



1. Project Data

Project ID

P128939

Project Name

Pacific Aviation Investment - Tonga

Country

Tonga

Practice Area(Lead)

Transport

L/C/TF Number(s)

IDA-57700,IDA-D1060,IDA-H7430,TF-12702,TF-A1644

Closing Date (Original)

31-Dec-2016

Total Project Cost (USD)

33,562,154.70

Bank Approval Date

13-Dec-2011

Closing Date (Actual)

31-Dec-2019

IBRD/IDA (USD)

Grants (USD)

Original Commitment

27,210,000.00

1,630,000.00

Revised Commitment

36,040,655.16

1,580,655.16

Actual

33,562,154.70

1,580,655.16

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2. Project Objectives and Components

a. Objectives

The project development objective (PDO) was **"to improve the operational safety and oversight of international air transport infrastructure"** (Financing Agreement page 6 and Project Appraisal Document page xii).



b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Will a split evaluation be undertaken?

No

d. Components

The project comprised four components:

Component A: Aviation Infrastructure Investments (cost at appraisal US\$24.4 million (including contingencies); actual cost US\$28.5 millions). This component was expected to finance the aviation infrastructure at Fua'amotu and Vava'u airports. This included: (i) rehabilitating airport runways, taxiways and aprons; (ii) installing new navigation aids, automatic weather monitoring system, safety and security equipment at the two 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 to 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) purchase of fire safety equipment, (ix) provision of the Pacific Aviation Safety Network at Vava'u airport, (x) providing portable refueling equipment for Vava'u airport; and (xi) design and supervision consulting services required for carrying out such investments.

Component B: Aviation Sector Reform and Training (cost at appraisal US\$1.7 million (including contingencies); actual cost US\$1.6 millions). This component would provide technical assistance to Tonga Airports Limited (TAL), the Ministry of Transport (MOT), other line Ministries, and the Pacific Aviation Safety Office (PASO). The 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 International Civil Aviation Organization (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 the PASOs business plan.

Component C: Strengthening Airport Operations and Management Capacity (cost at appraisal US\$0.55 million (including contingencies); actual cost US\$0.59 million). This component would finance three studies: (i) to review options for improving the regional aviation market in the Pacific Island Countries including future travel demand patterns in the region, for passengers and freight, and the types of aviation services that would be most appropriate to meet these demands; (ii) to review options for Pacific Island Countries for sustainable long-term financing and operations of key aviation infrastructure and ways in which this financing can realistically be met; and, (iii) increasing revenues from the Flight Information Regions of Program Countries through which aircraft travel.

Component D: Program Support (estimated cost at appraisal US\$1.85 million (including contingencies); actual cost US\$2.93 millions). This component would provide funding for technical, advisory an



administrative support to TAL, line Ministries, and the Technical and Fiduciary Services Unit (TFSU), as well as the associated operation and staff costs.

Revised Components. The Additional Financing in 2016 scaled-up the activities under component A. This included a new Air Traffic Control Tower at Fua'amotu International Airport and purchase of Air Traffic Control equipment.

With project savings, additional activities were 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; and
- The design of a regional airfield pavement management system (APMS).

e. **Comments on Project Cost, Financing, Borrower Contribution, and Dates**

Project Cost. The actual total project cost was US\$37.8 million, slightly higher than the appraisal estimate of US\$32.8 million. This was due to the scaling up of activities as discussed above in section 2d.

Financing. At appraisal, IDA commitment was US\$27.2 million. In 2016, an Additional Financing of US\$7.25 million was approved, making the total credit US\$34.45 million. The actual disbursements were US\$31.9 million. The difference is due to exchange rate fluctuations between SDR and US dollar.

Co-financing. At approval, the Government of Australia through the Pacific Region Infrastructure Facility (PRIF) committed US\$1.32 million. In 2016, PRIF provided additional grant of US\$0.31 million (ICR para 24). The actual amount was US\$1.6 million.

Borrower contribution: The Government of Tonga committed US\$4.3 million at appraisal in the form of taxes. The actual contribution was US\$4.16 million. The variation is largely due to currency fluctuations (ICR page 41).

Dates. The project was approved on December 13, 2011 and became effective on March 14, 2012. It closed on December 31, 2019, after a delay of 3 years. The mid-term review was carried out on December 14, 2014.

Restructurings. The project experienced two restructurings, the first (a level 2) on March 9, 2016, included additional financing, a change in results framework, change in component costs, and a change in loan closing date to December 31, 2018. The second restructuring (November 27, 2018) extended the closing date from December 31, 2018 to December 31, 2019.

3. Relevance of Objectives

Rationale



Country Context. The Kingdom of Tonga is a small Pacific Island Country (PIC) comprising of 169 islands. It is one of the most geographically remote nations, with a small population (approximately 106,000 people at appraisal). Most of the population is based in the main island of Tongatapu. In 2011, GDP per capita was US\$4,084, and tourism accounted for 17% of GDP (PAD para 4) and 15% of employment (ICR para 27).

Sector Context. The aviation sector for Tonga is very important as it provides the much-needed national, regional, and international connectivity. It is essential for the import and export of goods as well as tourism development. In addition, the country's susceptibility to the effects of climate change and in particular storm surges make airports a vital entry point for relief goods. The airports were indispensable for the humanitarian relief effort after the 2001/2002 Cyclone Waka (which caused US\$51 million in damages) and the 2004 Cyclone Heta (which caused an estimated US\$150 million in damage) (ICR para 3).

At appraisal, several safety and security deficiencies were identified at the two main international airports: Fua'amotu and in Vava'u. The runways were in increasingly poor condition and navigational aids were basic or missing. The investments in runways, navigational aids, and safety and security equipment were required to meet International Civil Aviation Organization (ICAO) safety and security standards. The failure to comply with ICAO's safety and security standards could potentially lead to the interruption or even cessation of services from international airlines, causing major economic and social disruptions.

Alignment with strategy.

The Pacific island countries (PICs) face similar development challenges arising from their dispersion, remoteness and small populations. As a group, these countries development priorities focus on two strategic areas: (i) mitigating economic isolation by encouraging regional and global integration; and (ii) building resilience against external shocks. Therefore, the aviation sector is critical as it provides vital national and international connectivity. However, the specialized nature of aviation places a high burden on small countries with limited human and financial resources.

The project "Pacific Aviation Investment - Tonga" is part of a regional, horizontal Adaptable Program Loan "Pacific Aviation Investment Program (PIAP)" 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. The PAIP supports the Bank's Regional Engagement Framework for Pacific Islands (FY2006-2009) 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 (PAD para 14 and the Regional Engagement Framework para 106). The Project objectives are aligned with the current World Bank Regional Partnership Framework (FY17- 21) – as reflected in objective 4.2 "increased access to basic services and improved connective infrastructure."

The project was highly relevant to and consistent with two of the three themes laid out in the Country Assistance Strategy (CAS FY2011-2014) for Tonga: (i) generating opportunities from Greater Global and Regional Integration, and (ii) building resilience against shocks. Improving the national, regional and international connectivity of the country, would facilitate the movement of goods and people and support business development and tourism. Improving the ability to quickly respond to natural disasters through international airport links is important for building resilience against natural disasters.

The project objectives are aligned with the Government of Tonga's priorities articulated in the Strategic Development Framework (2015-2025) (TSDf) which noted the investments in the airports as being of



strategic importance. The objectives were directly linked 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 (ICR para 29).

The Government of Australia provided co-financing and considered the objective of improving regional aviation safety and security as highly relevant for the preparation of a business plan for the Pacific Aviation Safety Office (PASO).

In summary, there is clear alignment between the project's development objectives and the country and Bank strategies. The relevance of the objectives is pitched at a level that adequately reflects a potential solution to a development problem – to improve operational safety and oversight of international air transport infrastructure so international flights can continue to operate in Tonga to support domestic and regional connectivity, business development (exports and imports) and tourism. The relevance of objectives is rated high.

Rating

High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To improve the operational safety of international air transport infrastructure.

Rationale

The project's **theory of change** is solid, with the planned activities logically and plausibly connected to their expected outputs and outcomes. In order to improve the operational safety of the international airport to ICAO standards, inputs such as improvements in navigational aids, upgrading of terminal buildings and runways, and security improvements through improved security screening, were needed. This was a reasonable cause and effect results chain as without the project, the country was at risk of seeing air services to the two airports suspended due to safety concerns. The key assumptions for the achievement of the PDOs was that the equipment was delivered and installed in a timely manner.

Outputs

- As targeted, the runways at Fua'amotu and Vava'u airports were resurfaced.
- At Fua'amotu airport, apron expansion (of approximately 2,150 square meters) and the construction of a new base and asphaltic surface was carried out (ICR para 34).



- An Air Traffic Control (ATC) tower at Fua'amotu airport was constructed.
- Navigational aids were upgraded in both airports and were fully operational by the end of the project.
- Both international terminals were upgraded as targeted. The project supported terminal improvements that separates arriving and departing passengers, as well as security controls for terminal access and management. (According to the project team, the design of the terminals allow the airport operators to be compliant with ICAO / IATA standards in terms of capacity, management of passenger flows, level of service. These standards were used to size the terminals based for example on the minimum space to be made available per passenger, factoring in the maximum number of passengers at any point in time taking into account the flights schedule and capacity of aircrafts landing in Tonga).
- Purchase of fire safety equipment.
- Installation of safety screening equipment.
- The security fence at Vava'u was upgraded.
- Training was provided to air traffic controllers.
- Air Traffic Management was modernized through the adoption of the regional Very Small Aperture Terminal (VSAT) network. VSAT 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 (ICR para 37).
- The project financed the installation of Automatic Dependent Surveillance Broadcast (ADS-B) transmitters for aircraft monitoring in all aircrafts in Tonga.

Outcomes

- With the improvement in operational safety at Fua'amotu airport, the international flights per year increased from 700 at appraisal to 1,101 in 2019. The apron expansion at Fua'amotu airport has enabled larger 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 (ICR para 34).
- The upgrading of navigational aids resulted in location accuracy from satellites and reduced the amount of ground equipment previously required to aid flight navigation (ICR para 35).
- The installation of ADS-B transmitters facilitated more efficient flight routing and safety, by making aircraft visible, in real time, to air traffic control and other appropriately equipped ADS-B aircraft.

The project investments improved the operational safety of the two international airports in Tonga through the improvements in navigational aids, upgrading of terminal buildings and runways. The terminal improvements now provide separation of arriving and departing passengers, as well as security controls for terminal access and management. The achievement of this objective is rated high.



Rating

High

OBJECTIVE 2

Objective

To improve the oversight of international air transport infrastructure.

Rationale

The **theory of change** for the second objective was based on the premise that to improve oversight, timely completion of technical studies covering pertinent sector reforms and implementation of recommendations as well as completion of training activities of operators and regulators was needed. This would strengthen the capacity of sector institutions to carry out regulatory oversight for meeting the necessary safety standards. The ICAO requires regulators to have a level of independence from operators, to ensure that economic or other interests do not compromise safety decisions.

Outputs

- The project supported the development of a business plan for Pacific Aviation Safety Office (PASO) (ICR para 41). The project team clarified that the business plan included short-term cash flow forecasts and identified forthcoming liabilities projecting an impending insolvency of PASO. The team also mentioned that the business plan implementation is being supported by the PASO reform project (P145057), with the objective of implementing the agreed reform agenda developed through this project.
- The project assisted in the preparation of Fua'amotu Master Plan, which provides the Tonga Airports Limited (TAL) with a 20-year master plan as well as a 10-year priority investment plan. The team confirmed that everything TAL has been doing since the Master Plan was completed is consistent with it.
- The project assisted in the preparation of necessary legislation for the establishment of Tonga Airport Authority. The revised bill was sent to the cabinet on June 4, 2019. According to the project team, the bill has not been passed yet.
- The project supported the amendment of the Airport Authority Act, which once endorsed by the parliament would give TAL the responsibility to manage airports across Tonga. Currently, it is managing the airports under delegated authority from the Government.

Outcomes

- The ICR (para 44) indicates that the project made substantial progress with regards to the aviation sector reform and training and improved policies that incorporated safety and security oversight, as well as supporting TAL to implement the ICAO Corrective Action Plan - all these activities contributed to better safety oversight and preparedness for the audit. However, the PDO level indicator "State requirements for safety and security reaches global ICAO average" was not achieved. Of the eight audit areas, "accident investigation was dropped" (ICR reports that this was standard practice in the



Pacific Region) and three were postponed until 2021. Of the four areas audited – Legislation, Organization, Air Navigation Services, and Aerodromes – a score of 38 was given, which would equate to 62 percent for the achievement of this indicator (ICR para 47).

- Both airports received "Regulatory certification of safety and security" in accordance with ICAO standards.
- The project successfully achieved the implementation of a regional safety and security levy (SSL) for departing international passengers (the levy is included in the cost of all passenger tickets). Since 2012 (the year it was implemented), the Government has received US\$1 million, which is being used for maintenance and upgrading of safety and security equipment, and other related activities.
- The Civil Aviation Division has used the SSL for the 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 (ICR para 42).

The project made substantial progress with regards to the aviation sector reform and training and improved policies that incorporated safety and security oversight. However, the legislation for the establishment of Tonga Airport Authority has not been passed. Currently, TAL is managing the airports under delegated authority from the Government. Once passed, the legislation would give TAL the responsibility to manage airports across Tonga. Both airports received "Regulatory certification of safety and security" in accordance with ICAO standards. The project successfully achieved the implementation of a regional safety and security levy (SSL) for departing international passengers. As discussed above, the PDO level indicator "State requirements for safety and security reaches global ICAO average" was not achieved because ICAO's audit for Tonga was not carried. The indicator was to be measured through the ICAO Universal Safety Oversight Audit Program (USOAP) but was delayed and is outside project's control. The achievement of this objective is substantial.

Rating
Substantial

OVERALL EFFICACY

Rationale

The project improved the operational safety of the two international airports in Tonga to ICAO standards through the improvements in navigational aids, upgrading of terminal buildings and runways, and improved security screening. The terminal improvements now provide separation of arriving and departing passengers, as well as security controls for terminal access and management.

The project played a significant role in the development of plans and regulations to improve the oversight of the aviation sector. Both airports received "Regulatory certification of safety and security" in accordance with ICAO standards. Despite this progress, the two airports have not yet received ICAO certification as the



ICAO's audit for Tonga was not carried out (it has been delayed and is outside of the project's ability to control).

Overall, efficacy is rated substantial.

Overall Efficacy Rating

Substantial

5. Efficiency

The economic analysis at appraisal focused only on the impact of the withdrawal of air services on travel industry as air freight was minor (PAD page 49). Two scenarios were analyzed: (a) with-project case, the airports and runways were upgraded as soon as possible, i.e. within two years of the commencement of the project; and (b) without-project, no action is taken until forced to do so, i.e. when airlines withdraw direct jet services (PAD page 50). Assuming the interruption happens in 2014, the Economic Rate of Return (ERR) was estimated at 48.7%, with a Net Present Value (NPV) was US\$14.1 million. If the services were interrupted in 2016, the ERR was estimated at 20.9%, with a NPV of US\$7.8 million (PAD para 48).

An ex-post economic analysis was conducted using the appraisal methodology and covers the time horizon of 15 years (2012-2026). The ex-post ERR was estimated at 17% with NPV of US\$3.94 million (ICR para 53). While the ERR indicates sufficient economic return on infrastructure investment, the actual return is slightly lower than the ex-ante ERR of 20.9%. The ICR notes (page 43) that this may be because of: complex project management structure, higher actual costs, procurement delays, and longer implementation period. The ICR also mentions that these results did not take into account the impacts of the strengthening of the regulatory framework through the project. Qualitatively, those impacts are considered to be positive and supportive of the efficiency of the project, providing the aviation sector with strategies and enhanced capacity for planning and operation.

Although, the ERR at closure was lower than the estimated ERR at appraisal, overall, project efficiency is rated substantial.

Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

| | Rate Available? | Point value (%) | *Coverage/Scope (%) |
|-----------|-----------------|-----------------|--|
| Appraisal | ✓ | 20.90 | 74.00 <input type="checkbox"/> Not Applicable |



| | | | |
|--------------|---|-------|--|
| ICR Estimate | ✓ | 17.00 | 75.00 <input type="checkbox"/> Not Applicable |
|--------------|---|-------|--|

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The relevance of objectives is rated high because the project is fully aligned with the Bank’s and Government’s strategy and addresses the key aviation sector issue – to improve operational safety and oversight of international air transport infrastructure so international flights can continue to operate in Tonga. The efficacy is rated substantial because through the efforts of the project, the safety and security and oversight of the airports was enhanced. Although, the economic rate of return at closure was lower than the estimated ERR at appraisal, it is substantially above the required minimum of 12%. Therefore, the project efficiency is rated substantial. The outcome rating for the project is satisfactory.

a. Outcome Rating

Satisfactory

7. Risk to Development Outcome

Institutional risk. The institutional risk is negligible as the Tonga Airports Limited (TAL) has adequate capacity to manage Tonga's airports.

Financial Risk. The financial risk is substantial as the receipt of Upper Airspace Revenues (which are paid by airlines for services provided by TAL) were going into the general revenue rather than directly to TAL. This revenue is an important source of funds to implement TAL’s budget, and its allocation to TAL was a legal covenant of the project.

Exposure to pandemic. The novel coronavirus (COVID-19) has emerged as a global pandemic, halting air transport around the world, including Tonga. The ICR notes (para 100) that 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. This will have an impact on the economy as well as the Safety and Security Levy (SSL) revenues. This poses a significant risk for the maintenance of the project investments and TAL’s budget.

8. Assessment of Bank Performance

a. Quality-at-Entry

A comprehensive analysis of the multi-modal transport sector and options for rationalizing the aviation sector was carried by the Government of Tonga with support from the Bank's Economic and Sector Working group during 2004-2006 (ICR para 4). In 2008, the Bank approved the Transport Sector Consolidation Project (P096931). This project identified several safety and security requirements



at the two main international airports: Fua'amotu Airport and Lupepau'u Airport in Tongatapu and Vava'u, respectively. The assessment of the aviation sector in the Pacific Island Countries also found that many of the countries lacked proper policy, regulatory and infrastructure to comply with the ICAO requirements, which justified the need for safety and security improvements. To coordinate across countries and benefit from the economies of scale, a regional, horizontal Adaptable Program Loan approach was adopted.

Risks were identified and satisfactorily addressed. To mitigate insufficient capacity risk, a regional Technical and Fiduciary Services Unit (TFSU) was created to provide a combination of the procurement and contract management skills. The Tonga Airports Limited (TAL) was identified as the agency to host TFSU. However, a risk which was not identified was the "non payment of dues to the TFSU" by the participating countries, which would create a financial burden for TAL as the hosting institution.

As part of the regional approach, harmonized result indicators were used across all participating Pacific Island Countries. As discussed in the M&E section 9, this approach had limitation as it did not take into account country specific achievement.

The quality at entry was satisfactory. A comprehensive analysis of aviation sector in Tonga was carried out. To mitigate insufficient capacity risk, the program/project included the creation of a regional Technical and Fiduciary Services Unit (TFSU) (to provide a combination of the procurement and contract management skills). As discussed in the quality of supervision, to mitigate the risk of non payment of dues by the participating countries, "insurance premium" was added at the time of project restructuring.

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

The project had three Task Team Leaders during the eight years implementation period. The TTLs overlapped to prevent the loss of institutional knowledge (ICR para 97). At least two supervision missions per year were carried, with additional technical missions taking place as necessary. This was complemented with weekly meetings with the implementation team (ICR para 95). The task team and the Pacific Country Management Unit provided capacity building through workshops. Additional support was also provided by the procurement, safeguards and financial management specialists. As discussed in section 10, the TAL complied with the Bank's procurement policies.

Two restructurings (one including an additional financing), were carried out in response to the project needs and requests from the Government.

Two countries failed to pay their dues to the TFSU. This left TAL financially vulnerable. The Government of Kiribati didn't pay its dues for several months between 2014-15. The project team, as part of the 2016 additional financing included an "insurance premium" for TAL, which allowed up to US\$100,000 to be disbursed from the Pacific Regional Infrastructure Facility (PRIF) multi donor trust fund to cover any payment default by one or more beneficiaries of TFSU services (ICR para 96). This was used in 2020, when the Government of Vanuatu failed to pay it's due for two months. While the Government of Vanuatu



did pay a portion (US\$28,859) of its dues, the remainder (US\$50,655) and was reimbursed through PRIF for TFSU's expenses.

The project supervision was satisfactory. The Bank team supported capacity building of the PIU and provided procurement, safeguards and financial support during implementation. It was proactive and provided additional financing and included "insurance premium" when countries failed to pay their dues to the TFSU.

Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

The project was part of the regional Pacific Aviation Investment Program (PAIP) and the M&E design was harmonized across the program. This approach was expected to provide comparable measurement across all projects but failed to account for country specific achievement. For example, in Tonga's case the establishment of the Technical and Fiduciary Services Unit (TFSU) was not included as an intermediate indicator as the establishment of TFSU was key to the program's outcome.

The second PDO indicator "State requirements for safety and security reaches global ICAO average" was dependent on an external agency outside of the project's influence. The achievement of this indicator was dependent on ICAO completing the audit and updating the scores as the countries respond to ICAO audit findings. However, the ICR notes that this rarely happens in a timely fashion and the lag time for score update is months if not years.

b. M&E Implementation

The ICR notes (para 82) that not all achievements were captured in the results framework during the initial years of project implementation. According to the project team, during the early years of implementation there was less emphasis on M&E and the Project Support Team (PST) did not have the right staff. Overtime, staff responsible for M&E was assigned to the PST and M&E improved.

c. M&E Utilization

The ICR indicates (para 84) that the project's M&E was used to measure project progress, particularly towards the end of the project life.



Overall, quality of M&E is modest because during the initial years, not all achievements were captured because of lack of prioritization. Even when M&E improved, there is no evidence that it was utilized by the aviation sector agencies.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

The project was assigned Environmental Assessment Category B under the World Bank's environmental and social safeguards policies due to minor environmental impacts. The environmental impacts associated with the project were: (i) excavation of runways in selected locations to remove and replace unsuitable material with suitable replacement material; (ii) transportation of excess waste material and backfill materials; (iii) dust pollution during excavation and construction; (iv) incidental loss of bitumen/asphalt during runway works; (v) disposal of excess excavated materials; and (vi) drainage during construction. These impacts were expected to be minor, temporary, readily mitigated and in most cases easily reversible. The Environmental Management Plan (EMP) was disclosed in Tonga on February 28, 2011. The Design and Supervision Consultant would monitor the implementation of the EMP on behalf of the Tonga Airports Limited (TAL) and the Ministry of the Environment would oversee environmental compliance.

The PAD (page 88) stated that the project would not have an impact on people's lands, assets, or livelihoods as the investments were taking place on existing airports. Therefore, no land acquisition or resettlement was envisioned. People in the project area in Tonga were not considered indigenous as per the Bank's Indigenous Peoples Policy (OP 4.10).

Therefore, only one safeguards policy was applicable i.e. Environmental Assessment (OP/BP 4.01).

The ICR (para 86) states that the Environmental and Social management Plan (ESMP) was implemented in compliance with Bank policies and is available on the TAIP website (<http://taip.to/safeguards>). No summary details were provided.

b. Fiduciary Compliance

Financial Management. The Financial Management (FM) was rated "satisfactory" by the project team in the Implementation Status and Results Reports. A FM manual was prepared early in project implementation and the project's FM arrangements were adequately managed by the Technical and Fiduciary Services Unit (TFSU) (ICR para 88). The Bank conducted on-site FM supervision reviews once or twice per year, in line with the project's moderate FM risk rating. An off-the-shelf accounting system (QuickBooks) was used (this met the Bank's and the Ministry of Finance FM requirements) and the accounts were well maintained during the project life. The quarterly Interim Financial Reports (IFR) and annual project audits reports were submitted on time and were unqualified. The ICR reports (para 88)



that since the project included the strengthening of Tonga Airports Limited (TAL), the audited financial statements of TAL were also required, however these were consistently submitted late.

Procurement. The Program adopted a “regional procurement approach” for all participating countries to mitigate the high risk of procurement in capacity-constrained Pacific Island Countries. The regional approach was used for goods, works and services being delivered to multiple countries, therefore, benefitting from economy of scale. There were some procurement delays due to logistical challenges such as: (a) shipping schedules and getting equipment and goods to Tonga and other countries; and (b) having to wait for all countries to be ready to bid for a single procurement contract. The procurement rating in the Implementation Status and Results Reports was Moderately Satisfactory in 2017 and Moderately Unsatisfactory in June 2019 due to the slow pace of implementation and weak monitoring of ongoing contracts (ICR para 90). The ICR indicates (para 89) that the TAL generally complied with the relevant procurement policies

c. Unintended impacts (Positive or Negative)

d. Other

11. Ratings

| Ratings | ICR | IEG | Reason for Disagreements/Comment |
|------------------|--------------|--------------|----------------------------------|
| Outcome | Satisfactory | Satisfactory | |
| Bank Performance | Satisfactory | Satisfactory | |
| Quality of M&E | Modest | Modest | |
| Quality of ICR | --- | Substantial | |

12. Lessons

The following lessons were adapted from the ICR:

- **More detailed cost estimates are needed in remote and capacity constrained environments.** Civil works under the project were often found to be more expensive than originally estimated, which caused some delays. 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. At appraisal, preparation of detailed cost estimates and bill of quantities would help with more accurate estimates. Also, given remoteness, perceived risks and limited competition, higher cost contingencies should also be factored into project design. Lower capacity environments may require longer



implementation periods, the standard five-year implementation period is unlikely to be sufficient in small island states. The project had to be extended twice.

- **It's important to have indicators within the project's control.** For instance, the design of one of the PDO indicators relied on a third party audit from ICAO, which need not follow the project's M&E timeline. Tracking the impact of the project can be better served by using indicators for which data generation is more directly controlled by the project.
- **A proper needs (and capacity) assessment is needed to tailor the project activities to the local context.** For example, for the construction of the Air Traffic Control Tower, the implementation team used designs of other control towers in small island states as the base and adapted them to suit local needs. This provided a a lower cost solution than designing the building from scratch.
- **Regional procurement harmonization for relatively small scale and dispersed situations can save on processing times and costs.** 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. Procurement of the same goods for several countries in one tender helped to reduce cost (compared to procuring specialized equipment for each country separately).
- **Appropriate mechanisms should be put in place to ensure that cost-sharing for centralized services across countries takes place in the intended manner.** The cost of the Technical and Fiduciary Services Unit (TFSU) was to be shared by all Pacific Aviation Investment Program countries. However, some countries such as Kiribati and Vanuatu failed to pay their dues. As discussed in the quality of supervision section (8b), this was mitigated through the inclusion of "insurance mechanism" for TAL, which allowed up to US\$100,000 to be disbursed from the Pacific Regional Infrastructure Facility (PRIF) multi donor trust fund to cover any payment default by one or more beneficiaries of TFSU services.

13. Assessment Recommended?

Yes

Please Explain

Phase I of the Pacific Aviation Investment Program (PAIP) included projects in the Republic of Kiribati, the Kingdom of Tonga, and Tuvalu in 2011. Samoa entered the program in March 2014 as Phase 2, the Republic of Vanuatu in May 2015 as Phase 3, and Solomon Islands in March 2018 as Phase 4. Once all these projects are completed, it would be useful to conduct a regional field assessment to learn from implementation experience and consolidate lessons for these projects or even a wider analysis of air transport infrastructure projects in small island countries.

14. Comments on Quality of ICR



The ICR is results-oriented, clearly written, and is largely consistent with the guidelines except for the length. With 30 pages, the ICR is too long (the ICR Guidelines recommend a maximum main text length of 15 pages). The analysis is evidence-based and the ICR provides a good description of the project's activities and implementation challenges. The lessons were derived from the project's experience.

The ICR had a few minor shortcomings. The discussion on M&E could have included details on implementation experience. For example, the reason why all achievements were not captured in the results framework during the initial years of project implementation; and how this was rectified. Similarly, the safeguards section could have included a discussion of the implementation experience.

a. Quality of ICR Rating
Substantial