



## 1. Project Data

**Project ID**

P113184

**Project Name**

Pacific Regional Connectivity Program

**Country**

Tonga

**Practice Area(Lead)**

Digital Development

**L/C/TF Number(s)**

IDA-H7310,TF-99368

**Closing Date (Original)**

23-Aug-2016

**Total Project Cost (USD)**

16,496,338.32

**Bank Approval Date**

30-Aug-2011

**Closing Date (Actual)**

23-Jul-2018

**IBRD/IDA (USD)**
**Grants (USD)**

Original Commitment

17,200,000.00

500,000.00

Revised Commitment

17,660,297.21

460,297.21

Actual

16,496,338.32

460,297.21

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## 2. Project Objectives and Components

### a. Objectives

The Tonga-Fiji Connectivity project is the first phase of the Pacific Regional Connectivity Program. The objectives of the program were to reduce the cost and increase the availability of international bandwidth for participating countries, and thereby facilitate the development of a wide range of ICT applications to support social and economic development in the Pacific Region.

The Project Development Objective (PDO) as stated in the Grant Agreement (Schedule 1, page 5) and the Project Appraisal Document (PAD, page vi) was "to improve the enabling environment for



telecommunications and Information and Communication Technologies (ICTs) in Tonga, including greater competition and increased access to infrastructure and services by reducing the costs of international connectivity and strengthening the telecommunications regulatory framework".

**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 three components:

**1. Submarine cable system** (cost at appraisal US\$32.6 million; actual cost US\$31.9 million). This component planned to finance the construction of an 827 kilometer (km) of submarine fiber-optic cable between Tonga and Fiji (thereby connecting Tonga to the global telecommunications network) and a cable landing station in Tonga. The second project restructuring extended the cable to two additional islands in Tonga (Ha'apai and Vava'u), thus increasing the total length to 1,217 km.

**2. Enabling environment** (cost at appraisal US\$1.0 million; actual cost US\$1.2 million). This component planned to finance technical assistance (TA) to the Ministry of Information and Communications. The targeted areas were: (a) telecommunications policy, legal and regulatory development, and licensing harmonization; and (b) capacity building on regulation.

**3. Project management and administration** (cost at appraisal US\$0.40 million; actual cost US\$0.8 million). This component was expected to provide administrative support to the Ministry of Information and Communications on project management, procurement, financial management, communications strategy and audit.

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

**Project cost.** The actual project cost was US\$26.2 million, substantially lower than the appraisal estimate of US\$34.0 million. This was due to cost savings, as the actual cost of construction of the submarine fiber optic cable was lower than expected at appraisal. The extension of the cable to the two additional islands was financed by the cost savings and the sale of 16.7% of stocks of the Tonga Cable Limited (TCL) to Digicel, a private operator.

**Project financing.** The project was financed by an IDA grant of US\$17.2 million and a Pacific Regional Infrastructure Facility (PRIF) Trust Fund of US\$0.5 million. Therefore, the Bank financing for the project was US\$17.7 million. The actual amount disbursed was US\$16.49 million (US\$16.03 million from the IDA grant and US\$0.46 million from the PRIF Trust Fund). US\$0.04 million of the PRIF Trust Fund was cancelled.

**Co-financing.** There was co-financing for complementary infrastructure development activities from the Asian Development Bank. Appraisal estimate was US\$9.70 million. This amount was fully disbursed.



**Borrower contribution.** The Borrower contribution from the Tonga Cable Limited (TCL) was estimated at US\$6.6 million. The ICR (page 10) notes that the actual contribution from TCL at closure could not be verified.

**Dates.** The project closed on July 23, 2018, two years after the original closing date of August 23, 2016.

**Restructurings.** The project was restructured four times through a Level 2 restructuring.

- The first restructuring on May 28, 2012 reallocated IDA Grant funds from component one to component three.
- The second restructuring on October 16, 2013 reallocated IDA grant proceeds from component two to component three.
- The third restructuring on October 21, 2013 reallocated the PRIF grant to technical assistance activities.
- The fourth restructuring on July 29, 2016 resulted in following changes: (i) the scaling-up of component one activities (discussed above in section 2d); (ii) the reallocation of funds between components; (iii) the modification of the results framework (discussed in section 10b); and (iv) the extension of the closing date by two years for completing the ongoing activities.

### 3. Relevance of Objectives

#### Rationale

The PDO was highly relevant to the government strategy and to the Pacific Regional context. Tonga is a geographically remote small country in the Pacific region, with a narrow market and resource base. At appraisal, Tonga was dependent on satellite links for internet connectivity, which was very expensive compared to connectivity through fiber-optic submarine cable. Internet was available to only 2% of the population and broadband access to 0.9%. Limited telecommunications capacity due to satellite links was inadequate to meet the growing demand and high cost of international bandwidth had hindered the roll-out of high-speed broadband internet services.

The government strategy articulated in the *Tonga Strategic Development Framework* for the 2015-2025 period, highlighted the need for providing and maintaining infrastructure and technology for a knowledge-based economy. The regional strategy, endorsed by ministers and regional agencies in the *Framework for Action on ICT for Development in the Pacific 2010*, underscored the need for extending internet connectivity, through improving ICT infrastructure and services.

The PDO was fully aligned with the Bank's country strategy for Tonga and the Bank's regional engagement strategy for the Pacific Region. The PDO was relevant to the second pillar of the 2011- 2014 Tonga Country Assistance Strategy. This pillar highlighted the need for generating opportunities from greater global and regional integration. The PDO was relevant to the Bank's *Regional Partnership Framework* for 2017-2021. This framework identified the need for enhancing the government's capacity to deliver digital services



to citizens and encouraging public sector innovation at the regional level. The Bank's regional country diagnostic of 2016 identified expanding the coverage of mobile phones and internet services as priorities for economic development.

## Rating

High

## 4. Achievement of Objectives (Efficacy)

### OBJECTIVE 1

#### Objective

To increase the access to telecommunication and Information and Communication Technologies (ICTs) infrastructure and services.

#### Rationale

**Theory of Change.** The construction of the submarine fiber-optic cable between Tonga and Fiji, together with the technical assistance for creating the enabling environment by developing the telecommunications policy, establishing an independent telecommunications regulator and improving regulatory oversight, are causally linked to increasing competition in the sector, reducing the costs of international connectivity and thereby increasing access to telecommunication and ICT infrastructure and services.

#### Outputs

- The monopoly cable operator "Tonga Cable Limited" (TCL) was restructured through partial privatization resulting in the Government of Tonga selling of 16.7% of the company to the private operator Digicel, the second mobile operator. The share purchase and shareholders agreement was signed on February 2017.
- About 1,217 km of submarine fiber-optic network was built as targeted. This included the international Fiji-Tonga link and the domestic extension link to the two islands (Ha'apai and Vava'u).
- The Communication Act was passed in 2016. The project provided TA for the development of this act. The act provided two types of licenses: a network operators license and an Internet Service Providers (ISPs) license.
- The Communications Act laid the foundation for the establishment of an independent telecommunication regulator, the Communication Commission. However, the commission has not been created to date and the regulatory function is being performed by the Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications (MEIDECC) (ICR paragraph 34).



- TA was provided for developing legislations on areas such as, cybercrime, data protection, privacy, and e-transactions. However, only cybercrime act was passed. Tonga acceded to and ratified the Budapest Convention on cybercrime. This convention is the first international treaty seeking to address internet and computer crimes, by harmonizing national laws, improving investigative techniques and increasing cooperation among nations. Regarding the other legislations, the ICR (para 34) notes that further support is planned under the forthcoming World Bank e-Government project in Tonga.

## **Outcomes**

- At project closure, as targeted six service providers were given licenses to operate in Tonga. These were: TCL, Digicel Tonga Limited, Tonga Communications Corporation (TCC), the University of South Pacific, EziNET and Triesten. Of these, TCL did not offer retail services and the University of South Pacific used its license to provide connectivity to its academic institutions and facilities. EziNET provided satellite connectivity for Tonga. Triesten was not using its license. Therefore, there were only two operators “TCC and Digicel”, that were offering mobile or fixed broadband retail services. This implies that the telecommunications and ICT market in Tonga, at closure had a duopolistic structure, with two main operators. In fixed broadband, TCC was the only provider.
- As a result of TCL restructuring and regulatory reforms, the access to the capacity created through the submarine cable was available to market players on a nondiscriminatory, open-access basis.
- After the Communications Act of 2015, as well as the partial privatization of TCL, progress was made to lower the wholesale prices significantly, with the government effecting stronger wholesale price regulation. The average price that TCC and Digicel paid for the wholesale capacity link at project closure was US\$75/Mbit/month. This was significantly lower than the target price of US\$150/ Mbps per month. Since March 2018, new lower wholesale prices with operators were negotiated alongside capacity increases. The list prices for this period are not yet available.
- The volume of international traffic increased to 1,300 megabits per second (mbps) in October 2017. This exceeded the target of 700 mbps. The average per minute cost of international call (in US\$) was reduced from 0.35 in July 2011 to 0.13 at project closure, slightly exceeding the target of 0.15. The average retail price of internet services decreased from US\$75 (baseline) to US\$3.00 at project closure. This exceeded the revised target of US\$5.00. At project closing, the international Internet bandwidth was 4,400 mbps, far exceeding the revised target of 850 Mbps (ICR para 41).
- About 101,100 internet subscribers benefitted from the project activities at closure. This exceeded both the original and revised targets of 20,000 and 55,000 respectively. The extension of the submarine fiber optic cable to the two domestic islands, provided internet connectivity to 19,863 people living in these islands. The ICR (paragraph 42) notes that people living on these islands (representing 20 percent of the population), were hitherto served only through slower and more expensive satellite and domestic microwave links. According to Tonga's 2016 Census of Population and Housing, out of a total of 75, 625 persons over ten years old, 45,836 had a mobile data plan with TCC or Digicel. This constituted 60% of the population in the islands. (However, having a mobile data plan does not necessarily mean they were using it). There were no targets for this indicator. The project did not measure the reliability and quality of internet access, or services usage.



**Rating**  
Substantial

### **Rationale**

The project activities substantially improved access to telecommunication and ICT infrastructure and services in Tonga.

### **Overall Efficacy Rating**

Substantial

## **5. Efficiency**

**Economic analysis.** An economic analysis was conducted at appraisal and at closure for the construction of the submarine fiber-optic cable. This accounted for about 96% and 94% of the appraisal and actual cost. The methodology entailed comparing the economic benefits of submarine cable system links with satellite links. The project costs included construction costs of the submarine fiber optic cable, the cable landing station, and the annual operating costs of the cable system. The benefits were assumed to come from broadband penetration. The analyses compared two scenarios: first, the 2010 projections on the Gross Domestic Product (assuming an annual GDP growth rate of 5% and broadband penetration up to 2017) and second, the actual GDP and broadband penetration up to 2017. The Economic Net Present Value (ENPV) was calculated by applying the net present value to the difference in GDP, due to the so-called broadband effect. The Project's ENPV at US\$19.7 million, which was more than twice the projected ENPV (US\$9.4 million). This was primarily due to the difference in the projected and actual broadband penetration rates, with the latter far exceeding the former. The economic analysis for the domestic cable extension links to the two islands was not conducted, as the link was commercially operational only in March 2018.

**Cost savings.** There were cost savings of US\$4.4 million as the actual cost of the construction of the submarine fiber-optic cable was lower than expected at appraisal. These savings, together with the proceeds from selling of 16.7% of TCL stocks to Digicel were used for scaling up activities (domestic extension link to the two islands) (ICR, paragraph 22).

**Administrative and Operational Issues.** During 2015-17, there were implementation delays when the extension to the domestic link was being negotiated. These delays were due to political considerations in general and shareholder opposition to the TCL's Board for selling shares of a public enterprise. These issues were eventually resolved, and the domestic links were build and at project closure. Most activities (with the exception of establishment of an independent regulator and enacting some legislation) were completed.

### **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		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

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

## 6. Outcome

The relevance of the PDO to the government priorities and the Bank's strategy both at the country level and at the regional level is rated as high. Efficacy of the objective "to increase the access to infrastructure and services" is rated substantial. Efficiency is rated as substantial. Taking these ratings into account, outcome is rated as satisfactory.

### a. Outcome Rating

Satisfactory

## 7. Risk to Development Outcome

**Institutional risk.** There is a moderate risk that the regulatory environment will not develop as envisaged. Although the Communication Act was enacted in 2016, the final decisions on establishing the independent telecommunications regulator are still pending, to date. Given that the Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications continues to be the regulator, it is not clear whether there is a political willingness to create an independent regulator. Furthermore, there is a substantial risk as to whether an independent regulator, once appointed, would have the required capacity to regulate the market (ICR para 81).

**Economic Risk.** Tonga's telecoms market is small and attracting new ISPs to the market is challenging. Therefore, there is a moderate economic risk that the market environment will not continue to develop and that the positive developments in prices and access might slow or stall.

**Exposure to natural disasters.** There is substantial risk associated with physical disruptions to the cable due to natural disasters or ship anchors, which could temporarily limit the country's access to necessary communications infrastructure, given that Tonga's redundancy options through satellite connections are limited and cannot replace the bandwidth on the cable. The ICR (paragraph 81) notes that the disruption





in January 2019 effectively cut off Tonga from the global internet for a period of two weeks, before the damage was repaired.

## **8. Assessment of Bank Performance**

### **a. Quality-at-Entry**

The project preparation took into account Bank's experience in implementing telecommunications sector reform projects, regional connectivity projects, and operations in the Pacific region (PAD, paragraph 34). Lessons incorporated at design included: (a) a strong role for public sector, as the project was not deemed to be attractive to the private sector as a commercial venture, given the small market size and limited telecommunications traffic. The Tonga Cable Limited (TCL), which was to operate the telecommunications cable and provide wholesale access to internet service providers and mobile operators, was 100% owned by Tonga Telecommunications Corporation, a public enterprise. While this arrangement created a monopoly position for TCL, the related risks were to be alleviated by strengthening the regulatory oversight; and (b) a relatively simple design, combining investments in the submarine cable system with technical assistance to the Ministry of Information and Communications.

Several risks were identified at appraisal, including substantial risks of implementation delays due to the lack of consensus about the appropriate business model, limited institutional capacity of TCL and the Ministry of Information and Communication, and financial management risks. Several mitigation measures were adopted, such as securing upfront agreement on governance, and appointing staff with financial management expertise. Even with the mitigation measures, the overall project risk was rated as substantial. The arrangements made at appraisal for safeguards and fiduciary compliance were appropriate (discussed in section 10a).

There were moderate shortcomings in design. Given the lack of capacity at the Ministry of Information and Communication and the Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications, the project activities could have included activities such as large scale training and awareness raising programs to promote digital skills. There were some shortcomings in M&E design (discussed in section 9a).

### **Quality-at-Entry Rating**

Satisfactory

### **b. Quality of supervision**

Eleven supervision missions were conducted during the implementation period of six years (average of two missions a year). These missions were conducted jointly with the co-financier, the Asian Development Bank and included technical and legal specialists. The continuity of leadership was maintained, with no change in the Task Team Leader during implementation. The supervision team was flexible in responding to changing client needs, such as using project savings in the infrastructure component to finance the





construction of domestic links. The supervision team actively supported the negotiation process, for securing financing for constructing domestic links to the islands through partial privatization of TCL. The supervision team also conducted a workshop on financial reporting to improve the financial management (discussed in section 10b).

### **Quality of Supervision Rating**

Satisfactory

### **Overall Bank Performance Rating**

Satisfactory

## **9. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

The key outcome indicators, reduction in the wholesale price of international connectivity link, increase in the volume of international traffic, reductions in the average price of per minute cost of international call and retail prices of internet services, were appropriate for monitoring project performance. The project implementing agency was in charge of collecting, analyzing and disseminating data to stakeholders.

There were no appropriate indicators at M&E appraisal for monitoring aspects with respect to regulatory improvements. There were no indicators to measure internet reliability and usage.

### **b. M&E Implementation**

Two new intermediate indicators were added for measuring regulatory development (ICR, paragraph 23). These included: (i) implementation of open access principles, to ensure that TCL capacity could be accessed openly by any interested party under transparent and nondiscriminatory terms; and (ii) restructuring the monopoly cable operator TCL, through its selling off a minority share to Digicel, the second mobile operator, to balance the playing field between the two operators in the market.

### **c. M&E Utilization**

The M&E data was used for monitoring project performance. The ICR (paragraph 69) notes that M&E data was systematically reported as part of every mission and the data was useful in decision making during the 2016 restructuring process.

### **M&E Quality Rating**

Substantial



## 10. Other Issues

### a. Safeguards

The project was classified as a Category B project. Three safeguard policies were triggered; Environmental Assessment (OP/BP 4.01); Natural Habitats (OP 4.01); and Involuntary Resettlement (OP/BP 4.12) (PAD, paragraph 63). The PAD (page vii) notes that an environmental assessment was conducted and an Environment Management Plan was prepared to address environmental and natural habitats issues. The PAD also notes that no resettlement was expected and the potential impacts relating to livelihoods included: (i) minimal damage to fishing grounds of customary Fijian owners; (ii) temporary affects to fishermen in Fiji and Tonga, due to the laying of the cable; (iii) impacts to inshore fishing in Tonga and Fiji. The PAD notes that a Compensation and Resettlement Framework was prepared and publicly-disclosed at appraisal.

The ICR (paragraph 73) notes that no waivers from the Bank's safeguard policies were recorded and the project complied with applicable safeguards. The ICR (paragraph 73) also reports that there was no need for resettlement, as the land for the cable landing stations was acquired from the government.

### b. Fiduciary Compliance

**Financial management.** An assessment was conducted at appraisal to judge the financial management capacity of the implementing agency (PAD, paragraph 59). The financial management assessment risk for the program was rated as moderate to substantial, in view of the limited institutional capacity and experience. The ICR (paragraph 74) notes that there was compliance with financial management and all project audits were unqualified. The ICR also notes that internal controls, maintained by both the Ministry of Finance and National Planning and Tonga Cable Limited, provided assurance over the use of project funds. Bank's financial management specialists provided implementation support to help the client improve financial management arrangements in 2018, through conducting a workshop on financial reporting for stakeholders.

**Procurement.** An assessment was conducted at appraisal to judge the procurement management capacity of the implementing agency (PAD, paragraph 58). The procurement risk was rated as substantial, in view of the limited capacity. A procurement plan was prepared at appraisal and this plan was to be regularly updated to reflect the actual project implementation needs. The ICR (paragraph 75) notes that although savings were realized in the construction of the submarine fiber-optic cable, bids for consultant services were higher than expected. The ICR also notes that the co financing with the Asian Development Bank, delayed procurement as both parties had to agree on debarment rules, which took more time than expected. Apart from these issues, the ICR (paragraph 75) notes that there were no other procurement issues during implementation.

### c. Unintended impacts (Positive or Negative)

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### d. Other



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## 11. Ratings

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

## 12. Lessons

The ICR (pages 30-31) draws the following main lessons, from the experience of implementing this project, with some adaptation of language.

**(1) In small country situations, careful consideration should be given to country characteristics and needs including scale and growth, and activities need to be designed and tailored accordingly.** Unlike many prior Bank financed ICT projects with public-private partnerships, this project envisioned a strong role for the public sector at appraisal, given the small size of the market and relatively limited telecommunications traffic. The project attempted to address monopoly risks through strengthening regulatory oversight and increased private sector participation during implementation. This approach could be relevant for the Small Island Developing States.

**(2) Technical assistance activities need to be designed based on a careful consideration of public sector capacity and availability of skilled resources.** The technical assistance and training provided under this project could have benefitted from more follow-through (such as through training activities) aimed at longer-term implementation support. Moreover, special attention needs to be given to the adequate staffing of the institutions responsible for ICT policy and regulation, training and education, and attracting from abroad to Tonga the necessary skills/competence.

**(3) Given the quick pace of social change from the rapid growth of fast Internet access, it would be useful to invest in awareness raising programs aimed at promoting digital skills.** This could include cooperation with civil society organizations and through academic partnerships.

## 13. Assessment Recommended?

No

## 14. Comments on Quality of ICR



The ICR is well-written and provides a candid narrative. For instance, it clearly discusses the reasons for why public-private partnerships might not have been feasible, given the small size of the country and relatively limited internet traffic. It also provides a reasonably good description of the methodology followed for the economic analysis. It is consistent with the guidelines and the ratings are appropriate. It draws reasonably good lessons from the experience of implementing this project.

The ICR could have been concise and would have benefitted through better editing (at 31 pages the ICR is more than twice the recommended length of 15 pages). Also, in Annex 1, the date for "Formally revised target" and "Actual achieved at completion" is the same, 23 July 2018.

**a. Quality of ICR Rating**

Substantial