainability of investments.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

27. The Kingdom of Tonga consists of 169 islands covering a total land area of 748 square kilometers (288 square miles). Connecting these islands to each other and the world requires ongoing investments in connective infrastructure, of which air transport is an important part. Tourism continues to be a critical economic sector in the country, providing the largest single source of export earnings, approximately five times that of agriculture and fisheries combined, and an estimated 15 percent of employment.⁶ International airports also provide critical access to health care, education as well as import and export markets in the region. With increasing frequency and severity of natural disasters, having air connectivity is also essential for post-disaster recovery and support. Given these characteristics, air transport and connectivity are vital for Tonga's economy and its people and contribute towards the World Bank Group's twin goals of reducing extreme poverty and boosting shared prosperity in a sustainable way.

28. At the time of preparation, the project was aligned with the Government of Tonga's National Infrastructure Investment Plan (2010) and the Strategic Development Framework (2011-2014), as well as the World Bank's Tonga Country Assistance Strategy (FY2011 – 2014) (Report #56630). At the time of closing, the project was still relevant to both country and World Bank strategic documents. The World Bank's Regional Partnership Framework for nine Pacific Island Countries⁷ for FY17-21 (Report# 100997-EAP) (PIC9 RPF) highlighted the importance of the aviation sector under *Objective 4.2: Increased access to basic services and improved connective infrastructure*. It noted that airport infrastructure in many PICs requires upgrading to ensure passenger safety, maintain regional connectivity, and promote tourism, and that improving the "operational safety and oversight of international air transport infrastructure...would directly support the development of tourism in the participating PICs".

⁶ *Tourism: Pacific Possible Background Paper No. 4* (<http://www.worldbank.org/pacificpossible>)

⁷ The nine countries covered under the PIC9 RPF include Federated States of Micronesia, Kiribati, Nauru, Palau, Republic of the Marshall Islands, Samoa, Tuvalu, Tonga and Vanuatu.



29. The Tonga Strategic Development Framework (2015-2025) (TSDF) also discusses the aviation sector and its contribution to inclusive and sustainable growth. It notes the importance of balancing the high cost of investments with the dispersed nature of communities, and that being strategic about airports will be important. The project objectives are aligned with the TSDF's National Outcome A: a more inclusive, sustainable and dynamic knowledge-based economy, by contributing to its indicator on air visitor arrival numbers, as well as its National Outcome E: successful provision and maintenance of infrastructure and technology.

30. **Rating.** Based on the above, the overall relevance of the project is rated High.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

31. As stated above, the Project's development objective was to improve the operational safety and oversight of international air transport infrastructure. Throughout the project, PDO-level indicators remained unchanged and form the basis for this assessment. In this section, the PDO has been broken into its two objectives, however it should be noted that several activities and investments contributed to both safety and oversight.

PDO (i): Improve the operational safety of international air transport infrastructure.

32. **The project's objective of improving the operational safety of international air transport infrastructure was substantially achieved.** The two relevant PDO indicators for this objective were achieved, including i) Regulatory certification of safety and security at project airports, measured through compliance of both airports in accordance with ICAO standards, and ii) Modernization of Air Traffic Management.

33. Safety and security of both Fua'amotu and Vava'u airports have improved through project investments, capacity building and policy changes undertaken through the project. One of the most significant safety improvements came through the resurfacing of both runways. At project appraisal Fua'amotu runway had not been resurfaced in 20 years. Although pavement works were done to a high standard, some fatigue cracking was beginning to emerge and there was a loss of structural capacity which impacted on the size and weight of aircraft operating into TBU. Given future air traffic demands, this was also important to allow wide-bodied aircraft to land. Vava'u runway was also past its service life, with the chip seal runway losing chips which represented a hazard to aircraft operations. This was also critical in order to accept international flights to Vava'u.

34. Both runways were successfully upgraded through the project. Part of this work involved the apron expansion at Fua'amotu airport of approx. 2,150 square meters and the construction of a new base and asphaltic surface. This allowed larger (Code E) aircraft, such as Air New Zealand's B777 and B787 to park on the apron while still allowing other aircrafts to enter, park and exit. As a result, Air New Zealand landed their first weekly Code E flight in 2016. Air traffic growth over the project cycle also indicates improved confidence of air operators in the safety and security of the airports. At appraisal international flights per year were on the downward trend, with approximately 700 per year being handled. Over the life of the project this trend reversed, with 1,101 international flights in 2019.



Figure 3: Construction and Completion of Terminals and Runways



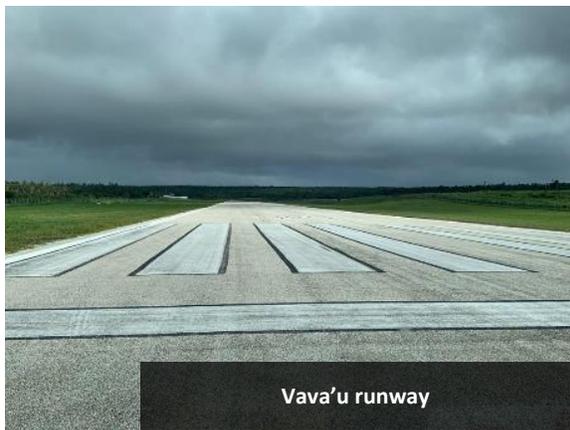
Fua'amotu runway works



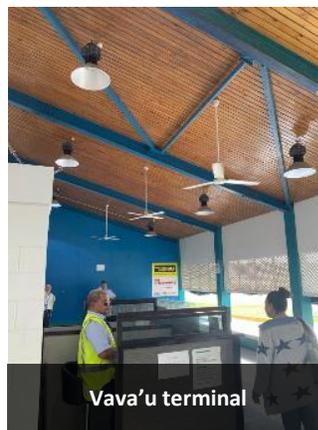
Fua'amotu terminal works



First B777 aircraft landing



Vava'u runway



Vava'u terminal



Vava'u airport works

35. Navigational aids were upgraded in both airports in 2019, allowing location accuracy from satellites and reducing the amount of ground equipment previously required to aid flight navigation. Fire safety equipment was also purchased. Safety screening equipment was installed, and related terminal upgrades made, to allow international passengers to fly directly into Vava'u. These provided greater controls for arriving and departing passengers, as well as security controls for terminal access and management. The security fence at Vava'u was upgraded and safety and security equipment such as a passenger ramp, wheelchairs stretchers and new lighting for the terminal building was purchased and installed. A new cargo shed at Fua'amotu airport makes the storage of equipment and goods safer and more secure.

36. A Training Needs Assessment was undertaken, and TAL was able to train staff in most of its locations. Many of these related to safety and security such as fire fighter training, air traffic controllers and maintenance staff. Related follow-on benefits were also achieved with TAL staff travelling to Samoa to train Samoan staff there on safety aspects.



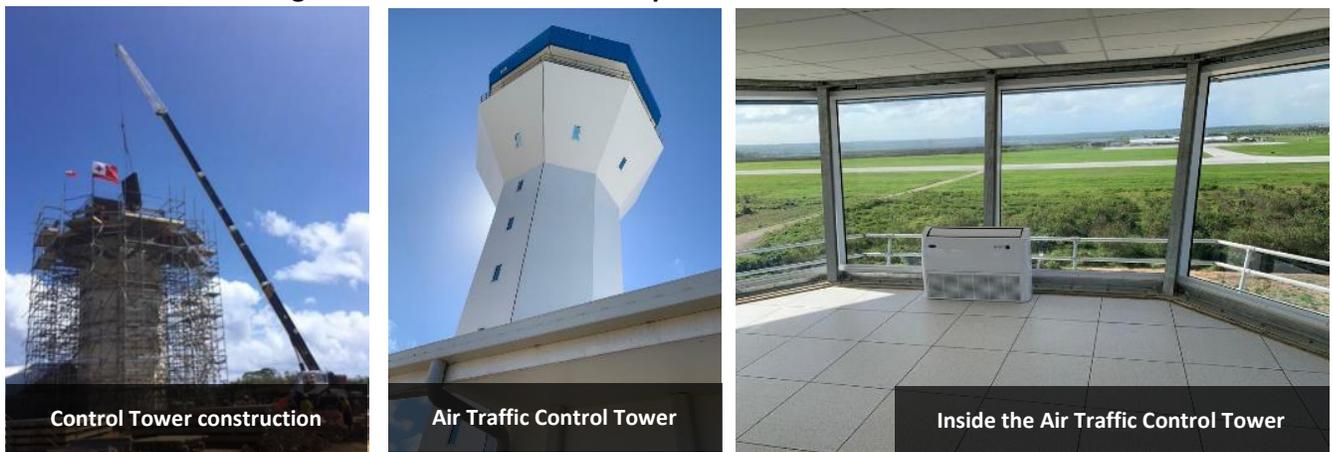
This regional approach likely promoted the ability of countries to share knowledge and expertise, supporting the wider sustainability of the investments.

37. The modernization of Air Traffic Management included two elements which also had regional benefits: (i) Very Small Aperture Terminal (VSAT) which is a two-way secure satellite communications system that enables regional Civil Aviation Authorities and air transport organizations to communicate essential safety and security communications in a reliable, secure and timely manner; and (ii) Automatic Dependent Surveillance Broadcast (ADS-B) which is a satellite-based technology for aircraft monitoring which enhances safety by making aircraft visible, in real time, to air traffic control and other appropriately equipped ADS-B aircraft.

38. By project completion, the regional VSAT network was fully operational, and both airports were equipped with ADS-B. The project also financed the installation of ADS-B transmitters in all aircraft on the Tonga domestic registry so as to ensure that they could be effectively monitored⁸. The ADS-B technology has enabled Tonga to essentially bypass radars, providing the country with a more advanced technology at one tenth of the cost.⁹ It also facilitates more efficient flight routing, which saves fuel and reduces greenhouse gases, as well as making the network more resilient to natural disasters. As part of the training TAL training plan, relevant staff were trained in the effective use of this technology and equipment.

39. Other activities also contributed to this indicator, including energy efficient runway lighting in Fua’amotu airport, and the construction of an Air Traffic Control (ATC) tower which was completed prior to project closure, but officially opened in March 2020. As highlighted under PDO indicator #1, all navigational aids were fully operational by the end of the project, also contributing to a more modern air traffic management system.

Figure 4: Construction and Completion of Air Traffic Control Tower



⁸ Most new international aircraft have ADS-B installed already.

⁹ Connections leaflet: <http://documents.worldbank.org/curated/en/172501488864629403/pdf/113199-BRI-TransportICTNewsletter-PUBLIC.pdf>



PDO (ii): Improve the oversight of international air transport infrastructure.

40. **The project’s objective of improving the oversight of international air transport infrastructure was substantially achieved.** While one of the PDO indicators related to this objective was not met, this may not have been the most appropriate indicator for the program (discussed in the M&E section) and so additional investments and activities have been used here to reflect progress.

41. A key investment in sustainable oversight that provides regional benefits was the development of a business plan for the Pacific Aviation Safety Office¹⁰ (PASO). With funding through PRIF, the TAIP project financed this, as well as supporting the early stages of reform. In parallel, each PAIP country was provided financing (\$0.35 million for Tonga) to procure oversight services from PASO. This served to lay the foundation for PASO’s financial sustainability, ensuring ongoing oversight facilities after project closure. The long-term financing of oversight services was achieved through the implementation of the regional safety and security levy which is included in the cost of all passenger tickets for departing passengers from PAIP countries, outlined below.

42. The PDO level indicator: Implementation of a regional Safety and Security Levy (SSL) for departing international passengers was fully achieved. By project closure AUD5 was collected from each departing passenger. Revenue from the SSL is allocated to the Ministry of Infrastructure (MOI) (60 percent) and TAL (40 percent) and, since being initiated in 2012, more than TOP2 million (approx. US\$1 million) has been received by the Government. Collected funds provide key resources for ongoing oversight of the aviation sector’s safety and security investments. Revenue is used for the maintenance and upgrading of safety and security equipment, and other related activities. The Civil Aviation Division is responsible for MOI’s portion of the SSL and fees have been used for the technical assistance and preparation of manuals and reports necessary for ICAO audits; implementation of ICAO’s standard and recommended practices; Tonga payments to PASO; and, obstacle clearance at Vava’u airport. TAL have used their portion for maintaining the equipment and remunerating the staff who run it and implementing training plans.

43. An audit was done in 2017 and it was recommended that the Civil Aviation Division (CAD) also prepare an annual forecast of the activities to be undertaken each financial year with the SSL revenue.

44. PDO level indicator: State requirements for safety and security reaches global ICAO average was not achieved. This indicator was measured through the ICAO Universal Safety Oversight Audit Program (USOAP), where countries are given an ‘Effective Implementation’ (EI) score out of 100. USOAP audits focus on a country’s capability in providing safety oversight by assessing whether they have effectively and consistently implemented the critical elements of a safety oversight system. The audit usually covers eight areas.¹¹

45. The PDO indicator was designed to measure the “lack of effective implementation”. The lower the score the better. The baseline value for Tonga was 90.7 percent, indicating extremely poor compliance. The target was set to be the average world score, which at the time was 68 percent, hence the lack of effective implementation is at 32

¹⁰ PASO provides safety oversight services to its 10 member countries.

¹¹ These include: Legislation; Organization; Licensing; Operations; Airworthiness; Accident Investigation; Air Navigation Services, and; Aerodromes.



percent (100 minus 68, which is the lack of effective implementation). At the time of appraisal regional projects required consistent PDO-level indicators, which is why this was selected as a way to harmonize the results framework.

46. The project supported Tonga in several ways, particularly through Component 2: Aviation Sector Reform and Training. Improved policies that incorporated safety and security oversight as well as supporting TAL to implement the ICAO Corrective Action Plan contributed to better safety oversight and preparedness for the audit. The establishment of the Safety and Security Levy (SSL) also provided financial assistance for the preparation of necessary manuals, as well as for preparation of the ICAO Coordination and Validation Mission which was held in November 2019.

47. Of the eight audit areas, Accident Investigation was dropped¹² and three were postponed until 2021 as they relate to the airlines, which in this case is Real Tonga, and the Civil Aviation Division did not feel they were ready. Of the four areas which were audited – Legislation, Organization, Air Navigation Services, and Aerodromes – a score of 38 was given, which would equate to 62 percent for this indicator.

48. Several important strategic and legislative activities were also undertaken through the project. A Fua'amotu Master Plan was prepared, providing TAL with a 20-year master plan as well as a 10-year priority investment plan. Through the project, amendments were prepared for the Airport Authority Act to define TAL's operations and give them the oversight and responsibility to manage airports across Tonga. Once endorsed by parliament, this will be an important step as TAL is certified to operate the airports, but currently does so under delegated authority from the Government.

Justification of Overall Efficacy Rating

49. **The overall efficacy rating is Substantial.** As described above, most of the PDO-level indicators have been met. The one outstanding indicator (ICAO Effective Implementation) has been delayed and is outside of the project's ability to control.

C. EFFICIENCY

50. An ex-post economic analysis was conducted using a cost-benefit analysis (CBA) approach to evaluate the economic internal rates of return (EIRR) of the activities completed at project closure. It follows the same methodology used at the appraisal stage and focuses on the economic appraisal of Component A¹³, for which investments amounted to 85.4 percent of project costs at appraisal. Estimated costs at appraisal, additional costs at Additional Financing, and actual costs by component are compared in Table 1 below. Component A and D demonstrated higher final costs than the estimated costs at appraisal.

¹² The ICR mission team was advised this was standard practice in the Pacific region.

¹³ Civil works.

**Table 1: Estimated vs Actual Costs, by Component**

Components	Original Estimated Cost (US\$m)	AF Estimated Cost (US\$m)	Actual Cost (US\$m)
Component A: International Airport Infrastructure Investments	22.42	6.80	28.50
Component B: Aviation Sector Reform and Training	1.65	0.21	1.57
Component C: Strengthening Airport Operations and Management Capacity	0.55	0.10	0.59
Component D: Project Support	1.64	0.00	2.93
Total	26.26	7.11	33.59

51. The project achieved the level of economic returns anticipated at appraisal. The total EIRR at appraisal was estimated at 20.9 percent with a Net Present Value (NPV) of US\$7.8 million, using a discount rate of 12 percent. The economic analysis was based on the project financing aviation infrastructure at Fua'amotu and Vava'u airports to ensure ICAO safety and security standards are met, and that jet services continue without disruption. Without the project, it was expected that the jet services may not be able to continue, and similar investment will be needed around 2016. Without such disruption, the project achieved the expected efficiency from avoided jet services disruption which will limit the number of incoming tourists and their contribution to the country's GDP.

52. The efficiency analysis covers the time horizon of 15 years (2012-2026). Key assumptions include (i) the estimated contribution of travel and tourism to GDP by the World Travel and Tourism Council (WTTC), which is about US\$26.26 million or 5.6 percent of GDP in 2012, growing at an average of 4.7 percent per annum; and (ii) a 25 percent reduction of tourists with estimated impact of about US\$8 million due to disruption of jet services in 2016.

53. The economic internal rate of return (EIRR) at completion is estimated at 17 percent with and NPV of US\$3.94 million.¹⁴ The project's EIRR is slightly lower than the level envisioned at appraisal (20.9 percent). Because the comparison involves counterfactual scenarios, a sensitivity analysis was also conducted for different timing of the potential disruption, as well as the size of disruption (i.e. percentage of demand loss), to test the robustness of the result. Details of the economic analysis and related sensitivity analysis are presented in Annex 4.

54. The project's efficiency had been challenged by several factors: complex project management structure, higher actual costs, procurement delays, and natural disasters – which resulted in some funding shortfalls. The implementation period also extended longer than expected. But the size of the funding shortfall for Component A was not too large – approximately US\$4 million (or about 15 percent increase) which the contingency included in the project financing covered the majority of, therefore, these challenges had a small impact on the project's efficiency.

55. These results do not consider the impacts of the strengthening of the regulatory framework through the project, as well as the major long-term financial sustainability which will be supported by the safety and security levy and the lead role TAIP had for the overall PAIP, which provided a foundation for other projects under the series. In a qualitative way, those impacts are positive and supportive of the efficiency of the project, leaving the aviation sector with sector strategies, investment plans, and reform programs, including some that were delivered during the project

¹⁴ Using the same 12 percent discount rate as was used at appraisal.



implementation. The project also trained Government officials and airport personnel to enhance the capacity to plan and operate more efficiently and in accordance to the safety and security standards.

Assessment of Efficiency and Rating

56. **The Efficiency Rating is Substantial.** Despite the delays and increased costs which slightly bring down the EIRR, the project was able to achieve its planned outputs in an exceptionally difficult implementation environment – a similarity shared among the Pacific Islands Countries.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

57. Based on the above, the overall outcome rating is *Satisfactory*.

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

58. At the time of appraisal gender was not identified as an issue although several initiatives were started around addressing gender-based violence (GBV) and violence against children (VAC). Starting in 2014, the TAIP project implemented 'Codes of Conduct' (CoC) to address the risk of VAC. This was done in close consultation with the Australian Department of Foreign Affairs and Trade who assisted the TFSU in preparing CoC. All consultants, contractors and suppliers were required to sign the CoCs which outlined behavioral expectations, as well as consequences. In 2016 these were extended to include GBV. The project implemented a grievance redress mechanism which had special channels for GBV, including referring survivors to support services. Training on HIV/AIDs, GBV, VAC was required for all workers on the project. This approach was rolled out by the TFSU to all PAIP countries. This work predated the transport GP's focus on GBV and formed key elements of the World Bank's 'Good Practice Note' for addressing GBV on investment projects.¹⁵

Institutional Strengthening

59. Building on previous World Bank-supported projects in the transport sector, this project contributed to the Government's aviation sector reform. A key piece of work was the Airport Authority Act which defined TAL's operations going forward and gave them the oversight and responsibility to manage airports across Tonga. Given the regional nature of the project, a key aspect of the program's design was having one project host the TFSU which then provided implementation support for all projects under the PAIP umbrella. TAL was willing to take this role, which was important given the risks associated such as payment of fees by other countries and workload around hiring and management of consultants. TAL also provided services to other countries under PAIP, claiming funds back later on a cost recovery basis. This provided institutional capacity building across countries which was seen as more appropriate given the context (i.e. technical support from Australia or New Zealand may not have been as relevant given the

¹⁵ *Working together to prevent sexual exploitation and abuse: recommendations for World Bank investment projects.* World Bank Group, 2017



maturity of the aviation sector). An example is the CEO of TAL joining the appraisal of the Kiribati Aviation Investment Project to provide guidance and share experiences.

60. A Training Needs Assessment was also carried out and then implemented through the project, providing local and international knowledge transfer. Under Component C of the project (Strengthening Airport Operations and Management Capacity) regional studies were also undertaken to inform Government decisions, provide a coordinated approach and take advantage of any economies of scale. These included an assessment of options for regional aviation supplies and services; the long-term sustainability of aviation infrastructure; and, an analysis of flight information region harmonization which looked at the revenue received by participating countries for access to flight information and whether there were any possible improvements.

61. There was also ongoing safety and security oversight by PASO such as recommendations from their inspector(s) on aspects such as airway finance, aerodromes and all of the ICAO audit areas. This contributed to improved safety and security oversight of CAD and TAL.

Mobilizing Private Sector Financing

62. None.

Poverty Reduction and Shared Prosperity

63. Two main aspects of the project design supported poverty reduction and shared property. Mainstreaming disaster risk reduction and climate adaptation into infrastructure planning and management was identified in the Tonga Country Assistance Strategy FY11-FY14 as a primary outcome objective. Having functioning and sustainable airports and related infrastructure provide access during times of natural disasters and emergencies, which is critical for immediate response, particularly for remote countries such as Tonga.

64. The second aspect is tourism, which was identified as a pathway to reduced poverty and shared prosperity under the Systematic Country Diagnostic (January 2016) of Eight Pacific Island countries, including Tonga. For Tonga in particular, tourism represents a very high priority solution area. It also noted that “the tourism sector is important to allow the poor to take advantage of employment opportunities”.

PAIP Program Benefits

65. TAIP was part of the PAIP regional program, which is the first regional transport program in the PICs. The experiences from PAIP provided lessons for other projects which replicated similar regional approaches in the transport post-disaster and fisheries sectors. When the World Bank released its STEP procurement processing and management system, it was decided to use the PAIP program for pilot testing due to the technical capacity of TFSU. The KAIP project was part of the initial pilot testing which provided key feedback for the final implementation. Starting in 2014, through TFSU the PAIP program implemented ‘Codes of Conduct’ for protecting children, and these were later expanded to include gender-based violence.

66. Capacity building was part of the project design but an additional benefit of this was the creation of a network of technical experts on air transport and aviation specialists across the Pacific. Throughout the project there were several



opportunities for staff to learn from other Pacific Island Countries on procurement, project design and safety measures. Tonga was able to host airport staff from PAIP countries for training which was more context-relevant to those countries than the usual destinations such as New Zealand or Australia.

Other Unintended Outcomes and Impacts

67. As noted above, GBV and VAC work was able to be scaled up for use in other projects in the region and globally.

68. TAIP, as a Phase I PAIP project and the lead project in terms of housing the shared implementation unit (TFSU) has laid the foundation for future projects under the series.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

69. Prior to this project, the World Bank had been supporting Tonga's transport sector since 2008 (and with infrastructure more generally since 2002) providing a strong foundation and understanding from both sides on the nature of operating. As touched on above, this project complemented the TSCP, which was under implementation during this project's preparation. Many of the aviation investments identified by the transport sector reform study, undertaken by TSCP, were financed under TAIP, and to mitigate the initial risks of TFSU capacity, the Lead Procurement Specialist and Accountant from the TSCP Project Management Unit was transferred to the project prior to effectiveness.

70. To coordinate across countries and extract the economies of scale, a centralized unit for fiduciary services was also created, and Tonga – through TAL – agreed to host and provide upfront payment for this. The TFSU was created within the Tonga Aviation Investment Project and Service Agreements signed between TAL and the other countries involved. This was the result of Tonga's relative maturity in the sector, and the Implementing Agency's understanding of World Bank implementation requirements.

71. The project's design was clear and well-aligned with the other two projects prepared at the same time. The continued use of the project design in future projects under PAIP suggests its appropriateness for the context and the ability to transfer it to other countries in the region. As touched on above, the establishment of the TFSU provided a clear plan for how the project would be monitored.

72. The background analyses undertaken for the project were sound. Assessments of the aviation sector in the South Pacific have found many of the countries lack the proper policy, regulatory and infrastructure to comply with ICAO requirements, which justified the need for safety and security improvements.

B. KEY FACTORS DURING IMPLEMENTATION

73. The TFSU ultimately was managing investments for the PAIP program across five countries and PASO. The PAIP manager was responsible for the day-to-day allocation of resources, under the oversight of the 'Program Steering Committee' (PSC). Inevitably, some countries felt that they were not given the priority by the TFSU that they



deserved when other country's needs were put first. The PAIP program's governance was not effective at communicating this which led to the perception that TAIP was given priority over other projects. There was no evidence that this in fact happened.

74. The provision of Upper Airspace Rights revenue to TAL—which was a legal covenant of the project—took a long time to be addressed. The revenue was going to the Government's Consolidated Fund rather than to TAL. One of TAIP's Legal Covenants was that the Project Implementing Entity (TAL) shall always manage all revenue streams associated with the Recipient's aviation sector throughout the Project implementation period. There were gaps in that revenue collection and TAL no longer received the Upper Air Space revenues due to a March 2017 Cabinet decision. The revenues were being collected in the general budget of the Government of Tonga but TAL could not access the Upper Air Space revenue, with possible impacts on TAL's revenues and profitability as a Public Enterprise and created a revenue loss of TOP\$1.3 million per year to TAL's budget, approximately 10 percent of TAL's total revenues. It was recommended that the Ministry of Finance and National Planning conduct an analysis of the impact that the removal of the Upper Air Space Rights revenues is going to have on TAL's financial security and operations to inform whether there is a need to make the funds available to TAL again or what mitigation measures are required.

75. The implementation of the 'Safety and Security Levy' (SSL) required new planning at Civil Aviation department (CAD) level. The SSL was to be an addition to CAD budget and not meant to supplant it. While TAL was using their 40 percent share of the levy, CAD needed to develop an investment plan and present this to MoF in advance to plan its yearly operations better. Inefficient budget planning was an issue and hindered early efficiency in using the funds by CAD.

76. Similar to other projects in the region, contract management was an issue, often leading to untimely completion of works. Delays during implementation of several key infrastructure investments took place, related to the Defect Liability Period of runway works at Fua'amotu International Airport; supervision of Air Navigation Aids at Lupepau'u International Airport; and underestimating of costs for the expansion of the terminal building design. The Bank was not able to clear the requested contract variations on certain expenses and requested further review. A total of 38 contracts were signed by TAL during project implementation, which is a significant amount for their available human resources. It was noted that some significant delays were experienced, but that contractual remedies were not often enforced.

77. Delivering the training needs assessment was slow to start. CAD had been undertaking training in-house, mainly because PASO did not have the required capacity in previous years to do this. Moving towards a more formal and outsourced training plan took time for all teams to move to, but after the first few years this improved, with most of the training budget allocated under the project taken advantage of.

78. Tropical Cyclone Gita hit the main island of Tongatapu on February 12, 2018, significantly impacting the country's infrastructure and normal business operations. This exacerbated delays in procurement and Government approvals required to complete activities in a timely manner. In addition, the domestic air terminal sustained major damage with the complete loss of the roof and associated damage. TAL undertook to repair the terminal and, in the interim, moved the domestic services to the international terminal.



79. Implementation support was adequate. Implementation Support Missions were carried out on a regular basis and the project's Task Team was proactive in addressing challenges throughout the project's life.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

80. The project was part of the regional PAIP and so the M&E design was harmonized across the program as part of the requirement for Regional IDA financing. This meant consistent indicators were required for all countries. A benefit of this approach was to provide comparable measurement across all projects in the series and to help future projects be prepared in a more streamlined fashion, taking advantage of the Series of Projects structure. A downside was the limitation in terms of country context, where some significant achievements, such as fire safety and TFSU establishment, were not captured in the Tonga Results Framework.

81. As highlighted by other projects under the series, Indicator two (State requirements for safety and security reaches global ICAO average) was dependent on an external agency. While funding for this was included in the project, the actual activity was largely out of the project's control in terms of getting the completed audit in time for project closure. While ICAO scores should, ideally be updated as countries respond to ICAO audit findings, upload their mitigations and when ICAO does follow up visits, this rarely happens in a timely fashion and the lag time for score update is years not months. An external expert assessment may have been an alternate indicator as this would have been more in the control of the World Bank and Implementing Agency.

M&E Implementation

82. Each project under PAIP was responsible for their own M&E which was then funneled to the TFSU for overall reporting, which allowed more standardization in terms of measurement and data collection. During the first part of project implementation not all achievements were captured in the Results Framework, however these were all updated during the life of the project and were accurate at completion.

83. Several approaches were trialed during implementation to improve the monitoring, evaluation and learning of the project such as spider graphics and new processes for collecting data. In addition to the Results Framework, other M&E activities were carried out for procurement and works. Metrics such as 'Key Performance Indicators' on procurement were included and TAIP implemented 'Open Procurement' with the project website reporting on award and progress of contracts (<http://www.taip.to/>). This also provided news, information on procurement training and reports.



M&E Utilization

84. The Results Framework was used to measure project progress, particularly towards the end of the project life. As a result of Additional Financing received by the project, the Results Framework was updated to include a new indicator, however none of the other indicators lent themselves to be expanded as they related to discrete activities. The TAIP website also provided transparent access to procurement information throughout the project life and could be used to track timelines and project implementation progress.

Justification of Overall Rating of Quality of M&E

85. Based on the above, the overall rating of Quality of M&E is Modest.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

86. **Environmental and Social Safeguards.** The project was rated with an Environmental Assessment of Category B and adhered to World Bank requirements for environmental and social safeguards. The TFSU prepared the PAIP Environmental and Social Management Framework, which TAIP, along with other projects in the program, used to direct and form a country specific Environmental Management Plan (EMP) and Social Assessment. EMPs for both airports, as well as other documents such as the PAIP Environmental and Social Management Framework, the contractor's Environmental and Social Management Plan and project information documents (in Tongan language and English) were available on the TAIP website. ESMPs were prepared and implemented in compliance with Bank policies and were available on the TAIP website (<http://taip.to/safeguards>).

87. A Grievance and Complaint Logging system was also set up and available on the TAIP website, allowing stakeholders to not only log potential issues, but also to see anonymous information about other grievances. This included statistics on time taken to resolve and the level of priority. Three complaints were received during the project life. All were low priority, with two resolved within 14 days, while the third took less than 56 days to resolve.

88. **Financial Management.** Financial Management (FM) was rated as *Satisfactory* throughout the project's life, with the project FM arrangements adequately managed by the TFSU. World Bank FM supervision reviews were conducted on-site once or twice per annum, in line with the project's *Moderate* FM risk rating. An FM manual was prepared early in project implementation and support was also provided for other countries under the program through the TFSU. The accounts were well maintained during the project life using an off-the-shelf accounting system (QuickBooks) which meets World Bank and Ministry of Finance FM requirements. The project was not required to use the Government Sun System accounting system as the TAL is a Government-owned public enterprise. Internal controls were acceptable with the quarterly Interim Financial Reports (IFR) and annual project audits generally submitted on time and in good order. As the project included the strengthening of TAL, the audited entity financial statements were also required, however these were consistently submitted late. The project FM arrangements were relatively complex due to the multiple sources of finance and currencies, and eligible expenditures were 'exclusive of tax'. The TFSU had the FM capacity to manage these complexities; however, this is not the case for other projects, and all current and future projects in Tonga must be financed 'inclusive of taxation', and any project or portfolio-specific tax exemptions are strongly discouraged. Towards the end of the project the FM risk rating was increased to *Substantial* as the TFSU planned project activities right up to the closing



date and the Project Accountant (who was a consultant) was departing, leading to the risk that key FM activities (payments, reconciliations, reporting, and audits) may not be adequately completed by the end of the four month grace period to April 30, 2020. This is a common issue across closing projects in Tonga, given consultants are not eligible for financing past the closing date and there are usually inadequate FM resources available to properly finalize project activities, leading to unreconciled balances requiring a refund by the Government to the World Bank (lapsed loans) and long overdue final IFR and audit. TAL is addressing this issue by funding the Finance Manager to continue past the closing date so they can finalize FM activities. The World Bank team provided a checklist to help TAL track the closing activities and the recently created Tonga Central Services Unit has a role to support all projects to help ensure an orderly project closure.

89. **Procurement.** A regional procurement approach was used for projects under PAIP, with procurement centralized through the TFSU. This mitigated the high risk of procurement issues in capacity-constrained countries and increased the attractiveness of works, given the small and remote nature of countries under the program. Procurement was rated as *Satisfactory* for the majority of the project's life, with a downgrading to *Moderately Satisfactory* in 2017 and *Moderately Unsatisfactory* in June 2019. During the course of its supervision, the task team observed that TAL generally complied with the relevant procurement policies

90. Some delays faced during the project implementation included logistical challenges such as shipping schedules and getting equipment and goods to Tonga and other countries; and having to wait for all countries to be ready to bid for a single procurement including all of them;. The reduced rating over the final three years of the project life was largely due to the pace of implementation and weak monitoring of ongoing contracts.

C. BANK PERFORMANCE

Quality at Entry

91. The project was strategically relevant to both the Government of Tonga and aligned with World Bank guiding documents at the time of preparation. One of the key challenges during preparation was having adequate skills and technical knowledge on the ground. This is a challenge in most PICs, where the small scale of activities and remoteness of countries can make investments less cost effective and limit the availability of qualified people, and so a regional TFSU was created. This was done to provide a combination of the procurement and contract management skills, as well as to have a pool of technical specialists that TAL could call on to assist with specific challenges. In the absence of a clear regional body to host support services for aviation across the Pacific where the TFSU could have been anchored, the project preparation team showed creativity in designing a project where one country would take the lead and ensure regional benefits were distributed. This approach was also crucial for leveraging regional IDA, without which the scope of activities would not have been possible.

92. As part of the regional approach, harmonized result indicators were required. This meant indicators applicable to all current (and possibly future) countries needed to be used. As discussed in the M&E section, this informed the choice of indicators and other(s) may have been used without that constraint. A 9 percent contingency was included in the project cost, although with limited experience in aviation investments, rather than transport more broadly, there was little to base this on and the amount budgeted is considered appropriate.



93. Risks were identified and satisfactorily addressed using an Operations Risk Assessment Framework. A risk which was not identified during preparation was the potential for participating countries not to pay their dues to the TFSU, which would create a financial burden for TAL as the housing institution. This was, however, addressed during implementation, as part of the restructure and Additional Financing in 2016 (see Quality of Supervision section below).

94. The project's preparation was overseen on the World Bank side by a Task Team Leader who had worked on projects in similar contexts and managed the preparation of the overall PAIP program. The project's preparation took seven months from concept to Board approval, which is significantly faster than the current average in the Pacific of 12-13 months, particularly given the complexity of the overall PAIP program.

Quality of Supervision

95. At least two formal implementation support missions per year were carried out throughout the project, with additional technical missions taking place, as necessary. Weekly meetings were held with the implementation team to monitor progress and provide support between missions. Additional support was also provided through capacity building and training carried out by the task team and Pacific Country Management Unit through World Bank workshops and additional visits from procurement, safeguards and FM colleagues.

96. As referenced above, a risk that was not foreseen during appraisal, but which did eventuate, was other countries in the program not paying their dues to the TFSU. This left TAL financially vulnerable when the Government of Kiribati didn't pay their dues for several months between 2014 and 2015. While these were eventually paid, the government and the task team identified the risk it posed and so, as part of the 2016 Additional Financing and restructuring, it was agreed to embed in the Financing Agreement an "insurance mechanism" for TAL. This allowed up to US\$100,000 to be disbursed from the PRIF multi donor Trust Fund to cover any payment default by one or more beneficiaries of TFSU services. This mechanism was eventually used during the grace period in 2020 after the Government of Vanuatu failed to pay their dues for two months. While the Government of Vanuatu eventually did pay a portion (US\$28,859), TAL was left liable for the remainder (US\$50,655) and was reimbursed through PRIF for these expenses.

97. Two restructurings, one including an additional financing, were carried out during implementation in order to respond to the needs of the project and requests from the Government. The project had three Task Team Leaders during its eight years of implementation which, while not uncommon, would have meant some losses of 'institutional knowledge' or history of the project. This was mitigated through co-TTL-ship where the incumbent worked with the new TTL for a period of time.

Justification of Overall Rating of Bank Performance

98. Based on the above, the overall rating for World Bank Performance is *Satisfactory*.

D. RISK TO DEVELOPMENT OUTCOME

99. At the time of project completion, the risk to the development outcome were minimal. Throughout the project life there was strong Government buy-in and commitment to the project's objectives. While the establishment and full use of the SSL was slower than planned, it was in full operation and funds were being split between TAL and CAD as agreed and audit reports reflected appropriate usage as per the disbursement framework that set up the



rules for the use of these funds. The establishment of TAL as an authority to manage Tonga's airports was working well and there were adequate resources, planning and expertise in place. However, at project closure there was still no resolution on the receipt of Upper Airspace Revenues, which are paid by airlines for services provided by the country, in this case TAL. This revenue is an important source of funds to implement TAL's budget, and its allocation to TAL a legal covenant of the project. At project closure, funds were still going into the general revenue of the Government of Tonga, however there had been positive communication from the Government about the revenue going directly to TAL.

100. Since project closure the novel coronavirus (COVID-19) has emerged as a global pandemic, causing mass closures of public spaces and an almost halting of air transport around the world. The full impact and length of global shutdowns is still unknown, and so is the effect it will have on air transport to and within Tonga. In the immediate term, Tonga has closed borders to non-Tongans in March 2020, which will have an impact on the economy as well as the SSL revenues. This poses a significant risk for the maintenance of TAIP investments and implementation of TAL's budget.

V. LESSONS AND RECOMMENDATIONS

101. The project provides several lessons which can be categorized under: i) Regional approach and its implications; ii) Remoteness and capacity constraints; iii) Partnerships; and, iv) A proper needs (and capacity) assessment is needed to tailor the project activities to the local context.

Lessons from the project's regional approach and its impacts

102. **There is no one perfect solution for a regional approach.** Every option implies trade-offs so it is important to be aware of these upfront. In TAIP's situation, this related to accessing regional IDA, which was necessary to finance the investments. This meant some restrictions such as a harmonized Results Framework, as well as many benefits which are outlined in the Kiribati Aviation Investment Project ICR.¹⁶ Having a phased approach under the Series of Projects allowed subsequent PAIP projects to learn from the original projects and adapt the design based on World Bank policies and local requirements.

103. **The regional design benefited from one country (Implementing Agency) taking the lead in coordination and risk.** TAIP and other projects under the program benefitted from a collective pool of technical, procurement and financial management experts which would have been more costly had each project done it individually. While ideally regional support services such as the TFSU would be housed in a regional body or institution, in the absence of one that could play this role, Tonga through TAL, took the lead in hosting the TFSU, as well as paying upfront for TFSU salaries and operating costs and even carrying the cost during periods when TFSU was not paid on time by other countries under the Series of Projects. The arrangement required TAL to sign Service Agreements with Samoa, Vanuatu, Kiribati and Tuvalu at project initiation and put significant responsibility onto TAL. Why Tonga was willing to take this on is in itself a potential learning point. While it is hard to identify all the factors which made this possible,

¹⁶ See page 28: <http://documents.worldbank.org/curated/en/928631577726873244/Kiribati-Pacific-Aviation-Investment-Program-Kiribati-Aviation-Investment-Project>



one aspect is likely the long relationship between the World Bank and Government of Tonga, which had been established through the TSCP, and at the same time acknowledging it as a necessary business decision to meet their aviation needs.

104. **Regional procurement harmonization and technical expertise can be effective.** Given the technically complex and sizable civil works investments for runways, navigation aids and other specialized equipment, the regional approach to central procurement proved to be effective and innovative. Procurement was made more efficient through the central procurement team which generated time savings and encouraged coordination of activities. Procurement of the same goods for several countries in one tender helped to reduce cost (compared to procuring specialized equipment for each country separately) and facilitate future support and maintenance of harmonized equipment. Moreover, harmonized procedures such as the use of a single Project Operations Manual in all participating countries simplified fiduciary oversight. Developing regional networks between airport operators is an approach that could be replicated in other parts of the world with small individual states facing similar constraints in terms of limited capacities and resources to sustain aviation safety and security investments.

105. **At the same time, cost-sharing for centralized services needs to be treated with caution.** Countries tend to underestimate the value-for-money of what they pay and what support they get when it has to be shared with other countries. Cost-sharing is more acceptable for services that are a standardized program offered by an international organization where the benefit of economy of scale is obvious. The PAIP program tried to address this with a relatively small TFSU team, supported by on-demand consultants. Since at the time of TAIP all three countries were IDA Grant recipients, it may have been easier for each country to have a stand-alone IDA Grant which included implementation unit costs. However, this would likely have cost more, would have reduced the ability to 'group' services such as procurement, and would have created capacity challenges for some countries such as Kiribati where having the necessary skills in the implementation team has consistently been a challenge for other projects. Another option is to allocate a higher proportion of the regional IDA leveraged into TAIP (or lead project in future instances) so most of the operating costs are covered from the start and less financial responsibility is required by one country. In the TAIP instance, the financial risk to TAL was mitigated through an 'insurance mechanism' highlighted under the Quality of Supervision section, which allowed TAL to be reimbursed for payment defaults by one or more beneficiaries of TFSU services.

106. **Regional approaches should be informed by country capacity.** It's possible that, were the program being prepared now, a different approach would be used. At the time there was limited procurement and financial management knowledge in each country, however many PAIP countries now have central support units, which provide oversight and specialized advice for World Bank-supported projects on areas such as procurement, financial management, safeguards and monitoring and evaluation. From a portfolio perspective, over time countries may 'graduate' from needing these regional units, however there is still merit in having technical resources pooled at the regional level, given the scale of activities is unlikely to warrant each country having their own technical consultant, especially in highly specialized areas where skilled experts are few.

Lessons from remote and capacity constrained environments

107. **Cost estimates need improvement.** Civil works under TAIP were often found to be more expensive than originally estimated, which caused some delays. Under TAIP, the terminal building works were put for tender twice



because the estimated cost was much lower than the budget proposed by bidders, and the final cost was 70 percent higher than the estimate. A similar experience was found with the Airport Control Tower and highlighted the need for more realistic costs or higher contingencies to be factored into the project appraisal to limit delays and cost overruns due to high prices. Spending time in preparing more detailed cost estimates and bill of quantities will help with more accurate estimates and, given remoteness, perceived risks and limited competition, higher cost contingencies should also be factored into project design.

108. **Master plans and strategies support implementation.** At the time of preparation, Tonga already had a robust plan around what investments they wanted and how they wanted to use the resources, as well as high Government buy-in. Efficiently assessing the technical requirements and financing needs related to air transport investments requires a medium- to long-term view in terms of capacity needs and gaps as well as overview of state-of-the-art infrastructure. Planning for the use of new technological tools and improvements of safety requirements would not have been possible without planning but also a comprehensive strategic framework that included parallel enactment of related regulations for operationalization.

109. **Lower capacity environments may require longer implementation periods.** While there are arguments for and against longer implementation periods, it's important to acknowledge that the standard five-year period is unlikely to be sufficient in small island states, where capacity is limited and remoteness impacts cost, timeliness and connectivity. While some amount of time pressure may be important, the frequent extension of closing dates may reflect overly optimistic implementation plans.

110. **It's important to keep objectives within the project's control.** While there were requirements for the Results Framework to be harmonized, these should be revisited regularly to reflect emerging lessons which may only become visible during project implementation. For instance, the design of one of the PDO indicators under PAIP relied on a third part audit from ICAO. Given the already limited resources and capacity, having indicators which are more directly controlled by the project would reduce these potential issues.

111. **In particular, air transport investments require strong technical and legal expertise in order to efficiently plan and implement projects.** Improvements in air transport safety standards rely on international safety standards and audits that take time to get implemented and require legal technical assistance. The project recruited a legal specialist to provide legal advice to CAD on aviation and help draft the Airport Authority Act, Tonga's Civil Aviation rules and adherence to ICAO universal safety requirements. Procurement also requires strong advice on technical requirements in order to properly estimate costs and needed technologies – this was for aircraft technologies but also for building the control tower, which required significant review of technical drawings and requirements.

Lessons from partnerships

112. **Keeping channels of communication open can benefit the wider program.** During implementation support missions the task team would often meet with development partners based in Tonga, such as the Australian Department of Foreign Affairs and Trade, and New Zealand Ministry of Foreign Affairs and Trade. This allowed the team to hear of local developments relevant to the project, as well as opportunities for alignment and coordination.



An example is when New Zealand hired consultants who were shared between countries to progress the work around ICAO ratings. This also provided continuity in support for the Government.

A proper needs (and capacity) assessment is needed to tailor the project activities to the local context

113. **Context-specific investments can provide lower-cost and more appropriate solutions.** Several investments were approached based on local capacity and needs, leading to more appropriate outcomes. The ATC Tower was one example where, rather than reinventing the wheel, the implementation team used designs of other control towers as the base. These were adapted to suit local needs, but at a lower cost than designing the building from scratch. Using another country's design to start was particularly valuable, given the ATC is the highest building in Tonga, so local experience in that size building would be scarce in the country. The ADS-B air traffic surveillance equipment was another investment of note. While the traditional approach would have used radar, TAIP was able to use new technology which has shown to be more accurate and reliable than radar, and able to cover the larger areas required by small Pacific Island Countries, as well as being considerably cheaper.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Improve operational safety and oversight of international air transport infrastructure

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Indicator One: Regulatory certification of safety and security at project airports	Text	Fua'amotu Airport (TBU) currently certified, Vava'u (VAV) is not. 13-Dec-2011	Certification of both airports in accordance with ICAO standards. 31-Dec-2016	Certification of both airports in accordance with ICAO standards. 31-Dec-2018	Achieved. TBU and VAV are both compliant. 04-Jun-2019

Comments (achievements against targets):

The target date was extended twice; first to December 31, 2018 and then to December 31, 2019.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Indicator Two: State	Percentage	90.70	49.00	49.00	62.00



requirements for safety and security reaches global ICAO average		13-Dec-2011	31-Dec-2016	31-Dec-2018	04-Jun-2019
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Comments (achievements against targets):

The target date was extended twice; first to December 31, 2018 and then to December 31, 2019. Actual achieved at completion has been updated from the final ISR to reflect conversations with Government and the 'lack of effective implementation' (100 - minus score).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Indicator Three: Modernization of air traffic management	Text	Very Small Aperture Terminal (VSAT) (previously PASnet) only at Fua'amotu Airport (TBU). No Automatic Dependent Surveillance-Broadcast (ADS-B) 13-Dec-2011	PASNet and ADS-B operational at TBU and VAV. 31-Dec-2016	Very Small Aperture Terminal (previously PASNet) and Automatic Dependent Surveillance-Broadcast (ADS-B) operational at Fua'amotu Airport and Vava'u Airport 31-Dec-2018	VSAT installation complete. 04-Jun-2019

Comments (achievements against targets):

The target date was extended twice; first to December 31, 2018 and then to December 31, 2019.



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Indicator Four: Implementation of a regional safety and security levy for departing international passengers	Text	No Levy 13-Dec-2011	AU\$5 collected from each departing international passenger. 31-Dec-2016	AU\$5 collected from each departing international passenger. 31-Dec-2018	Achieved, levy is being collected. 04-Jun-2019
<p>Comments (achievements against targets): The target date was extended twice; first to December 31, 2018 and then to December 31, 2019.</p>					

A.2 Intermediate Results Indicators

Component: Aviation Infrastructure Investments

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Component A: Intermediate Result indicator One: Navigation and safety aids fully operational	Percentage	0.00 13-Dec-2011	100.00 31-Dec-2016	100.00 31-Dec-2018	100.00 04-Jun-2019
<p>Comments (achievements against targets):</p>					



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Component A: Intermediate Result indicator Two: Rehabilitation of Fua'amotu and Vava'u runways	Percentage	0.00	100.00	100.00	100.00
		13-Dec-2011	31-Dec-2016	31-Dec-2018	04-Jun-2019
Comments (achievements against targets):					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Component A: Intermediate Result indicator Three: Energy efficient runway lighting fully operational and compliant at TBU	Text	Lighting not upgraded.	Fully operational	Lighting fully operational	Installation Complete
		13-Dec-2011	31-Dec-2016	31-Dec-2018	21-Oct-2019
Comments (achievements against targets): Indicator updated based on final mission Aide Memoire.					

Component: Aviation Sector Reform and Training

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at
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				Target	Completion
Component B: Intermediate Result indicator One: Preparation of necessary legislation for establishment of Tonga Airports Authority	Text	No legislation 13-Dec-2011	Legislation prepared. 31-Dec-2016	Legislation prepared. 31-Dec-2018	Revised Bill is with Cabinet. 04-Jun-2019
Comments (achievements against targets):					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Component B: Intermediate Result indicator Two: Successful implementation of agreed training plan	Text	No training plan 13-Dec-2011	Training plan completed 31-Dec-2016	Training plan completed 31-Dec-2018	Training completed. No additional training planned. 04-Jun-2019
Comments (achievements against targets):					

Component: Strengthening Airport Operations and Management Capacity

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Construction and Operation of Air Traffic Control Tower	Text	Existing tower needs to be replaced with new tower at different	Construction of Tower is complete.		Construction of Tower is now complete. Equipment is being



(TBU)		location with technologies and equipment.			procured separately, and is expected to be installed and operational by October 2019.
		09-Nov-2015	31-Dec-2018		04-Jun-2019
<p>Comments (achievements against targets): This was a new indicator. The tower was completed prior to project closure and officially opened in March 2020.</p>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Citizen Engagement	Percentage	0.00	100.00		100.00
		18-Dec-2018	31-Dec-2018		04-Jun-2019
<p>Comments (achievements against targets): This was a new indicator.</p>					



B. KEY OUTPUTS BY COMPONENT

Objective/Outcome: improved operational safety and oversight of international air transport infrastructure	
Outcome Indicators	<ol style="list-style-type: none"> 1. Regulatory certification of safety and security at project airports 2. State requirements for safety and security reaches global ICAO average 3. Modernization of air traffic management 4. implementation of a regional safety and security levy for departing international passengers
Intermediate Results Indicators Component A: Aviation Infrastructure Investments	<ol style="list-style-type: none"> 1. Navigation and safety aids fully operational 2. Rehabilitation of Fua'amotu and Vava'u runways 3. Energy efficient runway lighting fully operational and compliant at TBU
Key Outputs by Component (A)	<ol style="list-style-type: none"> 1. Installation of all navigation and safety aids equipment 2. Civil works contracts for Fua'amotu and Vava'u runways and upgrading terminal buildings 3. Procurement of fire safety equipment 4. Installation of energy efficient runway lighting
Intermediate Results Indicators Component B: Aviation Sector Reform and Training	<ol style="list-style-type: none"> 1. Preparation of necessary legislation for establishment of Tonga Airports Authority 2. Successful implementation of agreed training plan
Key Outputs by Component (B)	<ol style="list-style-type: none"> 1. Bill for legislation prepared 2. Training needs assessment 3. Training activities according to training plan



Intermediate Results Indicators Component C: Strengthening Airport Operations and Management Capacity	<ol style="list-style-type: none">1. Construction and Operation of Air Traffic Control Tower (TBU)2. Citizen Engagement
Key Outputs by Component (C)	<ol style="list-style-type: none">1. Civil works contracts for Air Traffic Control Tower (TBU)2. Grievance Redress Mechanism developed and available



ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Christopher R. Bennett	Task Team Leader(s)
Jinan Shi	Procurement Specialist(s)
Stephen Paul Hartung	Financial Management Specialist
Marta Elena Molares-Halberg	Counsel
Anil H. Somani	Social Specialist
Maria Fernanda Miralles Gasparini	Social Specialist
Supervision/ICR	
Pierre Graftieaux, Keelye Rinchen Hanmer	Task Team Leader(s)
Cristiano Costa e Silva Nunes, Zhentu Liu, Eric Leonard Blackburn	Procurement Specialist(s)
Robert J. Gilfoyle	Financial Management Specialist
Charles E. Schlumberger	Team Member
Penelope Ruth Ferguson	Environmental Specialist
Sam William Johnson	Team Member
Craig Andrew Clark	Social Specialist
Evaron Doris Masih	Team Member
Caroline Ruth Holo	Procurement Team



B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
Preparation		
FY12	13.047	73,607.37
Total	13.05	73,607.37
Supervision/ICR		
FY12	8.682	44,857.85
FY13	28.257	138,005.97
FY14	32.790	171,282.35
FY15	14.808	85,335.88
FY16	20.486	127,307.72
FY17	23.195	139,468.12
FY18	13.525	103,533.05
FY19	10.240	85,619.19
FY20	10.645	76,292.11
Total	162.63	971,702.24



ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval (US\$M)
Aviation Infrastructure Investments	24.43	28.50	116%
Aviation Sector Reform and Training	1.70	1.57	92%
Strengthening Airport Operations and Management Capacity	0.55	0.59	107%
Project Support and Training	1.85	2.93	158%
Taxes (Government of Tonga)	4.28	4.16	97%
Total	32.81	37.75	

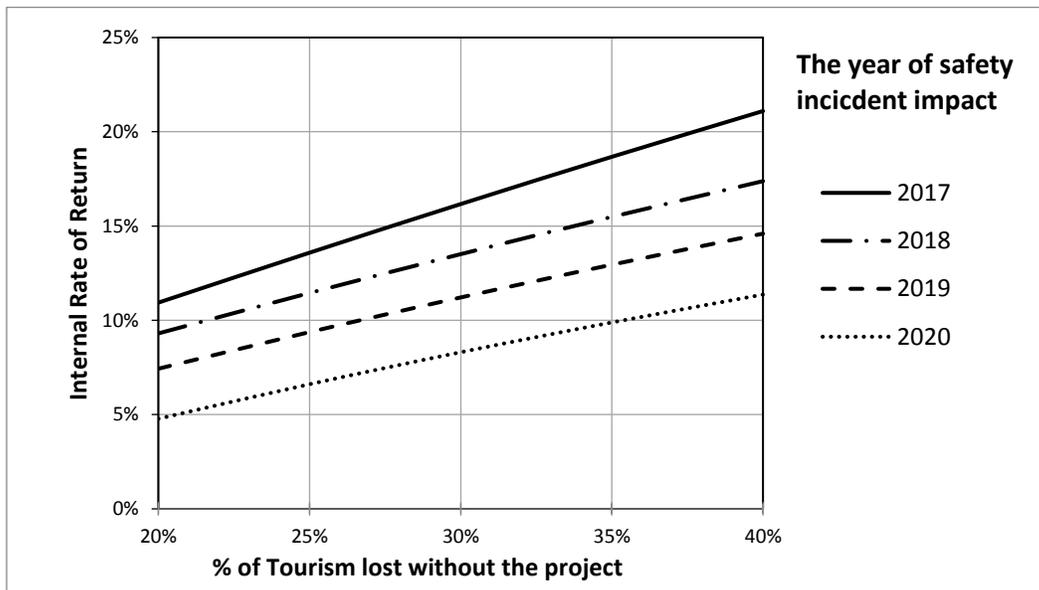
1. While the total amount approved in the original and additional financing was equivalent to US\$36.09 million, due to currency fluctuations the total amount available US\$32.09 million. At project close, TAIP had disbursed US\$32.04 million, with US\$49,344 undisbursed.
2. Through both the original and additional financing, the Government of Tonga committed a total of US\$5.36 million in the form of taxes. At project close, the total contribution in forgone taxes was equal to US\$4.16 million. The variation is largely due to currency fluctuations.



ANNEX 4. EFFICIENCY ANALYSIS

1. The efficiency analysis for the ICR of the project is based on a cost-benefit analysis (CBA) approach, which follows the same methodology at appraisal stage. The CBA focuses on Component A – aviation infrastructure investments. The analysis covers the time horizon of 15 years (2012-2026), assuming the discount rate of 10 percent.¹⁷
2. The project financed aviation infrastructure at Fua’amotu and Vava’u airports to ensure ICAO safety and security standards are met, and that jet services continues without disruption. Without the project, it was expected that the jet services may not be able to continue, and similar investment will be needed around 2016. Without such disruption, the project achieved the expected efficiency from avoided jet services disruption which will limit the number of incoming tourists and their contribution to country’s GDP.
3. Key assumptions include: (a) the estimated contribution of travel and tourism to GDP by the World Travel and Tourism Council (W TTC), which is about US\$26.26 million or 5.6 percent of GDP in 2012, growing at an average of 4.7 percent per annum, and (b) 25 percent reduction of tourists with estimated impact of about US\$8 million due to disruption of jet services in 2016.
4. The economic internal rate of return (EIRR) at completion is estimated at 17 percent with net present value (NPV) of US\$3.94 million. The project’s EIRR is slightly lower than the level envisioned at appraisal (which is 20.9 percent). Because the comparison involves counterfactual scenarios, a sensitivity analysis was also conducted for different timing of the potential disruption, as well as the size of disruption (i.e. percentage of demand loss), to test the robustness of the result (See Figure 5 below).

Figure 5. Sensitivity analysis conducted for different timing of the potential disruption



¹⁷ To be consistent with the discount rate at appraisal and additional financing stage, and to be conservative. World Bank’s Guidance Note on Discounting Costs and Benefits in Economic Analysis of World Bank Projects (May 2016) would have suggest a lower discount rate based on lower GDP per capita growth.



5. The project's efficiency had been challenged by several factors: complex project management structure, higher actual costs, procurement delays, and natural disasters – which resulted in some funding shortfalls. The implementation period also extends longer than expected. But the size of the funding shortfall for *Component A* was not too large – approximately US\$4 million (or about 15 percent increase). There was some contingency in the project. And, the additional funding was timely mobilized. Therefore, these challenges had small impact on the project's efficiency.

6. These results did not take into account the impacts of the strengthening of the regulatory framework through the project. In a qualitative way, those impacts are considered to be positive and supportive of the efficiency of the project, leaving the aviation sector with sector strategies, investment plans, reform programs, etc. including some that was delivered during the project implementation. The project also trained Government officials and airport personnel to enhance the capacity to plan and operate more efficiently and in accordance to the safety and security standards.

7. Considering the project was able to achieve its planned output despite the delays and increased costs which slightly brings down the EIRR, the overall efficiency for this project is rated **Substantial**.



ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

The ICR was shared with the Government of Tonga for review and comments on April 23, 2020. No comments have been received.



ANNEX 6. SUPPORTING DOCUMENTS (IF ANY)

Government of Tonga Statistical Bulletins on International Arrivals and Departures

Management Report: Audit of Safety and Security Levy for the Period Ended 30 June 2017.

Tonga National Infrastructure Investment Plan (October 2010)

Tonga Strategic Development Framework (2011 – 2014)

Tonga Strategic Development Framework (2015 – 2025)

World Bank Implementation Completion and Results Report for the Tonga Transport Sector Consolidation Project (P096931) (Report # ICR00004503)

World Bank Kiribati - Pacific Aviation Investment Program (P128938) – Implementation Completion and Results Report (Report # ICR4856)

World Bank Group Regional Partnership Framework for the Pacific Nine (Kiribati, Nauru, the Republic of the Marshall Islands, Federated States of Micronesia, Palau, Independent State of Samoa, Kingdom of Tonga, Tuvalu and Vanuatu) for the period of FY17-FY21 (Report # 1000997-EAP)

World Bank Pacific Islands (PIC9) Performance and Learning Review (Report # 139696)

World Bank Group. 2016. Systematic Country Diagnostic for the Eight Small Pacific Island Countries: Priorities for Ending Poverty and Boosting Shared Prosperity (Report #

World Bank: Tonga - Country Assistance Strategy for the period FY2011-2014 (Report # 56630)