



# Completion Report

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Project Number: 44172-022  
Grant Number: 0256  
December 2020

## Tonga: Tonga–Fiji Submarine Cable Project

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Asian Development Bank



## Currency Equivalents

Currency unit – pa'anga (T\$)

		<b>At Appraisal</b>	<b>At Project Completion</b>
		28 March 2011	28 March 2018
T\$1.00	=	\$0.5517	\$0.4597
\$1.00	=	T\$1.8125	T\$2.1748

## ABBREVIATIONS

ADB	–	Asian Development Bank
CEO	–	Chief Executive Officer
DMF	–	design and monitoring framework
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
FIRR	–	financial internal rate of return
ICT	–	information and communication technology
Mbps	–	megabits per second
MEIDECC	–	Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications
MFNP	–	Ministry of Finance and National Planning
PMU	–	project management unit
PRIF	–	Pacific Regional Infrastructure Facility
RRP	–	report and recommendation of the President
TA	–	technical assistance
TCC	–	Tonga Communications Corporation
TCL	–	Tonga Cable Limited
WACC	–	weighted average cost of capital

## NOTES

- (i) The fiscal year (FY) of the Government of Tonga and its agencies ends on 30 June. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2018 ends on 30 June 2018.
- (ii) In this report, “\$” refers to United States dollars unless otherwise stated.

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## BASIC DATA

### A. Grant Identification

1.	Country	Kingdom of Tonga
2.	Grant number and financing source	0256
3.	Project title	Tonga-Fiji Submarine Cable Project
4.	Recipient	Government of Tonga
5.	Executing agency	Ministry of Finance and National Planning
6.	Amount of grant	\$9.7 million
7.	Project completion report number	
8.	Financing modality	Grant

### B. Grant Data

1.	Appraisal	
	– Date started	28 March 2011
	– Date completed	01 April 2011
2.	Grant negotiations	
	– Date started	17 May 2011
	– Date completed	18 May 2011
3.	Date of Board approval	23 August 2011
4.	Date of grant agreement	9 September 2011
5.	Date of grant effectiveness	
	– In grant agreement	8 December 2011
	– Actual	21 December 2011
	– Number of extensions	1
6.	Project completion date	
	– Appraisal	30 June 2016
	– Actual	28 March 2018
7.	Grant closing date	
	– In grant agreement	31 December 2016
	– Actual	25 June 2018
	– Number of extensions	1
8.	Financial closing date	
	– Actual	30 June 2018

## 9. Disbursements

## a. Dates

<b>Initial Disbursement</b>	<b>Final Disbursement</b>	<b>Time Interval</b>
31 May 2012	05 February 2018	68 months
<b>Effective Date</b>	<b>Actual Closing Date</b>	<b>Time Interval</b>
21 December 2011	30 June 2018	78 months

## b. Amount (\$'000)

Category	Original Allocation (1)	Increased during Implementation (2)	Canceled during Implementation (3)	Last Revised Allocation (4=1+2-3)	Amount Disbursed (5)	Undisbursed Balance (6=4-5)
01 Equipment	9,700	(2,288)	0	7,412	7,412	0
01A Equipment – New domestic cable		2,288	0	2,288	2,288	0
<b>Total</b>	9,700	0	0	9,700	9,700	0

## C. Project Data

## 1. Project cost (\$'000)

Cost	Appraisal Estimate	Actual
Foreign exchange cost	NA	NA
Local currency cost	NA	NA
<b>Total</b>	NA	NA

NA = not applicable.

## 2. Financing plan (\$'000)

Cost	Appraisal Estimate	Actual
Implementation cost		
Recipient financed	6,600	4,197 <sup>a</sup>
ADB financed	9,700	9,700
Other external financing (World Bank)	14,695	14,695
<b>Total implementation cost</b>	32,800	28,592
Interest during construction costs		
Recipient financed	0	0
ADB financed	0	0
Other external financing	0	0
<b>Total interest during construction cost</b>	0	0

<sup>a</sup> The figure covers the government's contribution up to 30 April 2014. After this period, the government's contribution was not captured in government's financial reports.



## 3. Cost breakdown by project component (\$'000)

Component	Appraisal Estimate	Actual
<b>A. Investment Costs</b>		
1. Civil works	4,200	4,197 <sup>a</sup>
2. Submarine cable system	26,200	24,395
3. Consulting services		
a. Construction supervision consultant	850	NA <sup>b</sup>
b. Environment and social mitigation	150	NA <sup>b</sup>
c. Legal services and permissions	200	NA <sup>b</sup>
4. Tax and duties	800	NA
<b>Sub-total (A)</b>	<b>32,400</b>	<b>28,592</b>
<b>B. Recurrent Costs</b>		
1. Salaries	250	NA
2. Office space	90	NA
3. Equipment operation and maintenance	60	NA
<b>Sub-total (B)</b>	<b>400</b>	
<b>Total (A + B)</b>	<b>32,800</b>	<b>28,592</b>

NA = not available.

<sup>a</sup> Civil work is fully funded by the government. This figure covers the government's contribution up to 30 April 2014. After this period, the government's contribution was not captured in government's financial reports.

<sup>b</sup> Consulting services are fully funded by the government. The government's contribution was not captured in government financial reports. ADB did not contribute to consulting services and recurrent costs.

## 4. Project schedule

Item	Appraisal Estimate	Actual
Date of contract with consultants	Q1 and Q2 2010	Q4 2012
Completion of engineering designs	NA	
Civil works contract of the international cable		
Date of award	Q3 2011	Q2 2012
Completion of work	NA	Q3 2013
Equipment and supplies		
Dates		
First procurement	Q1 2010	Q2 2012
Last procurement	Q3 2011	Q1 2017
Completion of equipment installation	NA	
Start of operations		
Completion of tests and commissioning of the international cable	NA	Q3 2013
Other milestones		
Date of contract for domestic cable extension	NA	Q1 2017
Completion of domestic works	NA	Q1 2018
Commissioning of domestic cable	NA	Q1 2018

NA = not available, Q = quarter.

## 5. Project performance report ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
11 March 2012	Satisfactory	Satisfactory
14 December 2012	Moderately satisfactory	Satisfactory
24 June 2013	Satisfactory	Satisfactory
10 February 2014	Satisfactory	Satisfactory
28 September 2014	Satisfactory	Satisfactory
3 April 2015	Satisfactory	Satisfactory
14 December 2015	Satisfactory	Satisfactory
30 May 2016	Satisfactory	Satisfactory
27 December 2016	Satisfactory	Satisfactory
30 June 2017	Satisfactory	Satisfactory
7 December 2017	Satisfactory	Satisfactory

**D. Data on Asian Development Bank Missions**

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members
Consultation	25–28 January 2010	2	4	a, b
Fact finding	13–24 September 2010	4	12	b, c, d, e
Fact-finding follow-up	31 January–3 February 2011	2	4	a, b
Appraisal	28 March–1 April 2011	1	5	a
Review	10–15 March 2012	1	5	a
Inception	23–27 April 2012	3	4	a, b, f
Review	22–24 October 2012	1	2	g
Review	14–17 May 2013	1	4	g
Review	10–13 December 2013	1	3	g
Review	29 April–2 May 2014	2	3	b, g
Review	2–6 September 2014	2	4	g, h
Review	9–12 February 2015	1	3	g
Review	17–20 November 2015	1	4	i
Review	26 February–18 March 2016	3	27	i, j, k
Review	11–15 April 2016	1	5	g
Review	28 November–2 December 2016	1	4	g
Review	4–12 December 2017	2	8	h, j
Review	13–22 June 2018	1	10	j
Project completion	7–8 October 2019	2	2	h, j

a = public finance management specialist, b = consultant, c = governance specialist, d = legal, e = senior advisor, f = project analyst, g = unit head or team leader, h = safeguard specialist, i = economist, j = program officer, k = country specialist.

## I. PROJECT DESCRIPTION

1. Tonga lies about 2,000 kilometers (km) north of New Zealand and 3,500 km east of Australia. It consists of 171 islands, 48 of which are inhabited, and has a population of about 100,000. About 25% of the population lives in urban areas and 70% in Tongatapu, the site of the capital city, Nuku'alofa. The average annual income per capita was estimated at \$2,632.<sup>1</sup> The country has a narrow resource base and a small export market, which centers around fisheries, agriculture, and tourism, resulting in low levels of economies of scale. Tonga's distance from large markets and other constraints compound these difficulties.

2. In 2010, 2.0% of the population had access to the internet, mostly via dial-up connection. Only 0.9% had access to broadband services. Computer users relied heavily on satellite connectivity (typically in the range of \$3,600 per megabit per second [Mbps] per month), which was inadequate to meet growing demand for bandwidth. While Tonga had one of the highest mobile tele-densities at 60% and lowest local and international call tariff rates in the region by 2011, internet penetration remained modest with only 2,500 subscribers, which hindered domestic business opportunities and access to larger international markets. Demand for international bandwidth was projected to grow rapidly, from about 40 Mbps to 332 Mbps in 2017.<sup>2</sup>

3. The project's intended impact was to improve Tonga's economic performance and public service delivery by making ICT services widely available and affordable. The overall outcome was to enable the population to have access to good broadband internet services at a lower price. The project was designed with two outputs: (i) link Tonga to the submarine fiber optic cable network via connection through Fiji, a distance of 827 km, enabling the country to connect onward to the Southern Cross Cable Network, including Australia, the United States, and beyond; and (ii) establish efficient operation of the Tonga submarine cable system by Tonga Cable Limited (TCL), set up in 2011 to develop, and manage submarine cable options. The original design and monitoring framework (DMF) is in Appendix 1 and the revised DMF in Appendix 2.

## II. DESIGN AND IMPLEMENTATION

4. The Asian Development Bank (ADB) and the World Bank shared costs for installing the submarine cable. The World Bank was selected as the lead agency because of its extensive experience and expertise in this sector. The World Bank provided technical support, along with the Pacific Regional Infrastructure Facility (PRIF),<sup>3</sup> to TCL and the Ministry of Information and Communication to improve the telecommunications policy and the legal and regulatory environment for internet access and e-transactions.<sup>4</sup> A memorandum of understanding outlined the coordination arrangements and modalities for project implementation, including the application of policies and procedures.<sup>5</sup> Extensive consultations were conducted in Tonga with

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<sup>1</sup> Kingdom of Tonga. 2018. *Tonga Household Income and Expenditure Survey 2015/2016*.

<sup>2</sup> World Bank. 2009. *Pacific Regional Telecommunications Backbone Network Assessment and Implementation Options Study*. <http://documents1.worldbank.org/curated/en/844361556573010769/pdf/Tonga-Pacific-Regional-Connectivity-Program-Project.pdf> (accessed 13 November 2019)

<sup>3</sup> ADB. 2013. *Technical Assistance for Establishment of the Pacific Region Infrastructure Facility Coordination Office*. Manila.

<sup>4</sup> The Ministry of Information and Communication was renamed Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications (MEIDECC) in January 2015. This report will use "MEIDECC" throughout.

<sup>5</sup> Memorandum of Understanding for Cooperation, Coordination and Exchange of Information (Tonga-Fiji Submarine Cable Project) between Asian Development Bank and International Bank for Reconstruction and Development/ International Development Agency, 5 March 2012.

the Ministry of Finance and National Planning (MFNP), Tonga Communications Corporation (TCC), TCL, Digicel Tonga Limited (Digicel), and the Government of Fiji.<sup>6</sup>

5. ADB's economic analysis complemented the World Bank's technical, economic, and financial study on the project's viability.<sup>7</sup> Both analyses concluded that the submarine cable—when supported by an adequate regulatory framework—would significantly increase international wholesale bandwidth to Tonga's retail operators and reduce end-user prices of communication services, especially broadband internet.

## A. Project Design and Formulation

6. The project responded to the Pacific Islands Forum leaders' call for improved international connectivity for the island member countries and to the Secretariat of the Pacific Community's Framework for Action on ICT for Development in the Pacific 2010.<sup>8</sup> ADB's Pacific Approach 2010–2014 stressed connectivity through improved ICT as a driver of change.<sup>9</sup> The project also supported ADB's country partnership strategy for Tonga to improve social services delivery in urban areas and the private sector-enabling environment.<sup>10</sup>

7. The project was implemented in partnership with the World Bank under the first phase of their Pacific Regional Connectivity Program. ADB's project originally aimed to construct a landing station in Tonga and install an 827-kilometer cable link between Nuku'alofa and Suva. The existing landing station in Suva connects the Tonga cable to the Southern Cross Cable Network, a trans-Pacific telecommunications network for data traffic to Australia, the United States, and the rest of the world. The project also supported establishment and efficient operation of the Tonga submarine cable system by Tonga Cable Limited (TCL), a company established in late 2009 to develop submarine cable options for Tonga.

8. Utilizing cost savings from the international submarine cable, the project scope was extended to cover the domestic network, linking Nuku'alofa to Neiafu, Vava'u with a branching unit to Pangai, Ha'apai. To allow for implementation of the additional scope, the project was extended by 2 years. The project completed all the works within budget despite the increase in scope and time extension. The DMF was revised in May 2017 to capture reallocation costs associated with the extension of the cable (see paragraphs 11 – 15).

## B. Project Outputs

9. **Output 1: Establishment and efficient operation of the Tonga submarine cable system by TCL.** On 10 May 2012, TCL signed the contract for cable installation from May 2012 to June 2013. It was formally commissioned on 23 August 2013. After the contract was signed, savings were identified because of lower than anticipated costs for installing the international cable. The savings, supplemented by government funding, enabled the project to extend the cable to other islands in Tonga—Vava'u (additional 348 km) and Ha'apai (a further 58 km)—which

<sup>6</sup> The project international cable connected Tonga and Fiji.

<sup>7</sup> World Bank. 2010. Technical, Economic and Financial Connectivity Study for Tonga and Samoa.

<sup>8</sup> Pacific Islands Forum. 2005. *The Pacific Regional Digital Strategy*. Suva. Secretariat of the Pacific Community. 2010. *Framework for Action on ICT for Development in the Pacific*. Suva. The framework was a strategy endorsed by regional ministers and agencies to improve ICT infrastructure and services to support development and governance and create livelihood opportunities for communities in the Pacific.

<sup>9</sup> ADB. 2010. *ADB's Pacific Approach 2010–2014*. Manila.

<sup>10</sup> ADB. 2007. *Country Partnership Strategy: Tonga, 2007–2012*. Manila.

increased the number of residents with improved internet access from a projected 75,000 to 94,000.<sup>11</sup> By completion, the project had installed 1,233 km of submarine cable.

10. **Output 2: Efficient and effective project management services by TCL.** TCL was tasked with overseeing the installation of the submarine cable. Because of its limited capacity and experience with submarine cable installation, TCL secured an international firm to provide technical supervision.<sup>12</sup> After the cable was installed, TCL reengaged the supervising firm in 2017 to oversee the domestic extension until its completion in 2018. Recognizing the importance of the role of the Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications (MEIDECC) in the ICT sector, the World Bank and PRIF provided technical assistance (TA) that complemented the project's effort to improve MEIDECC's weak financial and operational management capacity (see paragraphs 22 and 23 ).

### C. Project Costs and Financing

11. The total project cost at appraisal was estimated at \$32.8 million, including contingency, with ADB contributing \$9.7 million, the World Bank \$16.5 million (both grants), and the government \$6.6 million. Total investment costs equaled \$32.4 million and consisted of civil works (\$4.2 million), procurement of the submarine cable system (estimated at \$26.2 million), consulting services (\$1.2 million), and taxes and duties (\$0.8 million). Recurrent costs totaled \$0.4 million, consisting of salaries, office space, and equipment operation and maintenance. Detailed project costs at appraisal and actual costs are in Appendix 3.<sup>13</sup>

12. By project completion, ADB and the World Bank had disbursed 100% of their grant contributions to the submarine cable system investment cost. The government and TCL had disbursed an undisclosed amount with respect to the original allocation.

13. TCL signed a single (turnkey) contract valued at \$18.8 million to install the international cable between Tonga and Fiji—lower than the estimated contract value of \$26.2 million. By project completion, the final contract value had increased to \$21.4 million to cover the purchase of additional cable equipment needed for installation. The original works were completed on time and within budget, with a saving of \$4.58 million, of which 49.9% (\$2.28 million) was ADB's and 50.1% (\$2.29 million) the World Bank's. Refer to Appendix 4 for details on the original and revised project costs by financier.

14. During the installation of the international cable, ADB, the World Bank, and the government revisited earlier discussions on extending the cable domestically to Ha'apai and Vava'u. The cost of designing, supplying, and installing the domestic submarine cable was estimated at about \$11.0 million.<sup>14</sup> With only \$4.5 million available in savings from the original contract, the government explored financing sources for the balance of \$7.0 million. It investigated

<sup>11</sup> ADB. 2017. Grant 0256-TON: Tonga–Fiji Submarine Cable Project Minor Change in Implementation Arrangement, Memorandum, 22 May (internal).

<sup>12</sup> According to Edwin Liava'a (TCL Chief Executive Officer [CEO]), early in the project, TCL had only 12 staff members (4 in management, 1 in network, 1 in finance, 1 in administration, and 5 in security).

<sup>13</sup> While the project administration manual (PAM) had an original budget of \$32.8 million, the World Bank provided an additional \$1.2 million from its International Development Association horizontal Adaptable Program Loan (\$0.7 million) and PRIF (\$0.5 million), which met costs under the project's component 2 (enabling environment) and this disbursement was managed outside the project. The project completion report accounts for only the original and additional funds in the ADB-approved documents, i.e., the report and recommendation of the President and PAM, under the project's two main outputs (while the World Bank disbursed funds under three components).

<sup>14</sup> Alcatel-Lucent Submarine Networks: Tonga domestic extensions "System Description & Budgetary Pricing,". Unpublished.

concessional lending, a commercial loan, vendor financing, and selling of TCL shares to Digicel as options to bridge the financing gap. After examining the feasibility of each option, the government sold 16.7% of TCL shares to Digicel for \$4.2 million. An advantage of selling the shares was that neither TCL nor the government was expected to take on new debt for the acquisition, unlike other options. At the government's request, the World Bank helped the government engage transaction advisors to liaise on its behalf and to draft the terms and conditions with Digicel. On 3 February 2017, a share purchase agreement and shareholders agreement were signed between TCL and Digicel.

15. On 17 February 2017, TCL signed a new agreement with the same supervising contractor that oversaw the installation of the international cable, procured under a single-source selection method, to proceed with the extension. Grant proceeds were reallocated within ADB's financing to accommodate the cost of the domestic cable extension. After the cost reallocation, ADB funded 49.9% of the domestic extension, compared with 37.0% of the international cable. ADB processed a minor change in implementation arrangement and reallocated \$2.28 million from the "Equipment" base cost and introduced a new cost item, "01A Equipment—New Domestic Cable."

#### **D. Disbursements**

16. Disbursements largely aligned with original appraisal targets. The project was expected to disburse \$5.2 million (16.15%) in the first year, \$21.1 million (64.58%) in the second, and \$6.3 million (19.27%) in the third. By June 2018, ADB had disbursed 100% of its contribution and the World Bank 96% (\$15.85 million) of its original target under output 1.<sup>15</sup> The disbursement of ADB grant proceeds is detailed in Appendix 5.

#### **E. Project Schedule**

17. The project had an original implementation period of 56 months, from October 2011 to June 2016, with a grant closing date of 31 December 2016. The project closing date was changed from 30 June 2016 to 30 June 2018 and the financial closing date was initially changed from 31 December 2016 to 31 December 2018 to accommodate the domestic cable extension under output 1. The domestic connection was completed in early 2018, however, the project revised the financial closing date to 25 June 2018.<sup>16</sup> This was done to expedite project closure as final payments were triggered before June and no other activities or transactions were anticipated after June. Overall objectives were not amended during implementation.

18. The international cable landed in Tonga on 11 June 2013 and was commissioned on 21 August 2013. TCC formally connected to the cable on 5 August and Digicel on 11 October 2013 after several weeks of testing. The original scope was completed on schedule and the grant extension primarily applied to domestic installation. The implementation of the additional scope took time because of stakeholder negotiations, the government's pursuit of additional funding, and the due diligence requirements for the domestic cable extension. The option of linking the submarine cable with Samoa was also explored and the associated due diligence contributed to the delay. As a result, the project scope was not formally changed until 2016. TCL shareholders and TCC had initial reservations about selling public shares to Digicel and its potential effect on retail internet prices. Concerns were allayed after an acceptable share pricing agreement was developed that ultimately benefitted end users (see paragraphs 33-37). A chronology of main events is in Appendix 6.

<sup>15</sup> [World Bank. 2019. Implementation Completion and Results Report: IDA-H7310.](#)

<sup>16</sup> The financial closing date in ADB Mainframe is 25 June 2018.

## F. Implementation Arrangements

19. As the executing agency, MFNP was responsible for overall project implementation, including financial management. A cabinet subcommittee was formed to provide overall strategic guidance to the ICT sector and the project and consisted of the deputy prime minister as chair; minister for finance and national planning; the minister for public enterprise; the minister of training, employment, youth and sports; the chief secretary; and the secretary to the cabinet.

20. TCL was the implementing agency and oversaw the implementation of output 1, including the construction and operation of the submarine cable system and the landing station. Supported by TCC, TCL managed all project procurement and finance. MEIDECC was tasked with establishing the internet legal and regulatory environment, including regulations that promote open and fair access to users and transparent pricing. ADB and the World Bank supported implementation and reviewed the progress regularly. The Government of Australia, via PRIF, provided substantial TA to MEIDECC, albeit outside the project, as explained below.

21. The project design identified MEIDECC's weak regulatory capacity and public finance management and unclear governance structures as "high risk," if not mitigated. The risk remained high throughout the project and remains a concern after project closure, despite World Bank and PRIF TA provided to MEIDECC to improve telecommunications policy and the legal and regulatory environment for internet access and e-transactions. In 2013–2019, TCL staff members were increased to 24 to solve capacity constraints and respond to the increasing demand for services.<sup>17</sup> TCL signed a formal agreement with TCC to provide accounting and auditing services for the project while maintaining a separate account for ADB funds.

## G. Technical Assistance

22. ADB financed a project preparatory TA of \$165,000 to carry out sector, gender, poverty, and social analysis, and governance risk assessment in March–July 2010.<sup>18</sup> The exercise complemented the World Bank and TCL's due diligence activities.

23. Tonga had a good overall framework for ICT sector management, such as the Communications Act of 2000 (updated in 2015), which covered fundamental elements, including consumer protection, tariff management, fixed licensing terms with opportunities for renewal, and other related content.<sup>19</sup> Enforcement of the act fell under the ambit of MEIDECC. Recognizing the importance of MEIDECC's role, the World Bank, and PRIF provided TA to support the government to develop a road map and policy framework to strengthen the regulatory environment, such as possible establishment of an independent regulator for the telecommunications sector. Under the TA, MEIDECC staff members were trained in tariffs, regulation regimes, and spectrum fees - areas critical for enforcing the Communications Commission Act 2015.<sup>20</sup> Despite the World Bank and PRIF support, an independent regulatory commission was not established and MEIDECC still functions as the regulator due to weak political appetite. TCL remains the sole service provider for wholesale international connectivity.

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<sup>17</sup> According to Edwin Liava'a (TCL CEO), staff consisted of 4 in management, 3 in network, 1 in information technology services, 1 in finance, 1 in administration, 11 in security, and 3 in facilities.

<sup>18</sup> ADB. 2010. *Technical Assistance to the Kingdom of Tonga for the Tonga–Fiji Submarine Cable Project*. Manila.

<sup>19</sup> Kingdom of Tonga. 2015. [Communications Act 2015](#). Nuku'alofa.

<sup>20</sup> Kingdom of Tonga. 2015. [Communications Commission Act 2015](#). Nuku'alofa.

## H. Consultant Recruitment and Procurement

24. ADB and the World Bank financed the submarine cable system under output 1.<sup>21</sup> TCL, as part of government's counterpart fund contribution, budgeted \$850,000 for a construction supervision consultant, \$150,000 for an environmental and social mitigation study, and \$200,000 for legal services. TCL also had a project budget of \$850,000 for construction of the landing station in Nuku'alofa.

25. TCL formally established its project management unit (PMU) after a delay of two years due to the delay in the establishment of the TCL. TCL signed a contract for PMU support with a consulting firm in May 2012. This firm mainly acted as the technical advisor on TCL's behalf during the installation of the submarine cable and the landing station, as TCL did not have the in-house capacity to do so. TCL also engaged a legal consultant to advise the government on ICT reform. Both consultants were recruited using ADB's Guidelines on the Use of Consultants (2010, as amended from time to time) and the World Bank's Guidelines: Selection and Employment of Consultants by World Bank Recipients (May 2004, revised in October 2006 and May 2010). As envisaged in the project design, TCL awarded the single-responsibility turnkey contract to design, manufacture, test, deliver, install, complete, and commission the submarine cable system, following the World Bank's standard bidding documents and procedures for limited international bidding. This procurement arrangement and coordination mechanism were captured in a memorandum of understanding between ADB and the World Bank. The consulting firms produced high-quality outputs, assisted the government efficiently, and achieved their key contractual obligations in a timely manner. The PMU consultant and TA consultant were reengaged for the domestic cable extension. Their services were procured using single-source selection. Landing stations had to be constructed in Neiafu, Vava'u and Pangai, Ha'apai. The works contract for the landing stations was financed by TCL and procured separately following national procurement procedures. The amounts of the two ADB contracts awarded are in Appendix 7.

## I. Safeguards

26. The project was classified as *category B* for the environment. Two initial environmental examinations and two environmental management plans (EMPs) were prepared. The first initial environmental examination was approved in July 2011 for the international cable and the second in July 2016 for the domestic extension. Two contractor EMPs were approved before the civil works commenced. The planned components had only small, temporary, and localized adverse impacts on the environment, which were readily managed by proposed mitigation measures in the contractor EMPs. Compliance monitoring was included in the project's quarterly reports and disclosed. All the necessary environmental laws and regulations were complied with during cable installation and construction of the landing stations.

27. The project was classified as *category C* for involuntary resettlement and for indigenous peoples. The project beneficiaries and inhabitants in project sites were not deemed indigenous peoples as they are part of mainstream Polynesian society and do not meet the ADB criteria for distinctiveness. A committee was formed to monitor any impact on indigenous peoples. No issues were raised during and after installation. Although a land acquisition resettlement framework was prepared and approved, the project did not involve any land acquisition or restrictions on land use or access to designated parks or protected areas during screening and implementation. No third party or persons were adversely affected. No unanticipated land acquisition and resettlement

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<sup>21</sup> Procurement of a contractor for plant design, supply, and installation of the submarine cable system.



impacts were found during implementation. Compliance monitoring was included in the project's quarterly reports and disclosed.

## J. Monitoring and Reporting

28. Of the 39 grant covenants, 30 were complied with, 6 partially complied with, and 3 were not complied with. Despite frequent requests the recipient did not publish relevant project information on a government website, provide resources to an independent ICT regulator, and develop a detailed road map with budgetary resources for ICT-based public service delivery no later than 30 June 2013. These issues remained unresolved at project closure. The partial compliance with covenants related to TCL's inability to secure sufficient staff, e.g., delayed appointment of a PMU to independently manage the project, lagging progress in improving overall governance in the short term, slow progress in completing legal and regulatory reforms, and issues in maintaining financial accounts and publishing them within the agreed timelines.

29. TCL, through TCC, was required to produce quarterly unaudited interim financial reports for ADB review. MEIDECC handled the project accounts, which were audited by the Tonga Office of the Auditor General. The World Bank provided a financial management consultant who helped MEIDECC conduct a stakeholder's workshop on financial reporting in 2018. The project audit for the financial year ending in March 2015 was completed on 30 June 2015 and an unqualified opinion issued on 23 December 2015. The audit management letter of 4 February 2016 reported that the project vote book did not reconcile with the treasury vote book properly and recommended that the project manager ensure timely updating. The audit report for FY2016 carried an unqualified audit opinion. Subsequent financial reports on the project, particularly the audited financial statement for July 2017–September 2018, did not capture counterpart contributions from MEIDECC or other ministries.

30. These shortcomings, however, did not significantly impact the overall project objective. The detailed status of compliance with the covenants in the grant and project agreements is in Appendix 8.

## III. EVALUATION OF PERFORMANCE

### A. Relevance

31. The project's intended outcome was firmly aligned with government strategies and ADB operational priorities. By improving internet access and affordability for thousands of residents across Tongatapu, Ha'apai, and Vava'u, the project directly contributed to achieving the Tonga government's national development outcome (a dynamic knowledge-based economy and infrastructure and technology), and supporting a strategic development framework pillar (infrastructure and technology inputs).<sup>22</sup> ADB's Pacific Approach 2010–2014 stressed connectivity through improved ICT as a driver of change, and ICT remained as one of the key focus under Pacific Approach 2016–2020. The project contributed to outcome 5 of ADB's country operations business plan: ICT—more affordable, accessible, and reliable information flows by more people.<sup>23</sup> This initiative also aimed to address the challenges of and pursue new opportunities due to “technological advancements” highlighted in the ADB's Strategy 2030.<sup>24</sup> The project design was appropriate for achieving the intended outcomes because reliable internet

<sup>22</sup> Government of Tonga. 2015. *Tonga Strategic Development Framework 2015–2025*. Nuku'alofa.

<sup>23</sup> ADB. 2016. *Country Operations Business Plan: Tonga, 2017–2019*. Manila.

<sup>24</sup> ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient and Sustainable Asia and the Pacific*. Manila

connectivity advances economic and social development (see paragraphs 33-37). The project design had clear logic, focusing on infrastructure development and maximizing the benefit from the submarine cable by providing policy and regulatory support and training.

32. The change of scope was important because it gave isolated maritime communities access to ICT. Aside from this change and the reallocation of a portion of the equipment line budget to the new budget line and time extension, the overall DMF targets and risks remained largely unchanged throughout implementation. Based on these points, the project is rated *relevant*.

## **B. Effectiveness**

33. The outcome of the project was to ensure “the population of Tonga has access to good quality broadband internet services at a lower price.” The project had an original target of installing 827 km of submarine cables but installed 1,233 km, surpassing the target by 49%. There was growth of 32% in the number of registered subscribers from 2,500 in 2011 at project appraisal to 3,300 in 2018. TCL started monitoring individual subscribers instead of household connections from 2012. In 2012, there were 18,000 individual broadband subscribers. This number substantially increased to 26,328 in 2015 (46% growth compared to 2012), 50,160 in 2018 (179% from 2012), and 52,849 in 2019 (194% from 2012). The figures compare well against a DMF target of an increase of 50% broadband internet service subscribers by 2016 against 2011 baseline.

34. About 75% were mobile subscribers.<sup>25</sup> Annual retail broadband fees decreased from T\$2.00/Mb in 2013 to T\$0.008/Mb in 2016 (250% reduction against the DMF target of 50% reduction).<sup>26</sup> In addition, at project appraisal, subscription fees were quoted on a monthly basis (e.g., T\$50/month) but at project closure, MEIDECC measured the fee using pa'anga per megabits.

35. Before the project, TCL had a wholesale internet bandwidth of 200 Mbps.<sup>27</sup> Two years after the commissioning of the international cable, wholesale bandwidth take-up was 555 Mbps. By project completion, the wholesale bandwidth had increased to 4,600 Mbps. TCL was initially charging TCC and Digicel an average wholesale price of \$478/Mbps/month in July 2015, but by December 2018, they were paying the wholesale price of \$50/Mbps/month. This had positive trickle-down effects on retail pricing. The retail price of internet access was reported to be \$1.32/Mbps/month at project closing, 40% cheaper than the earlier anticipated \$2.20/Mbps/month. An effect of the new retail internet prices is that uptake in mobile device usage is growing, with about 85% of the population now owning individual phones, thus increasing mobile broadband penetration.

36. According to Digicel, it doubled or tripled data penetration 6 months after the cable was installed and has seen a three-fold increase in usage since 2017. Digicel began identifying 10 new tower sites across Tonga to improve its internet infrastructure and range. The intent is to combine the submarine cable system with satellite connection where feasible. Digicel has rolled out new packages and initiatives because of improved internet bandwidth, e.g., access to banking systems as anticipated in the project's economic and financial analysis.<sup>28</sup> In 2019, the firm

<sup>25</sup> Data provided by MEIDECC ICT Division on 23 April 2020.

<sup>26</sup> Data provided by MEIDECC ICT Division on 23 April 2020. Broadband costs in 2014 (T\$0.015/Mb), 2015 (T\$0.012/Mb), 2016 (T\$0.008/Mb), 2017 (T\$0.008/Mb), and 2018 (T\$0.003/Mb).

<sup>27</sup> Data provided by Lutoviko Falemaka (MEIDECC) on 21 February 2020.

<sup>28</sup> As indicated by Anthony Seuseu (Digicel CEO).

proposed new competitive tariff rates to MEIDECC that are expected to benefit consumers and is waiting for a formal response. Competition in ICT remains limited to TCC and Digicel, the only operators in the retail market.<sup>29</sup> The University of the South Pacific is limited in the use of its license to providing connectivity among academic facilities, staff, and students. EziNET offers only satellite connectivity, and one company, Triesten, although licensed is not active in Tonga.

37. Overall, the new submarine cable system has improved internet access, speed, and reduced costs for the people of Tongatapu, Ha'apai, and Vava'u.<sup>30</sup> The project is, therefore, rated *highly effective* in achieving this outcome.

### C. Efficiency

38. The original length of 827 km of submarine cable and the landing stations were installed within budget and on time. The domestic extension was completed within budget and on time. TCL, with World Bank TA, implemented the project adequately without significant conflicts or disruptions.

39. The project economic internal rate of return (EIRR) at appraisal was 17.3%. A sensitivity analysis based on three scenarios was conducted.<sup>31</sup> The project's economic viability was expected to be robust and favorable for Tonga. The EIRR was updated to include the domestic extension, and the overall EIRR reevaluated at project completion was 21.4%. The domestic extension alone achieved 25% of EIRR.<sup>32</sup>

40. The revised EIRR is based on data provided by MEIDECC from 2013 to 2019 (footnotes 24 to 26). The report and recommendation of the President calculated consumer surplus based on estimates of the number of broadband subscribers. New data suggest that it almost tripled from 18,000 (2012) to 52,849 (2019), while subscription fees declined from \$2.00/Mb to \$0.002/Mb, translating to greater savings for customers. The project had savings compared with the initial estimated project costs. Actual disbursements were spread out over 8 years compared with the 2 years estimated at project proposal. As a result, the project is rated *highly efficient* in achieving its original outcome and output. Refer to Appendix 9 for the economic reevaluation of the investment.

### D. Sustainability

41. The estimated cost of the submarine cable systems in the report and recommendation of the President was \$30.00 million, including project management and contingency with an estimated annual operating cost of \$1.30 million.<sup>33</sup> The weighted average cost of capital (WACC) of TCL was compared with the financial internal rate of return (FIRR) to determine the project's financial viability. It was assessed based on the financial sustainability of TCL's operations during the 25-year lifespan of the submarine cable system. TCL's WACC was computed based on the financing plan and calculated at 0.02%. The FIRR was calculated at 13.63% over 27 years, including 2 years of construction, confirming the project's financial viability.

<sup>29</sup> [TeleGeography](#).

<sup>30</sup> Government of Tonga. 2017. *2016 National Census Report, Volume 1*. Nuku'alofa.

<sup>31</sup> (i) Capital expenditures increase by 10%, (ii) TCL revenue falls by 20%, and (iii) broadband internet price falls by 25%.

<sup>32</sup> World Bank Midterm Review Mission and ADB Review Mission Aide-Memoire, 9–13 February 2015.

<sup>33</sup> The PAM had an indicative amount of \$26.2 million to establish the submarine cable system.

42. At project closure, the WACC was calculated at 10.04% while the FIRR is expected to achieve 16.15% over 27 years, including 5 years of construction. The sensitivity analysis concluded that the project will be financially viable unless TCL's revenue falls by 32%.

43. TCL did not generate any revenue in 2012 and 2013 as the commercial operation of the submarine cable system was just commencing. During this period, TCL moved to its new base, Sopu, Nuku'alofa after the landing station was constructed. TCL began generating profits from 2014 earning \$70,157, which grew significantly in subsequent years. It earned net profits of \$682,588 in 2015, \$952,629 in 2016, \$920,332 in 2017, \$856,760 in 2018 and \$648,072 in 2019.<sup>34</sup>TCL's sustainability, however, is dependent on its two primary customers—Digicel and TCC as of present. Advances in satellite technology and associated reduction in costs might pose long-term threats to TCL but might also enable it to explore strategies with its suppliers to reduce, for example, peering and internet transit costs. The submarine cable infrastructure is not anticipated to pose any long-term environmental and social safeguard issues as key concerns were resolved during implementation.

44. The expected life of the new submarine fiber optic cable is 25 years. TCL expects to commence preparatory work for cable replacement 20 years after the cable was installed, i.e., in 2033 for the international cable and in 2038 for the domestic extension. The average annual operations and maintenance cost of the submarine cable system between 2014 and 2019 was T\$795,870.<sup>35</sup>

45. The government continues to support the long-term management of the submarine cable project and the growth of the ICT sector. The enactment of the Communications Commission Act 2015 is a critical output of World Bank and PRIF efforts to complement the project's investment infrastructure. The act introduced a new regulatory and licensing regime and outlined the establishment of an independent telecommunications regulator, the Communications Commission. The law's design and enactment were an important milestone, while implementation was slower than anticipated. Though ADB and World Bank encouraged the timely establishment of the Communication Commission to reap the full potential of the ICT industry, the government so far did not commit enough resources to operationalize the commission.

46. Based on the positive FIRR values, profitability of TCL, the manageable costs of system operation and maintenance, and the government's interest in supporting ICT development over the long term, the project is rated *likely sustainable*. Refer to Appendix 8 for the financial and economic reevaluation of the investment.

## **E. Development Impact**

47. The project was expected to provide an initial lit capacity of 10 Gigabits per second (Gbps) and reduce international connectivity costs by more than 60%. At completion, the project achieved a 20 Gbps lit capacity and 97% reduction in international connectivity costs.<sup>36</sup> The cheapest broadband was \$60 per month, equivalent to about 28% of monthly income approximated with gross domestic product per capita in 2010. The submarine cable system was expected to strengthen regional integration by improving the frequency and quality of communication with other Pacific states and accelerating increased trade in goods and services. Tonga's Strategic Development Framework 2015–2025 aims to increase the number of internet users from 34.9 per

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<sup>34</sup> Semisi. Panuve (TCL CEO), e-mail, 16 June 2020.

<sup>35</sup> Information provided by the TCL in 2020.

<sup>36</sup> [Tonga Cable. 2020. Updates and World Bank. 2019. Implementation Completion and Results Report: IDA-H7310](#)

100 people in 2015 to 60.0 per 100 people in 2018, and to 100 by 2025.<sup>37</sup> According to the World Bank, Tonga achieved 50.0 people with internet access per 100 people by 2018.

48. One impact indicator—“at least two ICT-based public services in education and health accessible to general public by end of 2016”—was not achieved within this period. However, in 2019, ADB funded an e-Health initiative to improve citizens access to affordable health services across Tonga and the World Bank provided ICT capacity development support to government through the Tonga Digital Government Support project that aims to improve digital public service delivery. These initiatives are enabled by the improved internet connection by the project. The education and health sectors are benefitting from reduced internet rates because of the project. For instance, the Radiology Department, Ministry of Health receives 50% discount rates for transmitting x-ray results to Australia or New Zealand for diagnosis. TCL provides 50% discount to TCC and Digicel to provide low-cost internet connections to schools and an 80% discount to the University of the South Pacific to ease access to regional campuses and education centers in Ha’apai and Vava’u.

49. In 2017, Tonga had the third most affordable mobile broadband access in the Pacific after Australia and New Zealand.<sup>38</sup> Internet use has increased since the cable was installed: (i) the use of social media platforms is growing and they are often used to sell goods and services; (ii) the internet has become a cheaper and more convenient means to remit funds, and the private sector, e.g., tourism operators, is turning to e-commerce to boost businesses; (iii) civil society organizations increasingly use the internet to advocate and lobby for change; and (iv) online government services are gradually being pursued.<sup>39</sup> The country’s youth are gradually being drawn to new digital jobs.<sup>40</sup>

50. The domestic cable extension to Ha’apai and Vava’u significantly helped reduce digital inequalities through access to faster internet. Achievements against project targets are in Appendix 2. Based on these improvements, the project is rated *satisfactory*.

## F. Performance of the Recipient and the Executing Agency

51. MFNP demonstrated good ownership over the project and coordinated effectively with TCL during implementation. MFNP supported ADB and World Bank missions throughout, informing and consulting partners as the project progressed. The executing and implementing agencies carried out their responsibilities to the best of their technical and resource abilities despite limited experience with ADB systems and processes. ADB extensively consulted both agencies, from project processing to completion, enabling high compliance with the grant covenants and safeguard requirements. The only fiduciary responsibility TCL lagged in was related to the timely provision of the audited project financial statements and the audited entity financial statements through TCC.

52. The original project scope (i.e., international cable) was completed on schedule. Implementation slowed in 2015–2017 after the international cable was completed and discussions

<sup>37</sup> World Bank, 2018, Implementation Completion and Results Report (IDA-H7310).

<sup>38</sup> [United Nations Economic and Social Commission for Asia and the Pacific. 2018. Broadband Connectivity in Pacific Island Countries. Asia-Pacific Information Superhighway \(AP-IS\) Working Paper Series. Bangkok.](#)

<sup>39</sup> Use of social media grew rapidly after the installation of the submarine cable in 2013, increasing from 6.5% of the population in 2011 to 29.0% in 2014. PRIF. 2015. *Economic and Social Impact of ICT in the Pacific*. Sydney. By January 2018, 57% of the population was estimated to be using Facebook. [Hootsuite. 2018. Digital 2018 Tonga;](#) and [ADB. 2016. Tonga’s High-Speed Revolution. Manila.](#)

<sup>40</sup> [Tonga Youth Employment and Entrepreneurship \(TYEE\). 2019. Youth Tech Incubators Centre.](#)

commenced on the domestic cable extension. The government's sale of TCL shares to Digicel was part of broader regulatory reform to reduce the cost of and improve access to the internet by stimulating a reduction in retail pricing. The delays highlighted the relative inexperience of the recipient and the weak capacity of TCL to manage such a project. Given that the submarine cable infrastructure was completely new territory for the government, that local expertise was not available to advise government was understandable. Political risks related to the regulatory environment were assessed to be moderate and mitigable through regulatory capacity building.

53. The performance of the recipient and executing agency is rated *satisfactory*.

### **G. Performance of Cofinanciers**

54. Collaboration between ADB and the World Bank was sound throughout implementation, i.e. they undertook joint missions; jointly discussed and resolved concerns and issues; and consistently submitted and shared reports and documents (quarterly progress reports, back-to-office reports, aide memoires). The World Bank provided timely TA to TCL and made a concerted effort to strengthen strategic areas and capacities, such as training in tariffs, regulation regimes, and spectrum fees. The World Bank and PRIF identified several areas that could have been better tackled from the start, e.g., key policy and regulatory reforms in MEIDECC to strengthen its role in monitoring and evaluation. The performance of the cofinancier is rated *satisfactory*.

### **H. Performance of the Asian Development Bank**

55. Key milestone events were largely met during processing, from first entry in e-operations (18 June 2010) to approval (23 August 2011). The ADB project team experienced high turnover in 2011–2018, which might have affected the consistency of project documentation and knowledge management but not overall project management. The 17 ADB missions resolved ongoing issues in a timely fashion. The project would have closed as per the original timeframe (30 June 2016) if not for the 2-year delay to accommodate the domestic cable extension. Collaboration with the World Bank, MFNP, and TCL was positive, and overlapping challenges and concerns were resolved jointly. ADB's performance is rated *satisfactory*.

### **I. Overall Assessment**

56. Based on the review of relevance, effectiveness, efficiency, and sustainability of the project, its overall weighted average score is computed at 2.5 and the project is rated *highly successful*. The project exceeded its output-1 goal when it completed the domestic extension within budget under the expanded scope. TCL successfully managed procurement under output 2. The introduction of high-speed broadband internet has had a positive impact on health and education, business, and social life, with retail internet prices decreasing significantly since November 2012.<sup>41</sup> Solid coordination among partners was important to the successful installation of the submarine cable. The project's outcome is increasingly being felt across Tonga. The overall ratings are in the table below. A quantitative assessment of overall project performance is in Appendix 10.

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<sup>41</sup> ADB Aide Memoire, 2–8 September 2014. In November 2012, the Digicel Digi 128 package was 128/64 kbps band for T\$113.85. In September 2014, Digicel offered 3 Gb for T\$49.00. TCC offered a 4 Gb package for T\$99.00 in May 2013. By September 2014, it was offering 5 Gb for T\$59.00.

### Overall Ratings

Criterion	Assessment	Rating Value (0–3)
Relevance	Relevant	2
Effectiveness	Highly effective	3
Efficiency	Highly efficient	3
Sustainability	Likely sustainable	2
<b>Overall Assessment</b>	Highly successful	2.5
Development impact	Satisfactory	
Recipient and executing agency	Satisfactory	
Performance of Asian Development Bank.	Satisfactory	

Source: Asian Development Bank.

## IV. ISSUES, LESSONS, AND RECOMMENDATIONS

### A. Issues and Lessons

57. **Further strengthen governance in the ICT sector.** While WB and PRIF provided parallel TA to strengthen Tonga’s ICT policy and regulatory environment, the sector regulation and enforcement could have been further strengthened to enhance the project’s development impacts. An independent commission could have ensured that the fundamental tariff and policy regulation framework was in place before cable installation. Four staff members trained under the World Bank TA are still with MEIDECC. When the project was extended, follow-up training would have been beneficial. It would have helped the ministry transition into its role set out in the Communications Act 2015 and the Communications Commission Act 2015.

58. **Improvement in knowledge management.** Given its groundbreaking nature, the project design could have included a “lessons learned” knowledge event to enable Tonga, ADB, and partners process the experience and transfer useful lessons for scaling up to the submarine cable projects ADB subsequently pursued with the Cook Islands, Kiribati, Nauru, Palau, and Samoa. The event could have been linked with ADB’s knowledge management efforts and the region’s ICT development plans and strategic framework. Although not in formal events, staff involved in the project used the experiences and lessons learned when designing and implementing succeeding submarine cable projects in other countries. Changes in project staff during the project implementation might have affected continuity of engagements with the sector issues. Project hand-over may be strengthened to retain the institutional memory and continue the active engagements.

### B. Recommendations

59. Further action or follow-up. The Government of Tonga needs to allocate financial and technical resources to operationalize the Communications Commission for the benefit of the ICT sector and Tonga’s citizens.

60. Timing of the project performance evaluation report. The original scope—the international submarine cable—was completed in 2013. The cable has been in use since then and the project, including domestic cable extension, was completed in 2018. The experiences from this project helped subsequent submarine cable projects in the Cook Islands, Kiribati, Nauru, Palau and Samoa. Greater value might be gained if the PPER is part of a broader assessment of similar projects in the Pacific.



## ORIGINAL DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b> Widely available and affordable ICT services improve Tonga's economic performance and public service delivery.</p>	<p>New business opportunities in ICT sector measured by (i) at least one additional ISP for 12 months or longer by June 2016, and (ii) at least a 10% increase in the number of Tonga-based ICT companies providing telecommunications, business network, and computer and information services (databases, data processing, software design and development, maintenance, and repair services) by 2016.</p> <p>At least two ICT-based public services in education and health are accessible by general public by end of 2016.</p>	<p>The newly active ISP's license is viewable on the NRA's website and the ISP is providing Internet services to customers.</p> <p>Business registration records for this category.</p> <p>MIC and relevant government agency reports</p>	<p><b>Assumption</b> Global and regional economy has fully recovered from 2008 global economic crisis allowing increased business activity.</p> <p>The government has invested in e-education and e-health service development.</p>
<p><b>Outcome</b> The population of Tongatapu has access to good quality broadband internet services at an affordable price.</p>	<p>By 2016, the number of broadband internet service subscribers has increased by at least 50% and the internet retail tariffs have decreased by at least 50% against the 2011 baseline.</p> <p>An industry standard Internet speed test shows at least a 100% improvement against the 2010 baseline within 3 months of TCL capacity being used by ISPs.</p>	<p>Broadband Internet subscription numbers information from ISPs and MIC</p> <p>Internet service price list as published by ISPs.</p> <p>The Global Broadband Speed Test <a href="http://www.speedtest.net">www.speedtest.net</a> figures checked in June 2012.</p>	<p><b>Assumptions</b> The domestic network continues to be improved and expanded within Tongatapu and the outer islands.</p> <p>Regulatory capacity is strengthened to develop and effectively implement telecommunications sector policy and regulatory framework for internet access and e-transaction (WB and PRIF-financed TA)</p> <p>TCL has a sound governance structure and operational independence from TCC.</p> <p><b>Risk</b> Weak capacity of NRA to ensure cost-based regulated wholesale tariff and to monitor</p>



Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
			compliances of retail service providers
<p><b>Outputs</b></p> <p>1. Establishment of Tonga submarine cable system by TCL</p> <p>2. Efficient and effective project management services by TCL's PMU</p>	<p>By 2016, TCL has consistently achieved the debt service coverage ratio target of 1.2 as agreed between the government and TCL starting not later than June 2014.</p> <p>TCL achieves 99.999% system availability.</p> <p>12 months after the cable system is ready for service, TCL's fault handling time measured by mean time to recovery is equal to the industry standard of 1 hour.</p> <p>Achieved 100% of the projected disbursement and contract awards within the agreed timeframe in the workplan.</p>	<p>TCL financial statement</p> <p>TCL operational reporting logs.</p> <p>TCL operational reporting logs.</p> <p>TCL project progress reports.</p>	<p><b>Risks</b></p> <p>The Tonga cable traffic may be interrupted by changes in Fiji's domestic communication arrangement unless it is connected to FINTEL's backhaul in parallel to Fiji's domestic connection.</p> <p>TCL lacks financial and operational management capacity.</p>
<p><b>Activities with Milestones</b></p> <p>1.1 Carry out marine survey and complete marine operations for laying cables (Q4 2011–Q1 2013)</p> <p>1.2 Train TCL staff on landing facility operation and maintenance and update skills and knowledge periodically (Q1 2012–Q2 2013)</p> <p>1.3 Establish monitoring and supervision guideline for regular maintenance and other contractor services (Q4 2011–Q2 2013)</p> <p>1.4 Continue regular monitoring and supervision (Q2 2013–Q4 2016)</p> <p>2.1 Tender, award contracts and manage contracts (Q2 2011–Q1 2013)</p> <p>2.2 Provide timely progress reports (Q4 2011–Q4 2016)</p> <p>2.3 Carry out regular accounting and annual audits (Q1 2012–Q4 2016)</p> <p>2.4 Follow up safeguard issues and risk management plan in timely manner (Q4 2011–Q4 2016)</p>			<p><b>Inputs</b></p> <p>ADB: \$9.7 million</p> <p>TCL: \$6.6 million</p> <p>World Bank: \$9.5 million (for Output 1)</p>

ADB = Asian Development Bank, FINTEL = Fiji International Telecommunications Limited, ICT = information and communication technology, ISP = internet service provider, MIC = Ministry of Information and Communications, NRA = national regulatory authority, PCR = project completion report, PRIF = Pacific Region Infrastructure Facility, Q = quarter, TA = technical assistance, TCC = Tonga Communications Corporation, TCL = Tonga Cable Limited.

Source: Asian Development Bank

## REVISED DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks	Targets achieved/partially achieved/not achieved
<p><b>Impact</b> Widely available and affordable ICT services improve Tonga's economic performance and public service delivery.</p>	<p>New business opportunities in ICT sector measured by (i) at least one additional ISP for 12 months or longer by June 2016, and (ii) at least a 10% increase in the number of Tonga-based ICT companies providing telecommunications, business network, and computer and information services (databases, data processing, software design and development, maintenance, and repair services) by 2016.</p> <p>At least two ICT-based public services in education and health are accessible by general public by end of 2016.</p>	<p>The newly active ISP license is viewable on the regulator's website, and the ISP is providing internet services to customers.</p> <p>Business registration records for this category MIC and relevant government agency reports</p>	<p><b>Assumptions</b> Global and regional economy has fully recovered from the 2008 global economic crisis, allowing increased business activity.</p> <p>The government has invested in e-education and e-health service development.</p>	<p>Not achieved –TCC and Digicel remain the two key retail operators. USP and EziNET offer restricted services and Triesten is inactive.</p> <p>Partially achieved via ADB funded e-Health initiative approved in 2019 and the World Bank supported 'Tonga Digital Government Support' project.</p>
<p><b>Outcome</b> The population of Tonga has access to good quality broadband internet services at a lower price.</p>	<p>By 2016, the number of broadband internet service subscribers has increased by at least 50% and the internet retail tariffs have decreased by at least 50% against the 2011 baseline.</p>	<p>Broadband Internet subscription numbers information from ISPs and MIC Internet service price list as published by ISPs.</p>	<p><b>Assumptions</b> The domestic network continues to be improved and expanded within Tongatapu and other islands.</p> <p>Regulatory capacity is strengthened to develop and implement the telecommunications sector policy and regulatory framework effectively for internet access and e-transaction (the World Bank and PRIF financed TA).</p>	<p>32% growth in registered connections between 2011 and 2018 (from 2,500 to 3,300); Or 46% growth in registered individual subscribers between 2012 and 2016 (from 18,000 to 26,328).</p> <p>250% reduction in retail tariff from 2013 to 2016 (T\$2/Mb to T\$0.008/Mb)</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks	Targets achieved/partially achieved/not achieved
	An industry standard internet speed test shows at least a 100% improvement against the 2011 baseline within 6 months of TCL capacity being used by ISPs.	The Global Broadband Speed Test ( <a href="http://www.speedtest.net">www.speedtest.net</a> ) figures checked in Q2 2014	TCL has a sound governance structure and operational independence from TCC.	No data were available on <a href="http://www.speedtest.net">www.speedtest.net</a> at time of PCR compilation.
			<b>Risk</b> Weak capacity of the regulator to ensure cost-based regulated wholesale tariff and to monitor compliance of retail service providers	
<p><b>Outputs</b> Establishment and efficient operation of the Tonga submarine cable system by TCL</p> <p>Efficient and effective project management services by TCL</p>	<p>By 2016, TCL has consistently achieved the debt service coverage ratio target of 1.2 as agreed between the government and TCL starting not later than June 2014.</p> <p>TCL achieves 99.999% system availability.</p> <p>12 months after the cable system is ready for service, TCL's fault handling time (measured by mean time to recovery) is equal to the industry standard of 1 hour.</p> <p>Establishment and operation of a 435-kilometer domestic repeaterless submarine cable linking Vava'u and Ha'apai to Nuku'alofa</p> <p>Achieved 100% of the projected disbursement and contract awards within the agreed time frame in the work plan.</p>	<p>TCL financial statement</p> <p>TCL operational reporting logs</p> <p>TCL operational reporting logs</p> <p>TCL project progress reports</p>	<p><b>Risks</b> The Tonga cable traffic may be interrupted by changes in Fiji's domestic communication arrangement unless it is connected to FINTEL's backhaul in parallel to Fiji's domestic connection.</p> <p>TCL lacks financial and operational management capacity.</p>	<p>Achieved – 2016 TCL APFS stated that the company has paid its debt service as and when they fall due.</p> <p>Achieved - System availability target of 99.999% is always met.</p> <p>Achieved - TCL handling time for any minor faults is below 1 hour, unless a major fault occurs e.g., terminal equipment failure, cable is damaged.</p> <p>Achieved – The domestic connection was completed in early 2018.</p> <p>Achieved – ADB could not disburse 100% of its funds due to lower than expected costs for international submarine cable installation. However, it was fully disbursed</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks	Targets achieved/partially achieved/not achieved
				once the domestic cable was installed.
<p><b>Activities with Milestones</b></p> <p>1.1 Carry out marine survey and complete marine operations for laying cables (Q4 2011–Q1 2013)</p> <p>1.2 Train TCL staff on landing facility operation and maintenance and update skills and knowledge periodically (Q1 2012–Q2 2013)</p> <p>1.3 Establish monitoring and supervision guideline for regular maintenance and other contractor services (Q4 2011–Q2 2013)</p>		<p><b>Inputs- Original</b></p> <p>ADB: \$9.7 million TCL: \$6.6 million World Bank: \$16.5 million</p> <p><b>Revised Inputs</b> ADB: \$9.7 million <b>TCL: \$9.6 million</b> World Bank: \$16.5 million</p>		<p>Achieved – 1.1 Consultant conducted marine survey and marine operations between 2012 and 2013; Achieved - 1.2TA offered through the project supported TCL via staff capacity building and monitoring implementation; Achieved 1.3 - TCL recruited additional technical staff to manage and maintain submarine cable infrastructure.</p>
<p>1.4 Continue regular monitoring and supervision (Q2 2013–Q4 2016)</p> <p><b>1.5 For domestic cable connection, establish monitoring and supervision guideline for regular maintenance and other contractor services (Q2 2017–Q2 2018)</b></p> <p>2.1 Tender, award contracts and manage contracts (Q2 2011–Q1 2013)</p> <p>2.2 Provide timely progress reports (Q4 2011–Q4 2016)</p> <p>2.3 Carry out regular accounting and annual audits (Q1 2012–Q4 2016)</p> <p>2.4 Follow up safeguard issues and risk management plan in timely manner (Q4 2011–Q4 2016)</p> <p>2.5 Completion of cable laying and Commissioning of Domestic Cable extension (Q2 2018)</p>				<p>Achieved 1.4 – Regular monitoring and supervision during international cable installation</p> <p>Achieved - 1.5: Contractor provided training for relevant TCL personnel in operation, testing and maintenance of the system in 2017.</p> <p>Achieved – 2.1: Tender was successfully awarded for international cable installation</p> <p>Partially Achieved – 2.2: Quarterly progress report provided during international cable installation</p> <p>Partially achieved – 2.3: Audits were conducted but</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks	Targets achieved/ partially achieved/ not achieved
				<p>submissions often lagged</p> <p>Achieved – 2.4: Safeguard issues and risks were managed accordingly. No major safeguards issues experienced during implementation.</p> <p>Achieved – 2.5: Achieved – Domestic cable extension was completed in early 2018.</p>

ADB = Asian Development Bank, APFS = Audited Project Financial Statements, FINTEL = Fiji International Telecommunications Limited, ICT = information and communication technology, ISP = internet service provider, MIC = Ministry of Information and Communications, PCR = project completion report, PRIF = Pacific Region Infrastructure Facility, Q = quarter, TA = technical assistance, TCC = Tonga Communications Corporation, TCL = Tonga Cable Limited, USP = University of the South Pacific, WB = World Bank.

Source: Asian Development Bank.

**PROJECT COST AT APPRAISAL AND ACTUAL**  
(\$'000)

Item	Appraisal Estimate <sup>a</sup>			Actual <sup>b</sup>		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
<b>A. Investment Costs</b>						
1. Civil Works	4,200		4,200	4197		4197
2. Submarine cable system	26,200		26,200	24,395		24,395
3. Consulting Services				NA		
a. Construction Supervision consultant	850		850	NA		NA
b. Environment and social mitigation	150		150	NA		NA
c. Legal services and permissions	200		200	NA		NA
5. Taxes and duties	800		800	NA		NA
<b>Subtotal (A)</b>	<b>32,400</b>		<b>32,400</b>	<b>28,592</b>		<b>28,592</b>
<b>B. Recurrent Costs</b>				NA		
1. Salaries		250	250	NA		NA
2. Office Space		90	90	NA		NA
3. Equipment Operation and Maintenance		60	60	NA		NA
<b>Subtotal (B)</b>		<b>400</b>	<b>400</b>	NA		<b>NA</b>
<b>Total (A+B)</b>	<b>32,400</b>	<b>400.00</b>	<b>32,800</b>	<b>28,592</b>		<b>28,592</b>

<sup>a</sup> Asian Development Bank estimates.

<sup>b</sup> Tonga–Fiji Connectivity Project (TFCP) Audited Financial Statement July 2017–September 2018. Also note footnote a. C. Project Data, Basic Data page. \$4.197m is the government's contribution up to 30 April 2014, according to Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications progress report number 5. However, after this period, the government's contribution was not captured in financial reports.

## PROJECT COST BY FINANCIER

Table A4.1: Project Cost at Appraisal by Financier

Item	ADB (ADF Grant)		World Bank (IDA Grant)		TCL		Amount
	Amount	% of cost category	Amount	% of cost category	Amount	% of cost category	
<b>A Investment Costs</b>							
1. Civil Works					4,200,000	100.0%	4,200,000
2. Submarine cable system	9,700,000	37.0%	16,500,000	63.0%			26,200,000
3. Consultants							
a. Construction Supervision consultant					850,000	100.0%	850,000
b. Environment and social mitigation					150,000	100.0%	150,000
c. Legal expenses and permissions					200,000	100.0%	200,000
4. Taxes and duties					800,000	100.0%	800,000
<b>Subtotal (A)</b>	<b>9,700,000</b>	<b>29.9%</b>	<b>16,500,000</b>	<b>50.9%</b>	<b>6,200,000</b>	<b>19.1%</b>	<b>32,400,000</b>
<b>B Recurrent Costs</b>							
1. Salaries					250,000	100.0%	250,000
2. Office Space					90,000	100.0%	90,000
3. Equipment					60,000	100.0%	60,000
Operation and maintenance							
<b>Subtotal (B)</b>					<b>400,000</b>	<b>100.0%</b>	<b>400,000</b>
<b>Total Project Cost (A+B)</b>	<b>9,700,000</b>	<b>29.60%</b>	<b>16,500,000</b>	<b>50.3%</b>	<b>6,600,000</b>	<b>20.1%</b>	<b>32,800,000</b>
<b>% Total Project Cost</b>		<b>29.6%</b>		<b>50.3%</b>		<b>20.1%</b>	<b>100%</b>

ADB = Asian Development Bank; ADF = Asian Development Fund; IDA = International Development Association;  
TCL = Tonga Cable Limited

Note: Numbers may not sum precisely because of rounding.

Source: G0256-TON: Tonga–Fiji Submarine Cable Project, Project Administration Manual (PAM)

Table A4.2: Project Cost at Completion by Financier

Item	ADB (ADF Grant)		World Bank (IDA Grant)		TCL		Amount
	Amount	% of cost category	Amount	% of cost category	Amount	% of cost category	
<b>A. Investment Costs</b>							
1. Civil Works					4,197,000	100.0%	4,197,000 <sup>a</sup>
2. Submarine cable system							
a. Original international cable	7,412,338	37.0%	12,569,044	63.0%			19,981,382
b. Additional domestic extension	2,287,678	52.0%	2,126,660	48.0%			4,414,338
3. Consultants							
a. Construction Supervision consultant					(...)	(...)	(...)
b. Environment and social mitigation					(...)	(...)	(...)
c. Legal expenses and permissions					(...)	(...)	(...)
4. Taxes and duties					(...)	(...)	
<b>Subtotal (A)</b>	9,700,016	34%	14,695,704	51%	4,197,000	15%	28,592,720
<b>B. Recurrent Costs</b>							
1. Salaries					(...)	(...)	(...)
2. Office Space					(...)	(...)	(...)
3. Equipment					(...)	(...)	(...)
Operation and maintenance							
<b>Subtotal (B)</b>					(...)	(...)	(...)
<b>Total Project Cost (A+B)</b>	9,700,016	34%	14,695,704	51%	4,197,000	15%	28,592,720
<b>% Total Project Cost</b>		<b>34%</b>		<b>51%</b>		<b>15%</b>	<b>100%</b>

ADB = Asian Development Bank; ADF = Asian Development Fund; IDA – International Development Association; TCL = Tonga Cable Limited.

Note: Numbers may not sum precisely because of rounding.

<sup>a</sup> Recipient's disbursement captured until 30 April 2014.

Source(s): Tonga–Fiji Connectivity Project (TFCP) Audited Financial Statement July 2017–September 2018.



### DISBURSEMENT OF ADB GRANT PROCEEDS

Year	Annual Disbursement		Cumulative Disbursement	
	Amount (\$ million)	% of Total	Amount (\$ million)	% of Total
2012	0.72	7%	0.72	7%
2013	6.51	67%	7.23	75%
2014	0.17	2%	7.40	76%
2015	0.02	0%	7.41	76%
2017	2.02	21%	9.43	97%
2018	0.27	3%	9.70	100%
<b>Total</b>	<b>9.70</b>	<b>100%</b>	<b>9.70</b>	<b>100%</b>

ADB = Asian Development Bank.

Source: Asian Development Bank.

### CHRONOLOGY OF MAIN EVENTS

Date	Event
25 Jan 2010	Consultation mission
15 Mar 2011	Management Review Meeting approved and Advance Procurement Plan
27 May 2011	General procurement notice of potential submarine cable suppliers <sup>a</sup>
23 Aug 2011	ADB Board of Directors approved Grant 0256 for \$9.7 million
9 Sep 2011	Grant Agreement signed between ADB and Tonga
16 Sep 2011	Limited International Competitive Bidding launched <sup>b</sup>
23 Nov 2011	Closing date for bids <sup>c</sup>
21 Dec 2011	Grant 0256 became effective
30 Mar 2012	ADB No Objection Memo for international cable approved
5 Jul 2012	The Government of Tonga and submarine cable contractor signed contract agreement to install 827 km submarine cable from Fiji to Tonga
12 Oct 2012	The Government of Tonga advised WB and ADB of its preference to utilize savings for submarine cable extension to Ha'apai and Vava'u
Dec 2012	Legal consultants and regulatory consultants engaged
11 Jun 2013	Cable landed in Tonga (Nuku'alofa)
21 Aug 2013	Cable commissioned
26 Jun 2014	The Government of Tonga formally approved the extension of the submarine cable
15 Oct 2014	The Government of Tonga (TCL) submitted the EIA and confirmed land agreements submitted to ADB and WB
15 Oct 2014	ADB No Objection response to the Government of Tonga for reallocation of savings for extension of domestic cable to Ha'apai and Vava'u
15 Oct 2014	Submission of revised Procurement Plan to ADB and World Bank
15 Oct 2014	ADB responded to government's request for assistance with (i) valuation and pricing of TCL shares and (ii) partnership with other agencies/ firms interested in purchasing TCL shares
30 Jun 2016	Submission of memo for minor change of scope for approval
17 Feb 2017	TCL signed contract with submarine cable contractor for extension of the submarine cable to Ha'apai and Vava'u groups
02 Jan 2018	Cable landed in Ha'apai
08 Jan 2018	Cable landed in Vava'u
27 Mar 2018	Cable commissioned in Ha'apai
28 Mar 2018	Cable commissioned in Vava'u

ADB = Asian Development Bank, EIA = Environmental Impact Assessment, km = kilometer, MRM = management review meeting, TA = technical assistance, TCL = Tonga Cable Limited.

<sup>a</sup> ADB (Central Operations Services Office). 2011. Proposed Tonga-Fiji Submarine Cable Project – List of Suppliers to be invited for Limited International Bidding). Memorandum. 9 August (internal).

<sup>b</sup> Fifteen pre-identified companies specializing in submarine cables installation.

<sup>c</sup> Four bids received.

Source: Asian Development Bank.

**CONTRACT AWARDS OF ADB GRANT PROCEEDS**

<b>Year</b>	<b>Annual Contract Awards</b>		<b>Cumulative Contract Awards</b>	
	<b>Amount (\$ million)</b>	<b>% of Total</b>	<b>Amount (\$ million)</b>	<b>% of Total</b>
2012	7.42	76	7.42	76
2017	2.28	24	9.70	100
<b>Total</b>	<b>9.70</b>	<b>100</b>	<b>9.70</b>	<b>100</b>

ADB = Asian Development Bank.

Source: Asian Development Bank.

### STATUS OF COMPLIANCE WITH GRANT COVENANTS

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
Grant Agreement	Article IV:	Section 4.01	In the carrying out of the Project and operation of the Project facilities, the Recipient shall perform, or cause to be performed, all obligations set forth in Schedule 4 to this Grant Agreement.	Complied.
		4.02	The Recipient shall enable ADB's representatives to inspect the Project, the Goods and Works, and any relevant records and documents.	Complied. The Recipient was cooperative, providing support as and when requested during implementation.
		4.03	The Recipient shall take all actions which shall be necessary on its part to enable TCL to perform its obligations under the Project Agreement and shall not take or permit any action which would interfere with the performance of such obligations.	Complied. The Recipient accepted external support via TA to assist TCL perform its obligations under the Project Agreement.
		4.04	(a) The Recipient shall exercise its rights under the Share Purchase Agreement in such a manner as to protect the interests of the Recipient and ADB and to accomplish the purposes of the Grant.	Complied. Recipient was successful in accomplishing the purpose of the Grant and the Share Purchase Agreement was adhered to.
	(b) No rights or obligations under the Share Purchase Agreement shall be assigned, amended, or waived without the prior concurrence of ADB.			
	Schedule 4	Paragraph 1	<u>Implementation Arrangement</u> The Recipient and TCL shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM shall become effective only after approval of such change by the Recipient, TCL and ADB. In the event of any discrepancy between the PAM and this Grant Agreement, the provisions of this Grant Agreement shall prevail.	Complied. Changes to PAM were done in collaboration between recipient, World Bank and ADB.
			2	The Recipient and TCL shall ensure that TCL employs sufficient staff to manage Project implementation for the duration of the Project, with adequate and relevant expertise in the field of project management, financial management, engineering, procurement, and environmental and social safeguards implementation. The Recipient and TCL shall equip staff assigned to the Project with the necessary office space, facilities, equipment, support staff and management information systems for the entire duration of the Project. Until implementation of the corporate governance reforms set out in paragraph 13 of this Schedule 4, the Recipient and TCL shall undertake best efforts to ensure that the same

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
			persons will continue to be assigned to the Project for the entire duration of the Project.	remained with the project throughout.
		3	<p>Environment:</p> <p>The Recipient and TCL shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project comply with (a) all applicable laws and regulations of the Recipient relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the IEE, the EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p>	Complied. All environmental safeguards requirements were met.
		4	<p>Resettlement:</p> <p>The Recipient and TCL shall ensure that the Project does not result in any involuntary resettlement within the meaning of the Safeguard Policy Statement. In the unforeseen event that the Project does lead to involuntary resettlement, the Recipient and TCL shall take all steps required to ensure that the Project complies with (a) all applicable laws and regulations of the Recipient relating to land acquisition and involuntary resettlement; (b) the resettlement framework for the Project, including any update thereto, prepared and submitted by TCL and cleared by ADB; and (c) the Safeguard Policy Statement.</p>	Complied. The project did not cause any involuntary resettlement.
		5	<p>Indigenous Peoples:</p> <p>The Recipient and TCL shall ensure that the Project does not impact indigenous peoples within the meaning of the Safeguard Policy Statement. In the unforeseen event that the Project does impact indigenous peoples, the Recipient and TCL shall take all steps required to ensure that the Project complies with applicable laws and regulations of the Recipient and with the Safeguard Policy Statement.</p>	Complied. A committee is formed in Fiji to monitor any impact on indigenous or environment.
		6	<p>Safeguards Monitoring and Reporting:</p> <p>The Recipient shall do the following or cause TCL to do the following:</p> <p>(a) Submit quarterly Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission.</p> <p>(b) If any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE or the EMP, promptly inform</p>	Complied. The Recipient and TCL have complied with laws and regulations due to the Environment, so far there has been no involuntary resettlement on either side of the cable and a committee has been formed in Fiji to

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
			ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and (c) Report any actual or potential breach of compliance with the measures and requirements set forth in the EMP promptly after becoming aware of the breach.	monitor any impact on Indigenous peoples.
Grant Agreement	Schedule 4	7	Counterpart Support: The Recipient shall ensure that TCL makes available all counterpart funds required for timely and effective implementation of the Project, including any funds required to make land available for the Project, to mitigate unforeseen environmental and social impacts, and to meet additional costs arising from design changes, price escalation in construction and cable installation costs and/or unforeseen circumstances. The Recipient shall ensure that TCL makes the resources thus required available as and when needed.	Complied. TCC allocated \$6.6 million for the construction of the landing stations, consulting services and taxes and duties. These costs were met.
		8	Operation and Maintenance: TCL shall ensure that the Project facilities are maintained in accordance with applicable standards and best international practices, and allocate and make available, on a timely basis, the funds budgeted for repair and maintenance of the Project facilities.	Complied. TCL continues to generate sufficient profits for repair and maintenance.
		9	<u>Governance and Corruption</u> The Recipient and TCL shall (i) comply with ADB's Anticorruption Policy (1998, as amended to date) and acknowledges that ADB reserves the right to investigate directly, or through its agents, any alleged corrupt, fraudulent, collusive or coercive practice relating to the Project; and (ii) cooperate with any such investigation and extend all necessary assistance for satisfactory completion of such investigation.	Complied. No issue related to corruption, fraud, collusion or coercion were raised during implementation.
		10	The Recipient and TCL shall ensure that anticorruption provisions acceptable to ADB are included in all bidding documents and contracts, including provisions specifying the right of ADB to audit and examine the records and accounts of the Recipient and TCL and all contractors, suppliers, consultants, and other service providers as they relate to the Project.	Complied.
		11	The Recipient and TCL shall announce the Project and business opportunities associated with the Project as set out in the Procurement Plan on the Recipient's official website. The website shall publish the audited Project accounts, Project progress reports and at disclose the following information in relation to Goods and Works procured for the project: (i) the list of participating bidders, (ii) the name of the winning	Not complied with. TCL nor the Ministry of Finance and National Planning websites did not publish the relevant information.

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
			bidder, (iii) the amount of the contracts awarded, and (iv) the Works, goods and services procured.	
		12	Organizational Matters: The Recipient shall ensure that TCL has the operational autonomy required to secure, protect and advance its commercial, financial and administrative interests. The Recipient shall also ensure that throughout Project implementation (i) no material organizational changes (either financial, operational, or structural) to, nor material asset transfers to or from TCL, including change in ownership of the Project facilities, are formally approved or implemented without prior approval of ADB; and (ii) any such changes are carried out in a transparent manner and in accordance with applicable laws and regulations.	Complied. No issues as such encountered during implementation.
		13	No later than the date at which the submarine cable system becomes operational, the Recipient and TCL (i) shall have completed the steps required to convert TCL into a public enterprise that meets the requirements under the Recipient's Public Enterprises Act 2002, as amended; and (ii) shall ensure that the board and senior management of TCL solely comprise members that have been engaged under a competitive and transparent recruitment process. The Recipient and TCL shall inform ADB of any proposed subsequent changes in the ownership or governance framework applicable to TCL and shall provide ADB with an opportunity to comment on such proposals. The Recipient and TCL shall take ADB's views into consideration before finalizing and implementing any such proposals.	Partly complied with. There was a change in Board members in May 2014, but the rationale and process in the selection of incoming members were not articulated. Communication Commission Act 2015 passed by Parliament but no resources allocated to operationalize the Commission.
		14	From commencement of commercial operations onwards, TCL shall not incur any Debt unless a reasonable forecast of the revenues and expenditures shows that the estimated free cash flows for each fiscal year during the term of the Debt to be incurred shall be at least 1.2 times the estimated debt service requirements in such year on all borrowings including the Debt to be incurred and no event has occurred since the date of the forecast which has, or may reasonably be expected in the future to have, a material adverse effect on the financial condition of future operating results. For the purposes of this provision, the term "Debt" means any indebtedness maturing by its terms more than one year after the date on which it is originally incurred.	Complied. TCL incurred some debt in FY 2013 (T\$3.3m) but was able to achieve its debt service coverage ratio of 1.2 times as agreed between TCL and government.
Grant Agreement	Schedule 4	15	Within one month after determination of the precise submarine cable route on the basis of a marine survey, the Recipient shall have (i) declared the area within the Recipient's territorial waters through which	Complied.

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
			the submarine cable will pass, a 'special management area' under the Recipient's Fisheries Management Act, where trawl fishing is prohibited; and (ii) the Recipient shall have adopted any other legislation or regulations required to ensure adequate protection of the submarine cable system in the Recipient's territorial waters.	
		16	No later than 30 September 2012, the Recipient shall have completed the legal and regulatory reforms necessary to incorporate into national law (i) the Recipient's specific commitments regarding telecommunications to the World Trade Organization, including as set out in the Reference Paper to the GATS Agreement on Basic Telecommunications; and (ii) international best practices in the field of telecommunications regulation, with a view to creating an enabling telecommunications and information and communication technology environment providing, among other things, for (a) open interconnection access on non-discriminatory terms and with transparent and reasonable cost-oriented rates; (b) appropriate measures to prevent anti-competitive behavior; (c) transparency in license administration and regulatory decision making; (d) independent appeals mechanisms and dispute resolution processes; (e) efficient administration of scarce resources (such as frequencies and numbers) in an objective, timely, transparent and non-discriminatory manner; and (f) adequate provisions regarding consumer protection.	Not complied with - Legislation was developed in 2015 but no resources have been allocated to an independent regulator to operationalize it. Instead MEIDOCOC undertakes the role of regulator.
		17	No later than 30 June 2013, the Recipient shall have (a) completed the legal and regulatory reforms necessary to create an enabling environment for secure electronic transactions, ensuring on-line security (protection against cyber-crimes), protection of personal data, protection of intellectual property rights in an on-line environment, and country code top level domain (".to") administration and regulation in Tonga; and (b) adopted a road map and policy framework to address any remaining medium and longer term regulatory needs, such as the possible establishment of an independent regulatory institution for the telecommunications sector.	Partly complied with. MEIDECC still acts as the sector regulator, instead of the Communications Commission. Relevant laws e.g. the cybercrime act was passed and resulted in Tonga joining the Budapest Convention on Cybercrime in 2017. Other legislative processes (acts) to which the Project provided technical assistance are on: (a) e-transactions, (b) intellectual property, (c) privacy, and (d) data protection, and (e)



Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
				domain name registration; however, these are not yet enacted.
		18	No later than 30 June 2013, the Recipient shall have adopted a detailed road map with corresponding budget allocation to deploy ICT-based public service delivery in education, health, public administration and disaster risk reduction within the existing national development strategy.	Partially complied.
		19	The Recipient shall keep ADB informed of policy discussions with other multilateral and bilateral agencies relating to the development and regulation of broadband connectivity and broadband access service and shall provide ADB with an opportunity to comment on any resulting policy proposals. The Recipient shall take ADB's views into consideration before finalizing and implementing any such proposals.	Complied. Key policy discussions were mostly held with the World Bank.
		20	Prohibited List of Investments: The Recipient and TCL shall ensure that no proceeds of the Grant are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the Safeguard Policy Statement.	Complied. The project did not fund prohibited investment activities.
Project Agreement	Article II (Particular Covenants)	Section 2.01	a) TCL shall carry out the Project with due diligence and efficiency, and in conformity with sound applicable technical, financial, business, and development practices.	Complied. TCL performed its duties under the project to the best of its abilities with resource available.
			(b) In the carrying out of the Project and operation of the Project facilities, TCL shall perform all obligations set forth in the Grant Agreement to the extent that they are applicable to TCL.	
		2.02	TCL shall make available, promptly as needed, the funds, facilities, services, land and other resources as required, in addition to the proceeds of the Grant, for the carrying out of the Project.	Complied. TCL provided its available resources and support to the project.
		2.03	(a) In the carrying out of the Project, TCL shall employ competent and qualified consultants and contractors in accordance with the Procurement Guidelines. (b) Except as ADB may otherwise agree, all items of expenditures financed out of the proceeds of the Grant shall be procured in accordance with the provisions of Schedule 3 to the Grant Agreement. ADB may refuse to finance a contract where any such item has not been procured under procedures substantially in accordance with those agreed between the Recipient and ADB or where the terms and conditions of the contract are not satisfactory to ADB.	Complied. Consultants were recruited under the appropriate procurement guidelines and were effective in carrying out their duties. All procurement were conducted in accordance with the appropriate provisions and guidelines.
		2.04	TCL shall carry out the Project in accordance with plans, design standards, specifications, work schedules and construction methods	Complied. TCL collaborated closely with consultants,

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
			acceptable to ADB. TCL shall furnish, or cause to be furnished, to ADB, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	World Bank and ADB to ensure standards were met.
		2.05	(a) TCL shall take out and maintain with responsible insurers, or make other arrangements satisfactory to ADB for, insurance against such risks and in such amounts as shall be consistent with sound practice.  (b) Without limiting the generality of the foregoing, TCL undertakes to insure, or cause to be insured, the Goods to be imported for the Project against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such Goods.	Complied. Details are captured in the Agreement between TCL and the Contractor selected to design, manufacture, test, deliver, install, complete and commission the submarine cable infrastructure.
		2.06	TCL shall maintain, or cause to be maintained, records and accounts adequate to identify the items of expenditure financed out of the proceeds of the Grant, to disclose the use thereof in the Project, to record the progress of the Project (including, the cost thereof) and to reflect, in accordance with consistently maintained sound, accounting principles, its operations and financial condition.	Partly complied with. TCL maintained its accounts with the support of TCC and MEIDECC. TCC produced quarterly unaudited interim financial reports. MEIDECC maintained the bookkeeping for the project and its audit was conducted by the Tonga Office of the Auditor General. But counterpart financing after June 2014 were not included in financial reporting.
Project Agreement	Article II (Particular Covenants)	2.07	(a) ADB and TCL shall cooperate fully to ensure that the purposes of the Grant will be accomplished.  (b) TCL 'shall promptly inform ADB of any condition which interferes with, or threatens' to interfere with, the progress of the Project, the performance of its obligations under this Project Agreement or the Share Purchase Agreement, or the accomplishment of the purposes of the Grant.  (c) ADB and TCL shall from time to time, at the request of either party, exchange views through their representatives with regard to any matters relating to the Project, TCL and the Grant.	Complied. TCL was prompt to engage with ADB and project partners during implementation.

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
		2.08	<p>(a) TCL shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (I) the Grant and the expenditure of the proceeds thereof; (ii) the items of expenditure financed out of such proceeds; (iii) the Project; (iv) the administration, operations and financial condition of TCL; and (v) any other matters relating to the purposes of the Grant.</p> <p>(b) Without limiting the generality of the foregoing, TCL shall furnish to ADB quarterly reports on the execution of the Project and on the operation and management of the project facilities. Such reports shall be submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the period under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following period.</p> <p>(c) Promptly after physical completion of the Project, but in any event not later than 3 months thereafter or such later date as ADB may agree for this purpose, TCL shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by TCL of its obligations under this Project Agreement and the accomplishment of the purposes of the Grant.</p>	<p>Partly complied with. TCL maintained its accounts with the support of TCC and MEIDECC. TCC produced quarterly unaudited interim financial reports. MEIDECC maintained the bookkeeping for the project and its audit was conducted by the Tonga Office of the Auditor General. But counterpart financing after June 2014 were not included in financial reporting. Quarterly reports were submitted inconsistently during implementation and a final report was not submitted by TCL.</p>
		2.09	<p>(a) TCL shall (i) maintain separate accounts for the Project and for its overall operations; (ii) have such accounts and related financial statements (balance sheet, statement of income and expenses, and related statements) audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB; and (iii) furnish to ADB, promptly after their preparation but in any event not later than 6 months after the close of the fiscal year to which they relate, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Grant proceeds and compliance with the covenants of the Grant Agreement), all in the English language. TCL shall furnish to ADB such further information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.</p>	<p>Partly complied with. Audits were unqualified, but reports were normally submitted past the deadline. Discussions with TCL and TOAG occurred during review missions, when necessary.</p>

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
			(b) TCL shall enable ADB, upon ADB's request, to discuss TCL's financial statements and its financial affairs from time to time with the auditors appointed by TCL pursuant to Section 2.09 (a) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB, provided that any such discussion shall be conducted only in the presence of an authorized officer of TCL unless TCL shall otherwise agree.	
		2.10	TCL shall enable ADB's representatives to inspect the Project, the Goods and Works, all other plants, sites, properties and equipment of TCL, and any relevant records and documents to the extent they relate to the Project.	Complied. Site visits occurred during selected review missions.
		2.11	(a) TCL shall, promptly as required, take all action within its powers to maintain its corporate existence, to carry on its operations, and to acquire, maintain and renew all rights, properties, powers, privileges and franchises which are necessary in the carrying out of the Project or in the conduct of its operations.	Complied. TCL demonstrated good leadership to support the project and its goals. TCL management grew staff from 12 to 24 with key technical personnel recruited during implementation. TCL has effectively operated and maintained its plant and equipment. The damage caused by a ship's anchor in January 2019 was rectified in a timely manner.
			(b) TCL shall at all times conduct its operations in accordance with sound applicable technical, financial, business, development and operational practices, and under the supervision of competent and experienced management and personnel.	
Project Agreement	Article II (Particular Covenants)		(c) TCL shall at all times operate and maintain its plants; equipment and other property, and from time to time, promptly as needed, make all necessary repairs and renewals thereof, all in accordance with sound applicable technical, financial, business, development, operational and maintenance practices.	
		2.12	Except as ADB may otherwise agree, TCL shall not sell, lease or otherwise dispose of any of its assets which shall be required for the efficient carrying on of its operations or the disposal of which may prejudice its ability to perform satisfactorily any of its obligations under this Project Agreement.	Complied. TCL has not pursued these options during and after project implementation.
		2.13	Except as ADB may otherwise agree, TCL shall apply the proceeds of the Grant to the financing of expenditures on the Project in accordance with the provisions of the Grant Agreement and this Project Agreement, and shall ensure that all items of expenditures financed out of such proceeds are used exclusively in the carrying out of the Project.	Complied. TCL has utilized grant resources as per project agreements.
		2.14	Except as ADB may otherwise agree, TCL shall duly perform all its obligations under the Share Purchase Agreement, and shall not take, or concur in, any action which would have the effect of assigning, amending,	Complied.

Product	Article/ Schedule	Section/ Para No.	Description	Remarks/Issues
			abrogating or waiving any rights or obligations of the parties under the Share Purchase Agreement.	
		2.15	TCL shall promptly notify ADB of any proposal to amend, suspend or repeal any provision of its constitutional documents and shall afford ADB an adequate opportunity to comment on such proposal prior to taking any action thereon.	Complied.

ADB = Asian Development Bank, EMP = environmental management plans, IEE = initial environmental examinations, GATS = General Agreement on Trade in Services, MEIDECC = Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications, PAM = project administration manual, TA = technical assistance, TCC = Tonga Communications Corporation, TCL = Tonga Cable Limited, TOAG = Tonga Office of the Auditor General.

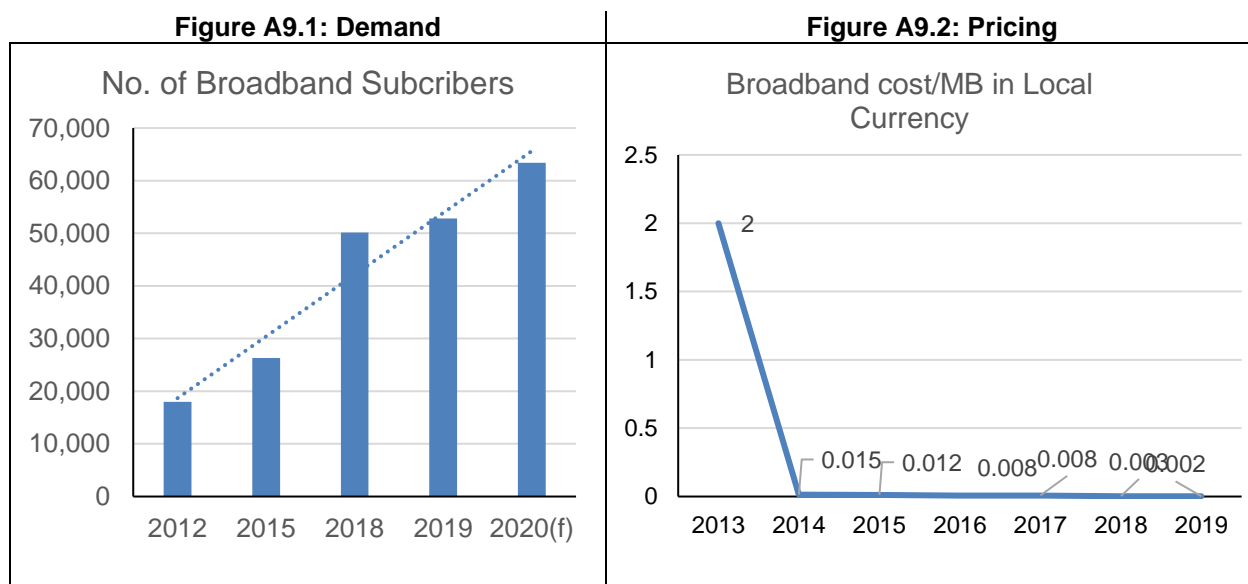
## FINANCIAL AND ECONOMIC REEVALUATION

### A. Introduction

1. This section aims to reevaluate the financial and economic analyses done for the Tonga–Fiji Submarine Cable project using latest available data.

### B. Demand and Pricing

2. Compared to proposal, the availability of more detailed data from the Government of Tonga enables better assessment of the impact of the project.



MB = Megabytes.

Note: At appraisal phase, analysis was based on subscription fees per month. Pricing are now based per megabyte.

Source: Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications.

3. Demand for internet have increased steadily since 2012, from 18,000 subscribers to around 53,000 by 2019 (Figure A81). Local authority projects that it will increase by around 20% in 2020 due to the coronavirus disease pandemic. The high demand is a result of dramatic drop in prices (Figure A8.2).

### C. Financial Analysis

4. Two conditions needs to be met for a project to fully recover its costs: (i) the financial internal rate of return (FIRR) discounted at the weighted average cost of capital (WACC) needs to be positive; and (ii) the FIRR needs to be greater than the WACC. Sensitivity analyses were also conducted to determine the project's sustainability.

5. All criteria were met. WACC is 10.04% (Table A9.1) based on the financial plan, while the FIRR is 16.15% over 27 years including 5 years of construction (Table 9.2).

**Table A9.1: Weighted Average Cost of Capital (WACC)**

Items	ADB and WB grant	TCL Contribution	TCL Loan
A. Amount (\$ '000)	26.2	4.2	0.0
B. Weighting	86.19%	13.81%	0.00%
C. Nominal cost	15.00%	15.00%	7.00%
D. Tax rate	25.00%	25.00%	25.00%
E. Tax-adjusted nominal cost	11.25%	11.25%	5.25%
F. Inflation rate	0.50%	5.00%	5.00%
G. Real cost	10.70%	5.95%	0.24%
H. Weighted component of WACC	9.22%	0.82%	0.00%
<b>Weighted Average Cost of Capital</b>			<b>10.04%</b>

ADB = Asian Development Bank, TCL = Tonga Cable Limited, WB = World Bank.

Source: Asian Development Bank estimates.

**Table A9.2: Financial Internal Rate of Return of the Submarine Cable Project (\$'000)**

Year	Revenue	Capex	Opex	Net (Free Cash Flows)
2012	-	(2200)	-	(2200)
2013		(21054)	-	(21054)
2014	2,220.526	(628)	(1268)	324
2015	2,897.798	-	(1268)	1630
2016	3,680.492	-	(1268)	2412
2017	5,678.954	(6285)	(1268)	(1874)
2018	6,878.976	(1257)	(1268)	4354
2019	7,637.164		(1268)	6369
2020	8,944.205		(1268)	7676
2021	8,279.036		(1268)	7011
2022	8,158.375		(1268)	6890
2023	8,254.126		(1268)	6986
2024	8,330.995		(1268)	7063
2025	8,224.342		(1268)	6956
2026	8,304.176		(1268)	7036
2027	8,384.801		(1268)	7117
2028	8,466.221		(1268)	7198
2029	8,356.934		(1268)	7089
2030	8,409.999		(1268)	7142
2031	8,490.881		(1268)	7223
2032	8,393.961		(1268)	7126
2033	8,393.961		(1268)	7126
2034	8393.961		(1268)	7126
2035	8393.961		(1268)	7126
2036	8393.961		(1268)	7126
2037	8393.961		(1268)	7126
2038	8393.961		(1268)	7126
Net Present Value				\$15,248.18
Internal Rate of Return				<b>16.15%</b>

( ) = negative, Capex = capital expenditures, Opex = operating expenditures.

Source: Asian Development Bank estimates.

6. Sensitivity results suggest unless revenues fall below 32%, the project remains viable.

**Table A9.3: Sensitivity Analysis of Financial Internal Rate of Return**

Item	FIRR	FNPV <sup>a</sup>	Switching Value (%)
Base scenario	16.15%	\$15,248.18	
25% decrease in revenue	11.38%	\$3,057.38	(31.3)
10% increase in Capex	14.85%	\$12,844.16	63.4
10% increase in Opex	15.77%	\$14,300.70	160.9

( ) = negative, Capex = capital expenditures, FIRR = financial internal rate of return, FNPV = financial net present value, Opex = operating expenditures.

Source: Asian Development Bank estimates.

#### D. Economic Analysis

7. The economic analysis done at proposal phase was also re-examined.
8. The consumer surplus generated from high cost savings, lower costs and spread out disbursements resulted in an economic internal rate of return of 21.4% while the switching value was 52% suggesting that unless revenue falls below this value, the project is sustainable.

**Table A9.4: Economic Costs and Benefits of the Submarine Cable**  
(\$'000)

Year	Benefits			Costs			Net Benefits
	Incremental	Non-incremental	Total	Capex	Opex	Total	
2012	-	-	-	2,200	-	2,200	(2,200)
2013	-	-	-	21,054	-	21,054	(21,054)
2014	2,538	957	3,495	628	1,268	1,897	1,598
2015	3,215	957	4,172	-	1,268	1,268	2,904
2016	3,998	957	4,955	-	1,268	1,268	3,687
2017	6,080	1,209	7,289	6,285	1,268	7,553	(264)
2018	7,297	1,639	8,936	1,257	1,268	2,525	6,411
2019	8,055	1,745	9,800	-	1,268	1,268	8,532
2020	9,362	1,859	11,221	-	1,268	1,268	9,953
2021	8,697	1,865	10,561	-	1,268	1,268	9,293
2022	8,576	1,874	10,450	-	1,268	1,268	9,182
2023	8,672	1,886	10,558	-	1,268	1,268	9,290
2024	8,749	1,865	10,614	-	1,268	1,268	9,346
2025	8,642	1,845	10,487	-	1,268	1,268	9,218
2026	8,722	1,823	10,545	-	1,268	1,268	9,277
2027	8,803	1,802	10,605	-	1,268	1,268	9,336
2028	8,884	1,781	10,665	-	1,268	1,268	9,397
2029	8,775	1,760	10,535	-	1,268	1,268	9,267
2030	8,828	1,739	10,567	-	1,268	1,268	9,299
2031	8,909	1,719	10,627	-	1,268	1,268	9,359
2032	8,812	1,698	10,510	-	1,268	1,268	9,241
2033	8,812	1,675	10,487	-	1,268	1,268	9,219



Year	Benefits			Costs			Net Benefits
	Incremental	Non-incremental	Total	Capex	Opex	Total	
2034	8,812	1,653	10,464		1,268	1,268	9,196
2035	8,812	1,630	10,442		1,268	1,268	9,174
2036	8,812	1,608	10,420		1,268	1,268	9,152
2037	8,812	1,586	10,398		1,268	1,268	9,130
2038	8,812	1,565	10,376		1,268	1,268	9,108
NPV <sup>a</sup>	41,562	9,188	50,750	20,489	7,027	27,516	20,359
IRR							<b>21.4%</b>

(-) = negative, Capex = capital expenditures, IRR = internal rate of return, NPV = net present value, Opex = operating expenditures.

<sup>a</sup> Discounted at 12%.

Source: Asian Development Bank estimates.

**Table A9.5: Sensitivity Analysis of Economic Internal Rate of Return**

Scenarios	EIRR	ENPV	Switching Value
	(%)		(%)
Base case	21.4	20,359	
Revenue decreases by 25%	17.1	10,468	(51.46)
Capex increases by 10%	19.8	18,064	88.71
Opex increases by 10%	21.0	19,566	256.73

(-) = negative, FIRR = financial internal rate of return, FNPV = financial net present value, Capex = capital expenditures, Opex = operating expenditures.

Source: Asian Development Bank estimates.

## E. Summary

9. The following table highlights the key results of the project.

**Table A9.6: EIRR and FIRR Comparison Pre- and Post-Project Implementation**

Item	Appraisal Stage	Completion Stage
WACC	0.02%	10.04%
FIRR	13.63%	16.15%
FIRR Switching value based on fall in revenues	(67%)	(31%)
EIRR	17.3%	21.4%
EIRR Switching value based on fall in revenues	(40%)	(51%)
Conclusion	Economically viable	

EIRR = economic internal rate of return, FIRR = financial internal rate of return, WACC = weighted average cost of capital

Source: Asian Development Bank estimates.

### RATINGS OF SOVEREIGN PROJECTS

Criterion	Weight	Descriptor	Rating value
1. Relevance	25 %	Highly relevant	3
		Relevant	2
		Less than relevant	1
		Irrelevant	0
2. Effectiveness	25%	Highly effective	3
		Effective	2
		Less than effective	1
		Ineffective	0
3. Efficiency	25%	Highly efficient	3
		Efficient	2
		Less than efficient	1
		Inefficient	0
4. Sustainability	25%	Most Likely	3
		Likely	2
		Less than likely	1
		Unlikely	0
Overall Assessment (weighted average of above criteria)		<ul style="list-style-type: none"> <li>• <i>Highly successful</i>: Overall weighted average is greater than or equal to 2.5</li> <li>• <i>Successful</i>: Overall weighted average is greater than or equal to 1.75 and less than 2.5</li> <li>• <i>Less than successful</i>: Overall weighted average is greater than or equal to 0.75 and less than 1.75</li> <li>• <i>Unsuccessful</i>: Overall weighted average is less than 0.75.</li> </ul>	