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IDA/R2015-0150/1

June 2, 2015

Closing Date: Friday, June 19, 2015 at 6 p.m.

FROM: The Corporate Secretary

Samoa - Pacific Regional Connectivity Program, Phase 3
Samoa Connectivity Project

Project Appraisal Document

Attached is the Project Appraisal Document regarding a proposed grant to Samoa for a Pacific Regional Connectivity Program, Phase 3 - Samoa Connectivity Project (IDA/R2015-0150), which is being processed on an absence-of-objection basis.

Distribution:
Executive Directors and Alternates
President
Bank Group Senior Management
Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC and MIGA

Document of
The World Bank

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Report No: PAD1264

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT
IN THE AMOUNT OF SDR 11.6 MILLION
(US$16.0 MILLION EQUIVALENT)

TO THE INDEPENDENT STATE OF SAMOA

FROM THE
INTERNATIONAL DEVELOPMENT ASSOCIATION

IN SUPPORT OF THE

PACIFIC REGIONAL CONNECTIVITY PROGRAM

SAMOA CONNECTIVITY PROJECT

May 22, 2015

CURRENCY EQUIVALENTS

EXCHANGE RATE EFFECTIVE MARCH 31, 2015

CURRENCY UNIT	=	WST
US$1	=	WST2.47
WST1.0	=	US$0.40
SDR1	=	US$1.38
US$1	=	SDR 0.72

FISCAL YEAR

July 1 – June 3

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
ADSL	Asymmetric digital subscriber line
ASHC	American Samoa Hawaii Cable LLC
BMH	Beach manhole
CAPEX	Capital expenditure
CSL	Computer Services Limited
DFAT	Australian Department of Foreign Affairs and Trade
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FM	Financial management
Gbps	Gigabits per second
GDP	Gross domestic product
GNI	Gross national income
ICT	Information and communication technologies
IDA	International Development Association
IEE	Initial environmental examination
IP	Internet protocol
IRU	Indefeasible right of use
ITU	International Telecommunications Union
Mbps	Megabits per second
MCIT	Ministry of Communications and Information Technology
MoF	Ministry of Finance
MoU	Memorandum of understanding
O3B	Other three billion
OoTR	Office of the Regulator
OPEX	Operating expense
PPP	Public-private partnership
PRIF	Pacific Regional Infrastructure Facility
RPF	Resettlement Policy Framework
RIO	Reference interconnection offer
SAS	Samoa-American Samoa (cable system)
SCCN	Southern Cross Cable Network
SSCC	Samoa Submarine Cable Company
SPV	Special purpose vehicle
TA	Technical assistance

Regional Vice President:	Axel van Trotsenburg
Country Director:	Franz R. Drees-Gross
Senior Global Practice Director:	Pierre Guislain
Practice Manager:	Randeep Sudan
Task Team Leader:	Natasha Beschorner

SAMOA
PACIFIC REGIONAL CONNECTIVITY PROGRAM: PHASE 3 - SAMOA

CONTENTS

PAD DATA SHEET

Samoa

WS: Pacific Regional Connectivity Program: Phase 3 - Samoa (P128904)

PROJECT APPRAISAL DOCUMENT

EAST ASIA AND PACIFIC

0000009080

Report No.: PAD1264

Basic Information		
Project ID	EA Category	Team Leader(s)
P128904	B - Partial Assessment	Natasha Beschorner
Lending Instrument	Fragile and/or Capacity Constraints [ ]	
Investment Project Financing	Financial Intermediaries [ ]	
	Series of Projects [X]	
Project Implementation Start Date	Project Implementation End Date	
19-Jun-2015	31-July-2020	
Expected Effectiveness Date	Expected Closing Date	
14-Sep-2015	31-July-2020	
Joint IFC		
No		

Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Randeep Sudan	Pierre Guislain	Franz R. Drees-Gross	Axel van Trotsenburg

Borrower: Independent State of Samoa

Responsible Agency: Ministry of Finance, Independent State of Samoa

Contact: Mr. Iulai Lavea Title: CEO

Telephone No.: 68534333 Email: Iulai.Lavea@mof.gov.ws

Project Financing Data(in USD Million)					
[ ]	Loan	[X]	IDA Grant	[ ]	Guarantee
[ ]	Credit	[X]	Grant	[ ]	Other

Total Project Cost:	49.94	Total Bank Financing:	16.00
Financing Gap:	0.00		

Financing Source	Amount
BORROWER/RECIPIENT	5.76
IDA Grant	16.00
Asian Development Bank	18.50
DFAT	1.50
Samoa Submarine Cable Company	8.18
Total	49.94

Expected Disbursements (in USD Million)

Fiscal Year	2016	2017	2018	2019	2020	0000	0000	0000	0000	0000
Annual	1.50	6.50	4.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00
Cumula-tive	1.50	8.00	12.00	14.00	16.00	0.00	0.00	0.00	0.00	0.00

Institutional Data

Practice Area (Lead)

Transport & ICT

Contributing Practice Areas

Cross Cutting Topics

[ ] Climate Change

[ ] Fragile, Conflict & Violence

[ ] Gender

[ ] Jobs

[X] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Information and communications	General information and communications sector	100		
Total		100		

☑ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Financial and private sector development	Infrastructure services for private sector	50

	development	
Rural development	Rural services and infrastructure	40
Financial and private sector development	Regulation and competition policy	10
Total		100

Proposed Development Objective(s)

The Project development objective is to reduce the cost and increase the availability of Internet services in Samoa.

Components

Component Name	**Cost (USD Millions)**
Component 1. Samoa-Fiji Cable	47.64
Component 1 (a) Submarine cable system	37.38
Component 1 (b)Landing stations and ancillary equipment	2.85
Component 1 (c) Additional costs	7.41
Component 2. ICT Regulatory Technical Assistance	1.44
Component 3. Project implementation and administration	0.86

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	High
7. Environment and Social	Low
8. Stakeholders	Substantial
9. Other	Substantial
OVERALL	Substantial

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [X]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]

Does the project meet the Regional criteria for readiness for implementation?	Yes [X] No [ ]

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants

Name	Recurrent	Due Date	Frequency
Project management		3 months after Effective Date	

Description of Covenant

The Recipient shall appoint, by not later than three months after the Effective Date, and thereafter maintain throughout the period of Project implementation, a Project manager, within the Ministry of Finance, with qualifications and experience and under terms of reference acceptable to the Association, to be responsible for supporting Project implementation. [FA Schedule 2 Section I.A.3]

Name	Recurrent	Due Date	Frequency
Open Access to International Connectivity Infrastructure		3 months after Effective Date	

Description of Covenant

The Recipient shall take all measures required on its part to ensure that OoTR, shall, by not later than three months after the Effective Date and pursuant to Part VI of the Telecommunications Act and thereafter, throughout the Project implementation period, ensure that all international submarine fiber optic infrastructure in its territory shall be subject to independent regulation which guarantees open access to international communications services by all access seekers on a cost-based and nondiscriminatory basis, all in form and substance acceptable to the Association. [FA Schedule 2, Section I.C]

Name	Recurrent	Due Date	Frequency
Proposed structure and implementation arrangements for SSCC		6 months after Effective Date	

Description of Covenant

The Recipient shall, by not later than six months after the Effective Date, obtain and submit to the Association an independent appraisal of the proposed structure for SSCC, including ownership, financing and governance arrangements, business model, divestiture arrangements (including asset valuation) and the mechanism for ensuring financial equilibrium in the interests of users of ICT services in Samoa, in conformity with the Recipient's Laws, and all in form and substance acceptable to the Association. [FA Schedule 2, Section I.B.1(a)]

Name	Recurrent	Due Date	Frequency
Binding offer for the private sector to participate in SSCC		9 months after Effective Date	

Description of Covenant

The Recipient shall, by not later than nine months after the Effective Date, issue a binding offer to sell shares in, or otherwise provide for private sector involvement in the financing of, SSCC, all in an amount and in a manner satisfactory to the Association. [FA Schedule 2, Section I.B.1(b)]

Name	Recurrent	Due Date	Frequency
Establishment and operationalization of SSCC		12 months after Effective Date	

Description of Covenant

The Recipient shall, by not later than twelve months after the Effective Date, ensure that the SSCC is established and made operational, including adoption of by-laws, articles of association, shareholders agreement and related contractual instruments for the financing and operation of SSCC, in conformity with the Recipient's Laws, and all in form and substance acceptable to the Association. [FA Schedule 2, Section I.B.1(c)]

Name	Recurrent	Due Date	Frequency
Reference Interconnection Offer		One month after the date of the Project Agreement	

Description of Covenant

SSCC shall, by not later than one month after the date of the Project Agreement, offer to the Office of the Regulator a reference interconnection offer (or similar) which ensures cost based and nondiscriminatory access for its services, all in form and substance acceptable to the Association and the OoTR. [FA Schedule 2, Section I.B.2(a)(ii)(B)]

Conditions

Source Of Fund	Name	Type
IDAT	Samoa Condition of Disbursement for Category 1(a)-1	Disbursement

Description of Condition

No withdrawal shall be made under Category 1 for Component 1(a) until all conditions set forth in Section I.B.1_ of Schedule 2 to the Financing Agreement relating to the establishment of the SSCC have been met in a manner acceptable to the Association. [FA Schedule 2, Section IV.B.1(b)(i)]

Source Of Fund	Name	Type

IDAT	Samoa Condition of Disbursement for Category 1(a)-2	Disbursement

Description of Condition

No withdrawal shall be made under Category 1 Component 1(a) until: (i) the Association has entered into a Project Agreement with the SSCC; and (ii) the Recipient has entered into a Subsidiary Agreement with the SSCC; and the Association has received a legal opinion(s) attesting that the Project and Subsidiary Agreements have been duly executed, delivered and ratified and are legally binding upon the Recipient and SSCC. [FA Schedule 2, Section IV.B.1(b)(ii) and (iii)]

Source Of Fund	Name	Type
IDAT	Samoa Condition of Disbursement for Category 1(a)-3	Disbursement

Description of Condition

No withdrawal shall be made under Category 1 Component 1 (a) until the SSCC has obtained all licenses, permits and approvals required for the operation and supply of international and domestic wholesale communication services, all in form and substance acceptable to the Association. [FA Schedule 2, Section IV.B.1(b)(iv)(B)]

Source Of Fund	Name	Type
IDAT	Samoa Condition of Disbursement for Category 1(a)-4	Disbursement

Description of Condition

No withdrawal shall be made under Category 1 Component 1 (a) until the SSCC has entered into Landing Party Agreement(s) and all necessary authorization and permits for landing of the cable in Fiji have been obtained, all in form and substance acceptable to the Association. [FA Schedule 2, Section IV.B.1(b)(iv)(C)]

Source Of Fund	Name	Type
IDAT	Samoa Condition of Disbursement for Category 1(a)-5	Disbursement

Description of Condition

No withdrawal shall be made under Category 1 Component 1 (a) until the SSCC has submitted evidence showing that it has secured adequate capacity for the cable system via the landing station in Suva, Fiji, from a third-party provider, in form and substance acceptable to the Association. [FA Schedule 2, Section IV.B.1(b)(iv)(D)]

Source Of Fund	Name	Type
IDAT	Samoa Condition of Disbursement for Category 1(a)-6	Disbursement

Description of Condition

No withdrawal shall be made under Category 1 Component 1 (a) until the SSCC has provided all necessary financing required on its part for purposes of financing Part 1(c) of the Project in accordance with Section V.A of this Schedule 2. [FA Schedule 2, Section IV.B.1(b)(iv)(E)]

Source Of Fund	Name	Type
IDAT	Samoa Condition of Disbursement for Category 1(a)-7	Disbursement

Description of Condition

No withdrawal shall be made under Category 1-Component 1(a) until the Association and the Co-financier have entered into a memorandum of understanding setting forth the joint arrangements for implementation of the Project, in form and substance satisfactory to the Association. [FA Schedule 2, Section IV.B.1(b)(v)]

Source Of Fund	Name	Type
IDAT	Samoa Condition of Disbursement for Category 1(a)-8	Disbursement

Description of Condition

No withdrawal shall be made under Category 1-Component 1(a) until ADB Cofinancing Agreement and the PRIF Grant Agreement have been executed and all conditions precedent to its effectiveness or the right of the Recipient to make withdrawals under it have been fulfilled. [FA Schedule 2, Section IV.B.1(b)(vi)]

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Natasha Beschorner	Team Leader (ADM Responsible)	Senior ICT Policy Specialist	ICT Policy Specialist	GTIDR
Jinan Shi	Procurement Specialist	Senior Procurement Specialist	Procurement	GGODR
David Whitehead	Financial Management Specialist	Financial Management Specialist	Financial Management	GGODR
Andrea Ruiz-Esparza	Team Member	Senior Program Assistant	Operations	GTIDR
Claire Marion Forbes	Team Member	Consultant	Safeguards Specialist	GTIDR
James L. Neumann	Counsel	Senior Counsel	Sector Lawyer	GTIDR
Marjorie Mpundu	Counsel	Senior Counsel	Country Lawyer	LEGES
Nicholas John Valentine	Safeguards Specialist	Consultant	Safeguards Specialist	GSURR
Ross James Butler	Safeguards Specialist	E T Consultant	Safeguards Specialist	GSURR
Sean David Michaels	Team Member	Infrastructure Specialist	Infrastructure Specialist	GTIDR
Rushi Fernando	Team Member	Team Assistant	Team Assistant	EACNF

Extended Team

Name	Title	Organization	
Maria Melei	Country Specialist	ADB	
Sibesh Bhattacharya	Senior Infrastructure Specialist, ICT	ADB	

Locations					
Country	**First Administrative Division**	**Location**	**Planned**	**Actual**	**Comments**
Samoa	Apia				

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required? Consulting services to be determined

I. STRATEGIC CONTEXT

A. Country Context

1. **Samoa is a small and remote Pacific island country that is vulnerable to external economic shocks and natural disasters.** Samoa is 3,000 kilometers from New Zealand, 4,000 kilometers from Australia, and 10,400 kilometers from China. Its distance from major global markets underscores the importance of connectivity, particularly in the form of efficient transport systems and information and communication technologies (ICT). Samoa's total population of 190,000 people is distributed across two main and two smaller islands. Upolu, which accounts for roughly 75 percent of the population, is where the capital city of Apia is located. Savai'i is the largest island and accounts for most of the remaining 25 percent of the population. Samoa has strong traditional culture, community, and family cohesion. Since independence from New Zealand in 1962, Samoa has been a stable democracy. The Human Rights Protection Party has been in power for most of the past 30 years, most recently winning office in March 2011 with a five-year mandate running until 2016.

2. **Samoa is a lower middle-income country.** Gross domestic product (GDP) per capita (current prices, United States dollars) stood at $4,165 in 2013. Samoa is rated as a country with "medium human development," ranking at number 96 out of 186 countries in 2012. Life expectancy in Samoa is 73 years, infant mortality stands at 16 per 1,000 and the literacy rate is 99 percent. After the abolition of primary education school fees in 2010, the net enrollment rate increased from 90 percent in 2010 to 94 percent in 2012. The Government is currently planning to eliminate secondary education fees with funding from the New Zealand Government. This should help increase secondary enrollment rates, which stand at 78 percent. Poverty levels are falling steadily (the latest Household Income and Expenditure Survey results are due mid-2015) but access to services and opportunities are still constrained in rural areas and on Savai'i.

3. **One of the best performing economies in the Pacific over the past 15 years, Samoa has been hard hit by recent natural disasters**. Samoa's GDP growth averaged 4.3 percent annually between 1998 and 2008, but then fell by 5 percent in 2009 as a result of a devastating tsunami combined with food and fuel price shocks and the global slowdown. GDP had still not returned to 2007 levels when tropical Cyclone Evan hit in December 2012, with growth falling to -1.1 percent in 2013. However, the IMF estimates GDP growth at 2.0 percent in 2014 followed by 2.2 percent in 2015. The main contributions to growth between 2003 and 2013 came from the construction sector (47 percent), commerce (35 percent, driven largely by tourism and remittances) and transportation, and communications (26 percent). Other growing sectors include public administration (14 percent) and banking (24 percent). The contribution of agriculture and fisheries to GDP has consistently declined between 2003 and 2013, going from 13 to 9 percent of GDP, as has non-construction industry (including manufacturing and utilities) going from 22 percent to 13 percent. Among those formally employed, 40 percent work for the government and 60 percent for the private sector; and 81 percent of the population is engaged in some form of agricultural activity. Cyclone Evan in 2012 dampened short-term growth prospects, but recovery is underway supported in part by the IDA-financed Samoa Development Policy Operation and IDA-financed investment projects in the transport and agriculture sectors. Medium-term sources of growth include agriculture and sustainable tourism. More innovative, service-based growth opportunities could include IT-enabled services such as global/online

outsourcing which require reliable high-speed Internet connectivity and a skilled ICT labor pool, among other factors.[1]

4. **Samoa is a relatively strong performer in the Pacific in regards to gender equality**, but continues to face challenges. It was rated 106 out of 187 on the Gender-related Development Index in 2013. Access to education and achievement in the formal educational system is virtually equal, with women even advancing in several key areas. Health standards for women are above the regional average with major gains having been made in reducing infant and maternal mortality. However, despite much progress being made to women's development, there is still scope to close the gender gap in areas such as economic empowerment, gender based violence, and natural disasters. Women's participation in the paid labor force remains low compared to men's (between 38 and 41 percent, compared to 75 percent) with gender-based violence expected to be among the barriers to participation. Forty-six percent of ever-partnered women in Samoa report having experienced physical or sexual violence by a current or former partner at any point in their lives. Furthermore, despite bearing a disproportionate share of the burden of the immediate adjustment to natural disasters, women may not be adequately included, at the community level, in climate change and disaster risk planning.

B. Sectoral and Institutional Context

5. **Samoa was one of the first countries in the region to liberalize its ICT sector**, and it enjoys one of the highest rates of mobile phone coverage and access in the Pacific region. The reforms began with the adoption of an ICT policy in 2003 and the enactment of the Telecommunications Act in 2005 that provided for market liberalization and establishment of an independent regulator. The main telecommunications services providers are: BlueSky Samoa, Digicel, and Computer Services Ltd. (CSL). As of end-2014, over 95 percent of the population was covered by mobile networks. Mobile penetration had reached 89 percent (though data for end-2014 indicates 237,411 active SIM cards, representing a mobile penetration level of 124 percent). However, Internet access is lagging significantly which impacts the potential for connectivity to external markets. Broadband penetration was estimated at about 1 percent (fixed) and 27 percent (mobile). The current market structure and service penetration indicators are summarized in Table 1. Precise data on mobile broadband are not available, but this market segment is growing rapidly due to increasingly competitive operator pricing strategies.

6. **Existing international connectivity infrastructure.** Samoa is connected globally via satellite and existing submarine fiber facilities. The primary subsea international link is the American Samoa Hawaii Cable System (ASH) which is connected to Samoa via the Samoa-American Samoa (SAS) cable. ASH provides a total of 1Gbps capacity combined for American Samoa and Samoa. The controlling 66 percent interest in ASH Cable LLC (ASHC) is held indirectly by eLandia International Inc. which also owns the fixed line/mobile operator BlueSky. The American Samoa Government owns the remaining minority stake in ASH. Bluesky also controls the cable station at Apia, Samoa, where the ASH cable lands using the SAS cable. The ASH cable has insufficient bandwidth to meet the development needs of Samoa in the medium-term. ASHC has indicated that it may upgrade the ASH cable within the next three to five years,

[1] See *ICT for Jobs in Pacific Islands Countries*, World Bank, 2015 (forthcoming).

but the business case for such investment depends upon revenue from transpacific traffic, for example, connecting ASH to the Southern Cross Cable Network (SCCN) in Fiji or to New Zealand.

7. **Affordability of telecommunications services is improving, but prices are still high relative to income levels.** The main driver of high retail Internet prices is the high wholesale Internet bandwidth costs. Tariffs have dropped significantly since 2008 when an entry-level fixed broadband (ADSL) subscription was US$169 per month. In 2014 a monthly 2GB ADSL subscription was US$43 and a 3GB mobile data plan was about US$40.[2]

8. **Consistent with regional and global trends, demand for bandwidth is expected to grow significantly in Samoa in the medium-term, requiring a much more sustainable and low-cost international connectivity solution.** Projected demand for Internet services is expected to grow from the current level of about 420 Mbps to 4 Gbps by 2021 and 29 Gbps by 2028. This demand will be driven both by increased household/individual use for high-bandwidth applications such as streaming video and multimedia, and also institutional use, including from government institutions that are connecting through the new "Samoa National Broadband Highway," a combined fiber and wireless network linking all government offices, schools and hospitals on Upolu and Savai'i.[3] This demand cannot be met by current infrastructure capacity or pricing levels.

9. **Existing arrangements for access to ASH.** Bluesky is the main user of ASH cable capacity in both Samoa and American Samoa. Computer Serices Limited (CSL) has leased capacity from Bluesky on the ASH cable under a ten-year fixed-price contract. Digicel has purchased a relatively small amount of bandwidth on ASH, but relies primarily on international bandwidth capacity from medium-earth orbit satellite provider O3b Networks. American Samoa Telecommunications Authority, a Government-owned operator in American Samoa also largely relies on O3b for its bandwidth needs. Currently the ASH cable is operating at approximately half capacity (approximately 500Mbps). The wholesale price for international bandwidth for Samoa is very high (approximately US$1,500 Mbps/month on the ASH cable) which is contributing to limited Internet uptake. Quality of service for consumers is also variable.

10. **Sector agreement for a new long term fiber optic cable.** To improve access to and quality of Internet substantially the Government and the three main operators in Samoa have agreed unanimously in favor of a new long-term cable solution connecting Samoa to the SCCN in Fiji. The connection to Fiji was selected after reviewing several options including cables to Tonga and New Zealand, connections to possible regional cable projects (which did not eventuate) and satellite alternatives. The Fiji option offers a connection to an established cable system linking Australia and the United States, plus reasonable and increasingly attractive onward bandwidth pricing. Government and the private sector have also agreed in principle on adopting a private-public partnership (PPP) framework for the financing and operation of the new cable system in order to ensure that cable design and operation is aligned to the needs of users and leverage private sector investment.

[2] Note, broadband service was previously priced in terms of speed and is now increasingly priced in terms of volume of data,

[3] The Samoa National Broadband Highway is owned by the Government of Samoa and managed by CSL. It is in effect a closed network service provider that would buy international bandwidth in the same manner as other telecommunications operators.

11. **The Government has developed institutional capacity for ICT policy and regulation.** The Ministry of Communications and Information Technology (MCIT) is responsible for ICT sector policy, underpinned by the 2012 National Broadband Policy. The Telecommunications Act of 2005 is the key legislation for the sector, although substantial technological changes have occurred since this legislation was enacted. An independent regulator, the Office of the Regulator (OoTR) was established in 2006 pursuant to the Act and is responsible for regulating telecommunications. The OoTR is responsible for licensing telecommunications and broadcasting services, managing and licensing radio spectrum usage, administering the national numbering plan, promoting competition in telecommunications sector, providing consumer protection services, approving equipment types, resolving telecommunications disputes, and promoting consumer awareness. Since 2013 OoTR has functioned as a multisector regulator which includes responsibility for regulating electricity services.

12. **Policy commitment from the Government of Samoa in support of new ICT infrastructure is strong.** The Government has set up a Project Steering Committee (PSC) including public and private sector members, including representatives from MCIT, MoF, the Attorney General's Office, OoTR, Digicel, CSL and Bluesky. The PSC has retained technical advisors to review possible international connectivity options. Based on detailed technical and financial analysis of these options—including point-to-point and regional solutions—the PSC has opted for a new submarine cable system to connect Samoa (Upolu and Savai'i islands) to the SCCN in Suva, Fiji and hence to global communication networks via Australia and the United States (Hawaii). The PSC members, with the support of the Attorney-General's office are now working on the establishment of the Samoa Submarine Cable Company (SSCC), a special purpose vehicle (SPV) that will procure and operate the proposed Samoa-Fiji cable. The next step includes the development and implementation of the PPP arrangements for the SSCC which will include Government and private sector participation.

13. **In this context the Government of Samoa has requested the World Bank and other partners to provide financial assistance for the proposed submarine cable system to connect Samoa to Fiji.** The Government seeks support for further reforms aimed at strengthening the legal and regulatory environment, including the capacity of the OoTR to regulate international connectivity services in a manner which promotes the long-term interests of consumers. International experience demonstrates the importance of aligning market incentives to promote pro-competitive behavior. In the event that the SSCC is established as the dominant provider of international connectivity services, with a mandate to deliver investment returns to its shareholders, strong and robust regulation will be essential to ensure that SSCC does not engage in monopoly pricing or other anticompetitive behavior. A reference interconnection offer (or similar) will be offered by SSCC to the OoTR to ensure cost-based and nondiscriminatory terms are available to all access seekers.

C. Higher Level Objectives to which the Project Contributes

14. **The ICT sector is widely recognized as an enabler of economic growth and social stability and development worldwide.** ICT sector reforms implemented in similar countries, including elsewhere in the Pacific such as Fiji, Papua New Guinea, Solomon Islands, Tonga, and Vanuatu demonstrate linkages between market-based reforms and improved economic and social indicators. Reliable and affordable telecommunications supports business development in all

sectors, including small- and medium-enterprises, and tourism development—a key growth area for Samoa. Existing business users of telecommunications can expand their reach and address new markets. The social value of widely available communications is important: facilitating a more mobile work force, enabling family and community links to be preserved despite distance, and assisting interaction between islands and communities. By increasing access to telecommunications, the Project is also expected to contribute to the economic and social empowerment of women, as has been the case in other countries, for example by facilitating communication with family members, enabling access to information on health, education, and job opportunities, and creating some opportunities for direct employment e.g., selling of ICT goods and services. By providing connectivity to Savai'i and Upolu—the Project promotes social equity providing connectivity to all Samoans on the two largest and most populous islands.

15. **Improved connectivity may also be considered a regional public good for the South Pacific region.** The Project will contribute towards regional integration objectives of improved service delivery, trade, and communications between Pacific island economies, and contribute to more efficient use of revenues within the region. Higher quality and lower-cost connectivity for Samoa are likely to promote economic growth, permit greater efficiency of resource use, and facilitate cooperation and integration on numerous transnational issues, including, for example, management and monitoring of natural resources, disaster mitigation, and collaborative service delivery. Improved, affordable connectivity, both domestic and international, is a cornerstone of the Framework for Action on ICT for Development in the Pacific, which is a regional strategy endorsed by ministers and regional agencies that seeks to mobilize ICT for development, governance, and sustainable livelihoods.[4]

16. **The World Bank is experienced in coordinating and financing regional connectivity Projects in the Pacific.**[5] The proposed Project will be the third in the Pacific Regional Connectivity Program Series of Projects approved by the Board in August 2011. In Phase 1, together with the Asian Development Bank (ADB), the World Bank financed the Tonga-Fiji cable system which was launched commercially in August 2013. Phase 2: Palau-FSM Connectivity Project was approved by the Board in December 2014. In other regions, the World Bank Group is the major player offering support to regional communications infrastructure development in Africa. In Eastern and Southern Africa, the World Bank is supporting a Regional Communications Infrastructure Program covering eight countries and expected to

[4] See Declaration of the ICT Ministerial Meeting, Tonga, June 18, 2010. http://www.spc.int/edd/images/stories/ictpapers/Tonga%20Declaration%20(2).pdf

[5] The World Bank prepared a detailed report on international connectivity options for Pacific member countries in 2009, plus regular updates. The report was widely disseminated and discussed in the region. The main conclusions were that: (a) there is clear evidence of growing demand for bandwidth across the region; (b) improved connectivity contributes to economic and social development at the national level, and is regarded by stakeholders as a driver of regional cooperation and integration in several sectors. The findings of the report were endorsed by the regional ICT community—including representatives of telecommunications policymakers and regulators, the Pacific Islands Telecommunications Association, the Secretariat of the Pacific Community, and the Pacific Islands Forum Secretariat. As a follow-up the World Bank has undertaken detailed country/subregional options analyses for FSM, Palau, Samoa, Solomon Islands, and Vanuatu during the period 2010-2013.

expand to several others. The World Bank Group is also supporting a West Africa Regional Connectivity Program, and a Caribbean Communications Infrastructure Program.

17. **The Project is consistent with the World Bank's regional engagement strategy in the Pacific.** The Project supports improving incentives for private sector-led growth and employment. It also supports the regional strategy's objective of strengthening capabilities for service delivery, by both public and private sectors. The proposed operation is also consistent with the themes of the Strategy for the Development of Samoa (SDS) 2012-2016 and the Bank's Country Partnership Strategy for Samoa. The SDS sets out a clear framework to provide for shared prosperity by supporting inclusive growth and ensuring high quality and effective public services and infrastructure. In the area of infrastructure, the key SDS outcomes are: sustainable access to safe drinking water and sanitation, an efficient, safe and sustainable transport system and networks, universal access to reliable and affordable ICT services, and a sustainable energy supply. In addition, the Bank has extensive experience in supporting telecommunications market liberalization and development of new regulatory structures, including in small island economies in the Pacific (Fiji, Solomon Islands, and Vanuatu), Africa, and the Caribbean. The Bank, together with other regional partners, has supported the establishment and operation of a Pacific ICT Regulatory Resource Centre for the Pacific, hosted at the University of the South Pacific in Fiji.

18. **The Project meets the eligibility criteria for Regional IDA financing.** The activities to be financed with an IDA grant have been endorsed by the region's community of ICT stakeholders. Improved connectivity will contribute to regional infrastructure development, institutional cooperation for economic integration, and coordinated interventions to provide regional public goods (see Annex 2).

(a) Pacific island countries are characterized by their small size and extreme geographic isolation. Analysis undertaken for the 2009 World Development Report ("Reshaping Economic Geography") indicates that the average Pacific island is located 11,500 km from any other randomly selected country, making the Pacific islands the most remote countries in the world. Distance from markets is not simply a geographic reality but results in substantial economic disadvantages for Pacific island countries. Countries that are close to markets have a natural advantage over more remote locations since the exchange of goods, services, labor, capital and ideas is easier and more rapid—a finding borne out by a clear correlation between market access and economic growth.

(b) For many Pacific island economies, overcoming this "tyranny of distance" will hinge on their ability to stimulate domestic growth and on the extent to which they can integrate with each other and with their larger neighbors. Isolation and limited economies of scale also mean that Pacific economies often rely heavily on aid, remittances, natural resource rents, and tourism. In this context, improving connectivity throughout the region has the potential to support national economic growth and to underpin the critical processes of regional coordination and integration. Greater and more affordable connectivity in the Pacific would help lower transaction costs, create new economic opportunities and enhance communication and delivery of services to currently isolated domestic communities. From a regional perspective, improved connectivity has the potential to enhance the efficient use of resources, to facilitate cooperation on a wide range of

transnational issues, such as, management and monitoring of natural resources (e.g., fisheries), comprehensive mitigation efforts addressing natural disasters, climate change and adaptation, as well as collaborative service delivery.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

19. The Project development objective is to reduce the cost and increase the availability of Internet services in Samoa.

Project Beneficiaries

20. The direct beneficiaries of the Project will be the people of Samoa (including individuals, businesses, government agencies, and remote communities) who will receive improved access to and quality of Internet, facilitating uptake of value-added services or applications. The Project will contribute to the World Bank Group's twin goals of ending extreme poverty and increasing shared prosperity. By facilitating more reliable and affordable connectivity to poorer households rural communities, and people on the island of Savai'i, the Project is expected to contribute to improved social welfare, access to information and services as well as potential income-earning opportunities. Component 2 includes a subcomponent (consumer survey) specifically intended to monitor impacts on beneficiaries and, in particular, on women. By making Internet access more affordable and widely available, the Project will contribute to citizen engagement, not only on this operation, but also more broadly on economic and social development issues in Samoa. Illustrative beneficiaries are listed below:

(a) *Women:* The Project is expected to have a positive impact on women's access to affordable Internet services in Samoa. This is important because access to affordable, high-speed Internet is associated with economic and social empowerment, by increasing users' access to services such as employment and education opportunities and health information (details are found in Economic Analysis) available online. As Project implementation proceeds, women's access to affordable Internet services is expected to increase and reach parity with men's access by Project closing (Annex 1).

(b) *Small- and medium-enterprises*: Lower communications costs reduce overall business transaction costs; communications infrastructure facilitates domestic and cross-border transactions, opens new marketing and distribution channels, and improves access to information about markets, prices, and consumers.

(c) *Primary producers*: Communications infrastructure facilitates access to information on market prices, weather, agricultural extension services, and e-commerce platforms.

(d) *Service industries*: ICT facilitates entrepreneurship—including specific opportunities for women. Telecommunications infrastructure also facilitates the extension of mobile phone and/or Internet-enabled financial services.

(e) *Health and education sectors*: In the health sector reliable, affordable broadband can facilitate, *inter alia*, remote diagnostics and laboratory testing, remote consultations with specialists, and access to international medical networks and resources. In the education

sector, access to high-speed Internet provides teaching and learning materials, and skills enhancement opportunities, among other benefits.

(f) *Government agencies*: Faster, cheaper, and more reliable connectivity improves communications and information management between government agencies. Governments can be better-positioned to deploy online services, permitting increased transparency and accountability of government and improvements in service delivery.

(g) *Disaster preparedness/management:* ICT tools can support governments as they plan and monitor climate change and natural disaster risks to which the region is particularly vulnerable. They can also provide "last mile" communications solutions for disaster early warning systems.

PDO Level Results Indicators

21. Progress will be measured against the following PDO-level results indicators:

(a) Access to Internet services including mobile (number of subscribers per 100 people);
(b) Wholesale Internet bandwidth price ($/Mbps per month);
(c) Retail price of Internet services ($/GB);
(d) Available international bandwidth (Mbps);
(e) Impact on telecommunications sector of World Bank technical assistance (composite score: 1 – low impact to 5 – high impact);
(f) Private capital mobilized (US$)
(g) Direct Project beneficiaries and percent of beneficiaries that are female;
(h) Percentage of grievances registered related to delivery of Project benefits addressed within 30 days of the grievance being registered.
(i) Beneficiaries that feel Project investments reflected their needs;
    (i) Subindicator: Percentage of beneficiaries that feel Project investments reflected their needs – female;
    (ii) Subindicator: Percentage of beneficiaries that feel Project investments reflected their needs– male;
    (iii) Subindicator: Total beneficiaries – female (number); and
    (iv) Subindicator: Total beneficiaries – male (number).

III. PROJECT DESCRIPTION

A. Project Components

22. The components are detailed here:

(a) **Component 1. Samoa-Fiji Cable**, comprising the following:

(b) **Component 1 (a) Submarine cable system.** Design, supply and installation of a submarine cable system to connect Samoa (Upolu and Savai'i) to Fiji (Suva), including

undertaking a marine survey, financing the cable manufacture and cable deployment-marine operations.

(c) **Component 1 (b) Landing stations and ancillary equipment.** Construction of landing stations and ancillary facilities in Savaii and Upolu, including acquisition and installation of onshore equipment.

(d) **Component 1 (c) Additional Costs.** Financing of indefeasible rights of use (including the acquisition of long-term landing services in Fiji and capacity) and management costs associated with the operation of the SSCC.

(e) **Component 2. ICT Regulatory Technical Assistance.** Carrying out a program of activities designed to enhance regulatory capacity of the Office of the Regulator, such program to include, *inter alia*: (i) review, development and implementation of effective regulation for the ICT sector with a particular focus on wholesale markets; (ii) review (and update) of existing legal regulatory framework; and (iii) carrying out a nationwide consumer survey on the benefits of ICT.

(f) **Component 3. Project Implementation and Administration.** Carrying out a program of activities designed to strengthen the capacity of the Recipient to process Project transactions, implementation, and management. Such a program to include: (i) Project finance and transactional assistance in connection with the institutional design and operationalization of the SSCC pursuant to public private partnership arrangements; including independent appraisal of the proposed structure of SSCC; (ii) overall Project coordination; financial and contract management; procurement, communications, outreach; reporting, audit, monitoring, and evaluation.

B. Project Financing

23. The choice of lending instrument is Investment Project Financing, as part of a Series of Projects. Project financing will require a combination of resources, including IDA national and regional grant resources, as well as cofinancing from the ADB, grant financing from the Australia Department of Foreign Affairs and Trade, investor financing through the SSCC that will be established, and Government of Samoa counterpart contribution.

Project Cost and Financing

24. The total cost of the Project is US$49.94 million. IDA will finance US$16.0 million. Government has agreed to meet the costs of all applicable taxes on works and services for Project-related activities; this is estimated at 15 percent of Project costs and constitutes the Government's counterpart contribution. An overview of the total proposed financing by component is summarized in Table 2. The burden for any contingencies above the amounts budgeted for Component 1 are expected to be borne by the SSCC.

Table 2. Project Cost and Financing (US$ million)

Components	US$	Financier(s)				
		IDA	ADB	DFAT	SSCC	Govt of Samoa
1. Samoa-Fiji Cable						
1(a) Submarine cable system (including approximately 8% contingency)	**37.38**	14.0	18.50	0.00	0.00	4.88
1(b) Landing stations & ancillary equipment	**2.85**	0.00	0.00	1.50	0.98	0.37
1(c) Additional costs	**7.41**	0.00	0.00	0.00	7.20	0.21
Subtotal	***47.64***	*14.00*	*18.50*	*1.50*	*8.18*	*5.46*
2. Regulatory TA	**1.44**	1.25	0.00	0.00	0.00	0.19
3. Project Implementation and Administration	**0.86**	0.75	0.00	0.00	0.00	0.11
GRAND TOTAL	**49.94**	**16.00**	**18.50**	**1.50**	**8.18**	**5.76**

C. Lessons Learned and Reflected in the Project Design

25. The Project takes into account the lessons of experience from implementation of ICT sector reform/development Projects, from other regional connectivity Projects, including in the Pacific and also from operations in the Pacific region more broadly.[6] These lessons are reflected in the design of Project components, risk analysis and management, and selection of country readiness/eligibility criteria.

(a) A constructive and open relationship between the public and private sector is important for successful development of telecommunications sectors at the national level as well as at the regional level. In Samoa, private sector participation is limited to just a few service providers. The Government has involved private sector users of telecommunications services in the design of the market reforms. The Project will provide the OoTR with substantial financing to support extensive *ex post* regulatory intervention and supervision to promote competition in downstream markets.

(b) The Project anticipates private investment from telecommunications service providers and institutional investors. As noted from the Africa Regional Communications Infrastructure Project series these investors will likely have different incentives, requiring extensive upfront consultations and legal/transactional support to ensure that the final institutional model adequately addresses the expectations of different players. As Phase 2 of the Pacific Regional Connectivity Program indicates, it may take time to establish appropriate institutional arrangements, and strong legal/transactional support is required.

(c) Legal and regulatory reforms go hand-in-hand with infrastructure investments. The legal and regulatory environment needs to support open access to capacity on international

[6] Phase 1: Tonga-Fiji Connectivity Project. The Tonga-Fiji cable was implemented ahead of schedule and became operational in August 2013. Phase 2: Palau-FSM Connectivity Project. This was declared effective in March 2015.

communications infrastructure, and wholesale pricing needs to be cost-based, nondiscriminatory, and transparent; the regulatory institution needs to be empowered to protect the interests of consumers. Both Fiji and Papua New Guinea had access to submarine cables for many years, but until recent liberalization of international gateways, and even more recent regulations on wholesale pricing, these resources were to some extent "captured" by monopolies and the benefits have not accrued to consumers. In Tonga (Phase 1 of the Pacific Regional Connectivity Program), the price of bandwidth was reduced substantially once the Tonga-Fiji cable became operational in August 2013, and access to Internet increased very significantly; but additional regulatory intervention will be needed to ensure that bandwidth pricing levels stimulate further market demand. The Project design includes capacity building support for the OoTR to be undertaken in parallel with the submarine cable investments.

(d) Project stakeholders need to anticipate possible changes in technology that might alter the business case for investment in a particular type of communications infrastructure. The cable system to be financed under the Project will support high-speed international data transmission over the life of the cable system. The system design will also include scope for further capacity growth should demand exceed expected system requirements.

(e) A lesson from the Pacific Regional Connectivity Program is that Project design needs to account for limited institutional and technical capacity, minimizing the number and complexity of contracts and ensuring that adequate resources are available for technical, transactional and managerial support.

26. Collaboration between development partners needs to be extensive, given the limited capacity of counterparts; to the extent possible procurement and financial management procedures need to be aligned—if not harmonized—to minimize the administrative burdens of the Projects. The World Bank, ADB, and the Australian Department of Foreign Affairs and Trade (DFAT) are working closely on all aspects of the submarine cable component of the Project. In particular, the World Bank and ADB intend to harmonize procurement requirements as was done under Phases 1 and 2 of the Pacific Regional Connectivity Program; a Memorandum of Understanding (MoU) has been drafted to this effect. The ADB and DFAT funds will be provided in the form of grants. DFAT funds will be made available through an amendment to the Administration Agreement for the Pacific Region Infrastructure Facility (PRIF) Trust Fund, administered by the World Bank. The World Bank and ADB will jointly cofinance Component 1(a). The ADB and DFAT funds (administered by the World Bank) will finance Component 1(b).

27. An important lesson from the reforms in the telecommunications sector in the Pacific, Africa, and around the world is that monopoly control of essential "bottleneck" infrastructure severely restricts the development of the sector. In international telecommunications projects the trend is towards a model that mitigates issues associated with a monopoly "single seller" at the wholesale level—for example, in the Regional Communications Infrastructure Project in East Africa and the West Africa Regional Communications Infrastructure Project programs (including Liberia, The Gambia and Rwanda, among others) and under the Central African Backbone Project (e.g., Sao Tome and Principe), open-access arrangements have been built into the contractual structure of the PPP and the associated regulatory framework in order to promote direct infrastructure-based competition.

D. Institutional and Implementation Arrangements

28. **The Project Steering Committee** will provide overall guidance for the Project and review implementation on a regular basis. The PSC has been in operation since October 2014. Its membership includes the MCIT (Chair), MoF, Attorney-General's Office, Bluesky, Digicel and CSL.

29. The implementing entity for Component 1 will be the SSCC. SSCC will retain technical advisor(s) as needed to assist with procurement and contract management. The Recipient shall vest responsibility for implementation of Component 1 in the Ministry of Finance (MoF) until such time as the SSCC shall have been established and made operational. The implementing agency for Component 2 will be the OoTR. The implementing agency for Component 3 will be MoF. MoF will be responsible for overall Project coordination, procurement, financial management, communications, reporting, monitoring and evaluation, and audit functions.

30. The direct Project stakeholders are the Government of Samoa, the OoTR and the investors in the SSCC. Other stakeholders include telecommunications operators and the numerous potential beneficiaries of improved telecommunications/ICT services including Government ministries, non-governmental organizations, the business community and all individual users of ICT services in Samoa. International stakeholders include the Government and telecommunications sector in American Samoa (United States), and potentially in Wallis and Futuna (France) and Fiji, which may potentially access the new cable system (on arms-length commercial terms). The Government of Samoa will take the lead in consultations on telecommunications and ICT development.

E. Results Monitoring and Evaluation

31. Monitoring and evaluation will be undertaken by MoF, with core data collection and analysis undertaken by the OoTR in accordance with the Results Framework established for the Project, with data to be provided by SSCC and the telecommunications service providers. Data on actual Project outputs and outcomes will be gathered and analyzed by the OoTR and included in semi-annual progress reports to be submitted to the World Bank.

32. The views of direct beneficiaries will be brought into the M&E process. Inputs will be sought from other beneficiaries through periodic consultations and reporting, including consumer surveys of ICT service provision and quality.

33. Implementation support missions will be conducted at least twice a year. It is expected that the Government of Samoa will perform evaluations jointly with the World Bank team and conduct supervision or implementation support missions at least twice a year. Given expected effectiveness by the third quarter of 2015, a midterm review will be scheduled in November 2017.

F. Sustainability

34. Improved service coverage and quality at more competitive prices for international connectivity and for data services will sustain increased demand as the Project will create opportunities for increased use and the introduction of applications that require high speed

bandwidth. The business case for SSCC also indicates strong potential demand for the cable system having regard to the forecast bandwidth demand for Samoa. The potential for the future upgrade of the existing ASH cable system presents a risk to SSCC in the event that ASH+ has lower operating costs than SSCC. However, SSCC has a strong market position because it is understood that the business case for an upgrade of ASH will depend upon access to SSCC for transit capacity from Fiji to Samoa for Hawaii. The provision of transit services to ASHC accordingly provides a potential commercial opportunity, and future revenue source, to SSCC. The Project will also focus on building sustainable capacity within OoTR to enhance knowledge development during and beyond Project completion.

35. Legal and regulatory reform is a critical component to promote long-term sustainability. Predictability and transparency of the legal and regulatory framework that is conducive to private sector participation and competition will increase the demand for affordable quality ICT services, including advanced applications. OoTR will be supported under this Project to sustain the required regulatory capacity to supervise sector development; sustainability will also be enhanced through Samoa's participation in the Pacific ICT Regulatory Resource Center (P148238), a regional project financed by the World Bank and implemented by The University of the South Pacific that promotes knowledge and cost-sharing of regulatory functions across the Pacific.

IV. KEY RISKS

A. Risks Ratings Summary Table

Systematic Operations Risk- Rating Tool (SORT)	
Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	High
7. Environment and Social	Low
8. Stakeholders	Substantial
9. Other (Implementation and the PPP framework)	Substantial
OVERALL	Substantial

B. Overall Risk Rating and Explanation of Key Risks

36. The overall Project risk is rated **substantial** primarily due to the proposed cable management structure including private and public partners. On the other hand, the Government has extensive experience managing IDA-financed Projects. An explanation of key risks is below.

37. **Technical design of project or program.** This risk pertains mostly to market design, regulation and regulatory capacity-building issues. Market design risks relate mainly to the relationship between ASH and SSCC—two potentially competing cables. It will be important to analyze *inter alia* the anticipated impact of ASH on the business case for SSCC and the potential for market distortions which may be created by the arrival of a new service provider (SSCC) that is donor-financed on concessional terms.

38. A strong and effective regulator and regulatory framework will therefore be needed to ensure effective and equitable competition in the wholesale market, particularly given the absence of rules mandating the vertical separation of firms interested in both wholesale and retail markets; and the potential risk of coordinated effects between SSCC and ASH in the wholesale market in the event that eLandia holds a financial interest indirectly in both cable systems. It has been agreed that a reference interconnection offer (RIO) or similar will be made by SSCC to the OoTR to ensure cost-based and nondiscriminatory terms are available to all access seekers. The Project will also provide support for technical assistance to the OoTR under Component 2 to ensure that access to international submarine fiber bandwidth (SSCC and ASH) is provided according to open access principles and on a cost-based and nondiscriminatory basis.

39. The review and amendments to the existing legal and regulatory enabling environment will facilitate the achievement of Project objectives. There is the risk that these changes may be inadequate or inappropriate, or that the Government may lessen the independence of the OoTR. There is also a related risk that activities intended to enhance regulatory capacity within the OoTR will not be completed in a timely or effective manner. Component 2 activities will therefore commence as early as possible during Project implementation. While regulatory measures are very important, improved sector performance will still depend largely on the performance of SSCC and the resilience of the ownership and governance arrangements which are put in place when the SSCC is established.

40. **Institutional capacity for implementation and sustainability.** The design and implementation of a structure for financing, owning, and operating a submarine cable system is, by its nature, a complex undertaking. Implementation involves several agencies and activities in several different locations. Capacity constraints and limited experience with such arrangements entail some implementation risks. These risks will be addressed by:

- Engaging specialists with expertise in the design and implementation of similar activities around the world to provide ongoing support to SSCC and Government;
- Providing technical support for Project implementation; and
- Close collaboration between the World Bank, cofinanciers and the Government in Project preparation and implementation activities, and ensuring ongoing consultation among all stakeholders (the Government and implementing agencies, beneficiaries, external development partners).

41. **Stakeholder.** Management of the risk of any conflict among the Project's various stakeholders is largely dependent on the terms of the PPP including ownership, financial and governance arrangements and a sound regulatory environment and strong supervision of the Project by the Government of Samoa. Robust regulatory rules are required to ensure that access

to international bandwidth is provided on a nondiscriminatory, cost based and open access basis to all current and potential wholesale market participants. As noted above, the Project will include a covenant and disbursement condition which will require SSCC to provide a RIO (or similar) to the OoTR which ensures cost-based and nondiscriminatory access to services. The Project will promote a strong focus on mentoring and knowledge-sharing as part of the advisory assistance, and will encourage regular consultations and broad participation in the reform program across the Government and interested stakeholders.

42. **Fiduciary.** Financial management risk is rated moderate due to the Government's previous experience in managing World Bank-funded operations. Risks will be managed by engaging suitably-qualified financial management staff at MoF, and limiting the total number of Project financial transactions. Procurement risk is rated high because of the potential for delays in the approval process arising from differing procurement rules among cofinancing development partners, and the uncertainties relating to the yet-to-be-established SSCC and its arrangements for procuring a new submarine cable system. Thus, the overall fiduciary risk is rated high. These risks will be mitigated by limiting the number of contracts, preparing bidding documents for review upfront, and provision of specialized procurement support to SSCC. Partner coordination issues will be addressed in the World Bank-ADB MoU.

43. **Other (Implementation and the PPP framework).** The inclusion of private sector participation, by its very nature, increases complexity particularly when it involves internationally competitive telecom operators (Bluesky and Digicel) and non-telecom financial investors. The arrangements that will govern the ownership and management of SSCC are not yet defined—they are subject to negotiation between the Government, operators and other financial investors. There is a risk that the future structure of the SSCC does not take into account all the interests of the participating stakeholders, or that its design results in negative consequences for the Project or for users of ICT services in Samoa. For instance, the terms of the PPP could result in a net transfer of benefit to private operators in a manner which is detrimental to the interests of users of ICT services. The ownership and governance arrangements for the SSCC could hinder timely and effective decision making which affects the quality and sustainability of services. Such risks could undermine the achievement of the PDO or lead to delays in Project implementation. The Project includes provision for transactional/advisory support.

44. These risks will be mitigated by including covenants and disbursement conditions which require: (a) the early establishment and operationalization of the SSCC as its own legal entity, including adoption of by-laws, articles of association, shareholders agreement and related contractual instruments for the financing and operation of SSCC; (b) an offer to involve the private sector in financing the SSCC in an amount and in a manner satisfactory to IDA; and (c) the preparation of an independent appraisal of the proposed structure for SSCC, including ownership, financing and governance arrangements, business model, divestiture arrangements (including asset valuation) and the mechanism for ensuring financial equilibrium in the interests of users of ICT services in Samoa. The satisfaction of these conditions will require *inter alia* Government to demonstrate effectively financial equilibrium which balances the costs of attracting private sector participation against the policy imperative of ensuring lowest possible costs of international broadband services for Samoa. The Government has retained advisors to finalize the creation of the SSCC. The Project will support, under Component 3, the recruitment

of specialist project finance and transactional advisers who will assist MoF to conduct an independent appraisal of the final model to ensure it is appropriate and consistent with the PDO.

45. **Climate change/disaster risk screening.** A screening undertaken on March 18, 2015 concluded that no high or moderate risks were identified for the submarine cable investment. The summary findings from the risk assessment tool were as follows:

(a) Overall, the Nonphysical Components: Significantly Reduce the Impact

(b) The Selected Sector/ Subsector is expected to: Slightly Reduce the Impact

(c) Overall, the Broader Development Context: Slightly Reduces the Impact.

APPRAISAL SUMMARY

C. Economic and Financial Analysis

Financial Analysis

46. The financial model developed for the Project is based upon: (a) active international capacity ex-Samoa as of February 2015; (b) an assumption of annual capacity growth based on empirical experience of similar systems in the region; and (c) thereafter growing at typical developing country growth rates i.e. 30 percent per annum (Telegeography). The total demand for bandwidth on the new SSCC cable is deemed conservative based on projected uptake by market players. The forecast does not include the introduction of new high bandwidth applications into the retail market such Internet protocol (IP) TV.

47. The total demand for bandwidth in Samoa is projected to grow from 428 Mbps as of December 2014 to 4.8 Gbps by 2021, and to 29 Gbps by 2028, which underpins the technical assessment that new submarine fiber optic capacity is needed. Total demand across both Samoa and American Samoa is projected to grow from 893 Mbps to 9.9 Gbps and to 62 Gbps over the same period. The estimated capital costs (CAPEX) for the submarine cable system, landing stations and ancillary equipment, is $34 million, plus annual operations and maintenance (OPEX) costs of $1.3 million. It is assumed that 15-year IRUs will be purchased for approximately $5.8 million to provide 10 Gbps capacity on the Southern Cross cable ($3.4 million) and landing station services ($2.4 million) in Suva, although further analysis is being undertaken to ensure the financial advantage of such IRUs is maximized including on the timing of these procurements. Additional IRUs for extra capacity from Fiji to Hawaii are also provided for in the analysis as demand increases. The cable system's lifetime is at least 25 years.

48. The financing calculations are summarized in Table 3. In view of the strong forecast demand (at 30 percent per annum) it is assumed that prices will decrease by 20 percent per annum. It also assumed SSCC will capture approximately 80 percent of the total demand for bandwidth in Samoa and American Samoa, with the balance supplied by the existing ASH cable and other broadband capacity suppliers (e.g., Ka band satellite systems). The wholesale average price for capacity is set at a level which returns the lowest NPV while maintaining a positive yearly cash flow after year one. The Government has also modelled the possibility of ASH being upgraded (referred to as ASH+) where ASH+ would capture approximately 80 percent of

the total demand in Samoa and American Samoa. In that alternative scenario, the SSCC would still be financially viable albeit that the price for bandwidth from SSCC would likely increase substantially (above $235 per Mbps per month).

Table 3. SSCC Viability Analysis

Project characteristics	CAPEX (cable system + landing stations)	$34m
	OPEX	$1.3m (+3% p.a.)
	15-year IRUs (year 1) (10 Gbps + landing station rights)	$5.8m
	15-year IRU for 10 Gbps capacity (as needed)	$3.4m
	IP transit cost (in Hawai'i)	$10
SSCC captures 80% of demand	Price for bandwidth in 2018 (per Mbps/month)	$103 (-20% p.a.)
	NPV (including grant)	$3.8m
Government charges 1.5% for use of donor funds ($34m)	Price for bandwidth in 2018 (per Mbps/month)	$112 (-20% p.a.)
	NPV	$2.8m

49. The cost and modality for financing the initial purchase of IRUs for capacity and landing station rights in Fiji is yet to be determined. The private sector is a potential source of financing, although the impact of private sector participation on SSCC, including on the price which may be charged for bandwidth, depends upon the terms of that participation which are yet to be negotiated by Government. Alternative options for landing in Fiji and obtaining capacity rights on SCCN include, e.g., leasing these rights on a monthly basis or delaying the purchase of one or both IRUs until it can be financed from free cash flow. In either scenario, however, SSCC is financially viable—for example, assuming alternatively that these rights are leased over 15 years (a materially less advantageous approach) the price for bandwidth in 2018 would increase to $168 (without the 1.5 percent charge to Government) and $175 (including the 1.5 percent charge).

50. The SSCC will be incorporated to own and operate the Samoa-Fiji cable. SSCC will include participation from government and private sector operators and investors. As already noted, the size and terms of the financial participation in the SSCC by the telecom operators and other investors, including Government, is yet to be determined. However, the private sector is expected to assume material risk and responsibility for the SSCC in order to ensure that the cable system is managed effectively and to signal the strategic importance of the asset for ICT sector growth and development in Samoa. The mechanism for pricing the introduction of private sector participation will be carried out according to a robust PPP framework to be developed by Government that will balance the interests of Government, private sector incentives and the long-term interests of end users.

Economic Analysis

51. The economic impact of the Samoa-Fiji Project for Samoa is assessed by estimating the impact on GDP of the next 25 years. The cumulative discounted impact on GDP over the next 25 years is $235.7 million (with a 10 percent discount rate). Therefore, considering that the initial investment is $34 million, the net economic impact of the Project is $201 million. The economic rate of return is 35 percent. This analysis is based on the assumption that broadband penetration (both fixed and mobile Internet) will rise from 18 percent to 53 percent within 10 years due to the submarine cable, and data indicating that a 10 percent increase in broadband penetration (wireless Internet + broadband) correlates with a 1.38 percent increase in GDP in developing countries.[7] The submarine cable project could generate an additional one percent employment increase. This estimate is based on While Crandall, Lehr & Litan's study entitled "*The effect of broadband deployment on output and employment*" (2007), which indicates a ratio between 0.2 and 0.3 percent of job creation per year for 1 percent increase of broadband penetration. According to preliminary analysis undertaken by the World Bank on IT-enabled job creation, there is potential for creation of 400 to 1,200 direct and 1,460 to 4,400 jobs in the global services/outsourcing area.

52. Social benefits of broadband are difficult to quantify, but they are nonetheless an essential part of the overall value of broadband along with its economic benefits: delivery of essential public services such as health care and education in a more efficient way, achieving digital inclusion for people from remote areas, attracting and retaining workers.

D. Technical

53. Various options for a new submarine cable from Samoa were examined from technical, economic and strategic perspectives. These included cable connections to Tonga, Fiji and New Zealand, to regional cable projects (which did not eventuate) and satellite (geostationary and medium earth orbit) options. The preferred option is a connection to the SCCN in Suva, Fiji. A cable to Fiji would provide access to direct IP transit services from Fijian suppliers, or cable extension capacity via Southern Cross to Australia, Hawaii or the west coast of the United States. Fiji is a well-established submarine cable hub with connections to Australia, New Zealand, Tonga, United States (Hawaii), and Vanuatu.

54. At a distance of about 1,300 kilometers, Fiji is the nearest international connectivity hub to Samoa. A new cable on this path will provide Samoa with abundant capacity and overcome the capacity limitations of ASH. Two factors influence suitability of the physical route: (a) the interface between the Indo-Australian plate and the Pacific plate which runs between Samoa and Fiji has depths that exceed 6,000 meters and the plates themselves are subject to seismic shifts; and (b) the Lau ridge, a submarine mountain range which runs SSE from Suva is rugged and is very shallow in some areas. However a study has found that the old telegraph cables ran across the Lau Ridge, and there is an expert view that the risk would be manageable but will almost

[7] This conclusion has been drawn by a World Bank study "Economic impact of Broadband" from Christine Zhen-Wei Qiang and Carlo M. Rossotto with Kaoru Kimura dated on 2009. This ratio is quite conservative especially for Pacific Islands as populations are usually concentrated in the main cities and this concentration is supposed to improve the level of impact of a submarine cable which is landing directly in the main city.

certainly require additional cable protection. Further details on the various connectivity options considered is included in Annex (2).

55. The legal and regulatory environment needs to support open access to capacity on international fiber optic communications infrastructure. Wholesale pricing needs to be cost-based, nondiscriminatory and transparent. The independent regulatory institution, the OoTR, needs to be empowered and possess sufficient capacity to protect the interests of consumers. Technical design work will be needed to ensure that the design, procurement, construction, and maintenance of the new connectivity infrastructure assets are managed appropriately and effectively, including the technical specifications and design, organizational structure, business plan, ownership, financing and capital adequacy of the SSCC. The Project will provide financing for technical assistance to support the implementation of regulatory activities and ensure that a robust PPP mechanism is developed and implemented.

E. Financial Management

56. The financial management assessment was carried out in accordance with *"Principles Based Financial Management Practice Manual,"* issued by the Board on March 1, 2010. Under the Bank's OP/BP 10 with respect to Projects financed by the World Bank, the Recipient is required to maintain financial management systems—including accounting, financial reporting, and auditing systems adequate to ensure they can provide the Bank with accurate and timely information regarding the Project resources and expenditures. The proposed financial management arrangements satisfy the financial management requirement as stipulated in OP/BP 10. The assessed financial management risk of the Project is considered moderate.

57. The main FM risks are related to managing the FM requirements of World Bank financed projects. The mitigating measures to be implemented to reduce the identified FM risk associated with the current Financial Management System are: (a) employment of a Project Finance Officer located in MoF to maintain the day-to-day records of the Project; and (b) monthly reconciliation of Project accounts to the Government's records.

F. Procurement

58. The overall procurement-related risk is rated high. While the Government of Samoa has considerable experience in implementing Bank-financed Projects, in-house staff capacity is inadequate to undertake procurement. In respect of Component 1 (a), which covers most of the IDA financing, the uncertainty around the capacity of the yet-to-be established SSCC to procure the cable system leads to a high risk rating. This rating will be re-assessed once the SSCC has been established.

59. The submarine cable system under Component 1(a) will be jointly financed by IDA and ADB, using International Competitive Bidding (ICB). The World Bank will be the lead cofinancier in terms of procurement procedures. Procurement activities will be undertaken by SSCC and financed by the cofinanciers (including IDA) in accordance with paragraph 3.14 (b) of the World Bank's Procurement Guidelines. This will include procurement and contracting of the submarine cable system. A MoU will be signed between ADB and the World Bank which will state that the procurement of the submarine cable system will be in accordance with World Bank

Procurement Guidelines, and identifying the World Bank as the lead cofinancier. It is expected that both ADB and the World Bank would then disburse against the cable contract procured according to the World Bank's guidelines. In the unlikely event that ADB were to disagree with the bid award, ADB would reserve the right not to finance the contract in question.

60. In respect of procurement activities under Components 2 and 3, to be financed wholly by IDA, the World Bank's Procurement and Consultant Guidelines will be followed.

G. Social (including Safeguards)

61. The Project is expected to result in numerous positive social and economic impacts through improved access to communications across the country (in particular Savai'i). Consultation undertaken in November 2014 with key stakeholders identified that improved operations and connectivity will enhance the socioeconomic opportunities for Samoa, ranging from creating opportunities for small businesses to enhancing delivery of critical social services (hospitals, education, etc.) and result in a positive impact overall.

62. OP/BP 4.12. Involuntary Resettlement was triggered to ensure the land tenure along the cable routes was fully assessed. Two of the three landing sites are at existing facilities. New infrastructure includes installation of ducts along public roads to connect the cable to landing sites and cable stations. While these roads and other infrastructure locations were notionally identified as government-owned land, the policy was triggered to ensure due diligence in land tenure investigations. A resettlement policy framework (RFP) has been prepared.

63. OP/BP 4.10 Indigenous Peoples has not been triggered. A country-level social analysis has been completed as part of preparation of the *Environmental and Social Safeguard Procedures for the Pacific Island Countries*. This analysis looked at the applicability of OP 4.10 in each PIC based on four criteria. OP 4.10 defines Indigenous Peoples based on four characteristics: (a) self-identification as members of a cultural group, (b) collective attachment to habitats/territories, (c) customary institutions, and (d) indigenous language. All four characteristics must be present to trigger the policy. In Samoa virtually all of the population is ethnic Samoan and there are no significant ethnic cleavages among them; therefore, they do not self-identify as members of a distinct indigenous cultural group within their own country. Similarly there are no customary cultural, economic, social or political institutions that are separate from the dominant society and culture because they are the dominant society and culture. There also is no indigenous language different from the official language of the country. Based on this analysis, OP 4.10 is not typically triggered in Samoa. Despite the absence of some of the key criteria, because of the relatively high salience of ethnic identification and interethnic relationships in Fiji, the Policy may be triggered in Fiji under certain circumstances. However given that there are no impacts affecting land or shared resources, OP4.10 will not be triggered in Fiji.

H. Environment (including Safeguards)

64. The Project is not expected to have any major environmental impacts and has been categorized as Category B. The Project triggers OP4.01 Environmental Assessment, OP4.04 Natural Habitats, and OP4.11 Physical Cultural Resources. An Environmental and Social Impact

Assessment/Initial Environmental Examination (ESIA/IEE) has been prepared to determine potential environmental impacts and appropriate mitigation measures according to their level of significance. Key environmental issues include the potential impact and temporary disturbance to seabed and deep-water habitats such as seamounts, hydrothermal vents, and coral reef and near-shore ecosystems that may occur as part of cable laying activities. The ESIA/IEE has assessed all potential impacts and considered cable integrity implications based on geological factors, to ensure environmental issues are factored into the final design and preferred route for the cable.

65. The submarine cable will be buried in shallow water approaches to the landing sites and will be surface-laid on the seabed along the deep water route. A marine bathymetric survey will characterize the route to avoid environmentally significant areas and other features with potential design or cable integrity implications such as seamounts and hydrothermal vents. Cable installation has the potential for some disturbance in near-shore environments where burial techniques are employed and where the cable route passes through coral reef environments; however surface-laid sections in deeper water are unlikely to cause any significant impact. Construction-phase impacts will be temporary and site-specific and avoidance strategies will be employed in near-shore environmentally-sensitive areas.

66. The key environmental mitigation measure is avoidance through design. The detailed design process - informed by the marine bathymetric survey and marine ecological assessment - will allow sensitive habitat areas to be avoided. In near-shore environments where the cable will be in the vicinity of coral assemblages, the cable laying process will be guided by ecologically-qualified divers who will ensure that the cable avoids coral heads.

I. Consultation and Safeguard Document Disclosure

67. Consultations were undertaken with various stakeholder groups (potentially affected communities, nongovernmental organizations in the Pacific) and documented in the ESIA/IEE report. Consultation on the Project took place in Samoa in March 2015 with key stakeholder groups and villages in proximity to landing sites to inform the ESIA/IEE process and assessment (including confirmation of preferred site locations). A public consultation session was held on March 25, 2015 at Fagali'I in Upolu, with 43 people attending, including village chiefs, executing agency representatives, representatives of the Ministry of Women, Community Development and Social Affairs, and community members. A similar public consultation session was held on March 24, 2015 at Tuasivi in Savai'i with 55 people attending, including village chiefs, executing agency representatives, and community members.

68. Targeted consultation with stakeholders in Fiji regarding the Suva landing site was carried out in March 2015. Further consultations with targeted stakeholders will be led by MCIT regarding development consent, permits for construction activities, formal public notification of Project activities and to secure formal land leasing and subleasing agreements. The ESIA/IEE outlines grievance procedures adhering to cultural formalities in Samoa, Samoa's Code of Environmental Practice 3 and World Bank public consultation and information disclosure requirements. The ESIA/IEE report and Environment and Social Management Plan (ESMP), including the RFP, were disclosed in Samoa (April 13, 2015), Fiji (April 16, 2015) and also via the World Bank's Infoshop (April 10, 2015).

J. Legal Conditions and Covenants

69. The following covenants are proposed to support effective Project implementation. In addition, conditions of disbursement are listed in Annex 3.

(a) The Recipient shall appoint, by not later than three months after the Effective Date, and thereafter maintain throughout the period of Project implementation, a Project manager, within the Ministry of Finance, with qualifications and experience and under terms of reference acceptable to the Association, to be responsible for supporting Project implementation. [FA Schedule 2 Section I.A.3].

(b) The Recipient shall take all measures required on its part to ensure that OoTR, shall, by not later than three months after the Effective Date and pursuant to Part VI of the Telecommunications Act and thereafter, throughout the Project implementation period, ensure that all international submarine fiber optic infrastructure in its territory shall be subject to independent regulation which guarantees open access to international communications services by all access seekers on a cost-based and nondiscriminatory basis, all in form and substance acceptable to the Association. [FA Schedule 2, Section I.C].

(c) The Recipient shall, by not later than six months after the Effective Date, obtain and submit to the Association an independent appraisal of the proposed structure for SSCC, including ownership, financing and governance arrangements, business model, divestiture arrangements (including asset valuation) and the mechanism for ensuring financial equilibrium in the interests of users of ICT services in Samoa, in conformity with the Recipient's Laws, and all in form and substance acceptable to the Association. [FA Schedule 2, Section I.B.1(a)].

(d) The Recipient shall, by not later than nine months after the Effective Date, issue a binding offer to sell shares in, or otherwise provide for private sector involvement in the financing of, SSCC, all in an amount and in a manner satisfactory to the Association. [FA Schedule 2, Section I.B.1(b)].

(e) The Recipient shall, by not later than twelve months after the Effective Date, ensure that the SSCC is established and made operational, including adoption of by-laws, articles of association, shareholders agreement and related contractual instruments for the financing and operation of SSCC, in conformity with the Recipient's Laws, and all in form and substance acceptable to the Association. [FA Schedule 2, Section I.B.1(c)].

(f) SSCC shall, by not later than one month after the date of the Project Agreement, offer to the Office of the Regulator a RIO (or similar) which ensures cost based and non-discriminatory access for its services, all in form and substance acceptable to the Association and the OoTR. [FA Schedule 2, Section I.B.2(a)(ii)(B)].

ANNEX 1: RESULTS FRAMEWORK AND MONITORING

Pacific Regional Connectivity Program: Phase 3 - Samoa Connectivity Project

Results Framework

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values					
		YR1	YR2	YR3	YR4	YR5	End Target
Impact on Telecom sector of World Bank Technical Assistance (composite score: 1- low impact to 5-high impact) (Number) - (Core)	1.00	2.00	2.00	3.00	4.00	5.00	5.00
Access to Internet Services (number of subscribers per 100 people) (Number) - (Core)	27.00	28.00	29.00	35.00	45.00	55.00	55.00
Retail Price of Internet Services (per Mbit/s per Month, in US$) (Amount(USD)) - (Core)							
Retail Internet price--business services (Amount(USD) - Sub-Type: Supplemental)	630.00	630.00	500.00	450.00	400.00	300.00	100.00
Retail price of Internet services-residential (Amount(USD) - Sub-Type: Supplemental)	43.00	43.00	43.00	43.00	27.00	19.00	19.00
Direct project beneficiaries (Number) - (Core)	0.00	9300.00	9,300.00	28,500.00	57,000.00	76,000.00	96,000.00
Female beneficiaries (Percentage - Sub-Type: Supplemental) - (Core)	0.00	33.00	35.00	40.00	45.00	50.00	50.00
Grievances registered related to delivery of project benefits addressed (%) (Percentage) - (Core)	0.00			40.0			80.00
Beneficiaries that feel project investments reflected their needs (percentage) (Percentage) - (Core)	0.00			50.0			75.00
Beneficiaries that feel project inv. reflected their needs - female (percentage)	0.00			50.0			75.00

(Number - Sub-Type: Supplemental) - (Core)							
Total beneficiaries - female (number) (Number - Sub-Type: Supplemental) - (Core)	0.00			15,000			48,000.00
Total beneficiaries - male (number) (Number - Sub-Type: Supplemental) - (Core)	0.00			15,000			48,000.00
Wholesale Internet Bandwidth Price ($/Mbps/month) (Amount(USD))	1500.00	1500.00	1200.00	400.00	400.00	400.00	400.00
Available International Bandwidth (mbps) (Number)	250.00	250.00	400.00	3000.00	3000.00	3000.00	3000.00
Intermediate Results Indicators							
Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	End Target
Length of Fiber Optic Network Built (km) (Kilometers) - (Core)	0.00						1,300.00
Private Capital Mobilized (Amount(USD)) - (Core)	0.00	2,500,000.0	2,500,000.0	3,000,000.0			8,000,000.0

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Impact on Telecom sector of World Bank Technical Assistance (composite score: 1- low impact to 5-high impact)	It measures the extent of the impact of World Bank TA on the sector. It is a qualitative measure since a quantitative attribution of World Bank TA on sector performance is unlikely to be possible. World Bank TA covers a range of areas and it is difficult to capture them all. It is intended as a meta-indicator to guide whether to include the sector-level indicators or only project-level ones. This measure is a composite measure comprising five key areas of our work (with no special weighting among them). These show the impact of the project on: i. Making the legal and regulatory framework more effective at delivering sector performance. ii. Improving the capacity of the regulatory institution(s) to deliver on their mandate(s). iii. Increasing the level of competition in the ICT sector. iv. Improving the ICT policy environment in the country. v. Reforming state-owned assets in the ICT sector.	Annual	Office of the Regulator	Office of the Regulator
Access to Internet Services (number of subscribers per 100 people)	It measures the number of people who pay for access to the Internet per 100 people in a given country.	Annual	Telecoms Operators	Office of the Regulator
Retail Price of Internet Services (per Mbit/s per Month, in US$)	This measures the price for access to the Internet at an equivalent rate of 1 Mbit/s per month in a given country. With baseline data, the indicator shows the reduction in the	Annual	Telecoms Operators	Office of the Regulator

	unit price of connectivity (for instance as a result of greater market competition, or an increase in the supply of bandwidth), in a country as a result of the Bank's technical assistance or investment. Since this indicator is applicable to projects targeted to the whole country, it is a good proxy for the contribution of the project to reductions in the unit price. Data is available from ITU (for cross-country comparisons), from OECD (for trends over time) and locally from operators.			
Retail Internet price--business services	Retail Price of business Internet Services 10GB data cap	Annual	Office of the Regulator	Office of the Regulator
Retail price of Internet services-residential	Residential Internet Services 3GB data cap	Annual	Office of the Regulator	Office of the Regulator
Direct project beneficiaries	Direct beneficiaries are people or groups who directly derive benefits from an intervention (i.e., children who benefit from an immunization program; families that have a new piped water connection). Please note that this indicator requires supplemental information. Supplemental Value: Female beneficiaries (percentage). Based on the assessment and definition of direct project beneficiaries, specify what proportion of the direct project beneficiaries are female. This indicator is calculated as a percentage.	Annual	Telecoms Industry, Statistics Office	Office of the Regulator
Female beneficiaries	Based on the assessment and definition of direct project beneficiaries, specify what percentage of the beneficiaries are female.	Annual	Telecoms Industry, Statistics Office	Office of the Regulator
Grievances related to delivery of project benefits addressed within 30 days of	This indicator measures the transparency and accountability mechanisms established by the project so the target beneficiaries	Annual	Office of the Regulator	Office of the Regulator

registration (%)	have trust in the process and are willing to participate, and feel that their grievances are attended to promptly. It is understood that local sensitivities and tensions will not allow grievance or redress mechanisms to be established in all projects.			
Beneficiaries that feel project investments reflected their needs (percentage)	This will measure the extent to which decisions about the project reflected community preferences in a consistent manner.	Survey	Office of the Regulator	Office of the Regulator
Beneficiaries that feel project inv. reflected their needs - female (number)	Percentage female.	Survey	Office of the Regulator	Office of the Regulator
Total beneficiaries - female (number)	Total number of people -female.	Survey	Office of the Regulator	Office of the Regulator
Total beneficiaries - male (number)	Total number of people -male	Survey	Office of the Regulator	Office of the Regulator
Wholesale Internet Bandwidth Price ($/Mbps/month)	See above	Annual	SSCC	Office of the Regulator
Available International Bandwidth (mbps)	Amount of internet bandwidth available	Annual	SSCC	Office of the Regulator

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Length of Fiber Optic Network Built (km)	It measures the number of kilometers of fiber-optic network built under the project (i.e. with project funds). It is expected that the baseline value for this indicator will be zero. The data will be available from the operators under the project.	Annual	Ministry of Communications and Information Technology	Ministry of Communications and Information Technology

Private Capital Mobilized	The core indicator tracks the amount of direct financing (in the form of equity and/or debt) mobilized by private entities, using private funding, to finance investments within an IBRD/IDA operation or investments directly linked to that operation.	Annual	Ministry of Finance	Ministry of Finance

ANNEX 2: DETAILED PROJECT DESCRIPTION

Pacific Regional Connectivity Program: Phase 3 - Samoa Connectivity Project

1. The overall Project comprises the following components. The total Project cost is U$49.94 million. The proposed Financing Plan, including the proposed IDA financing contribution, is summarized in Table A2-1.

Table A2.1. Project Financing Plan

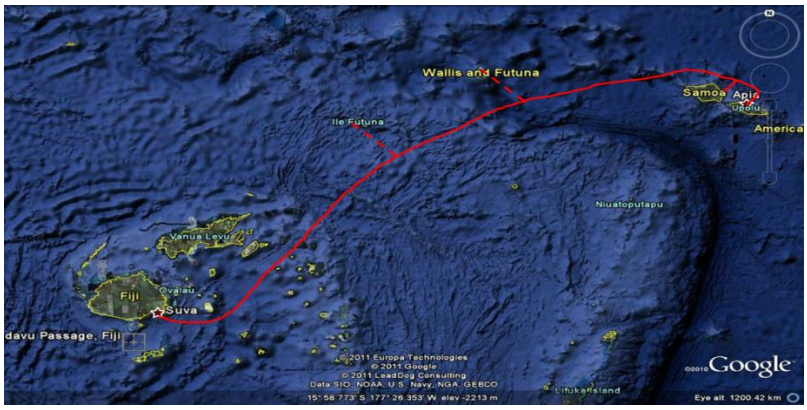
Components	US$	Financier(s)				
		IDA	ADB	DFAT	SSCC	Govt of Samoa
1. Samoa-Fiji Cable						
1(a) Submarine cable system (including approximately 8% contingency)	**37.38**	14.0	18.50	0.00	0.00	4.88
1(b) Landing stations & ancillary equipment	**2.85**	0.00	0.00	1.50	0.98	0.37
1(c) Additional costs	**7.41**	0.00	0.00	0.00	7.20	0.21
Subtotal	***47.64***	*14.00*	*18.50*	*1.50*	*8.18*	*5.46*
2. Regulatory TA	**1.44**	1.25	0.00	0.00	0.00	0.19
3. Project Implementation and Administration	**0.86**	0.75	0.00	0.00	0.00	0.11
GRAND TOTAL	**49.94**	**16.00**	**18.50**	**1.50**	**8.18**	**5.76**

2. The Project includes three components: Component 1, Submarine Cable System ($47.64 million); Component 2, Regulatory Technical Assistance ($1.44 million); and Component 3, Project Implementation and Administration ($0.86 million).

Component 1. Samoa-Fiji Cable

3. *Component 1(a). Submarine Cable System.* The Project will finance the design, supply and installation of a submarine cable system to connect Samoa (Upolu and Savai'i) to Fiji (Suva), including undertaking a marine survey, financing the cable manufacture and cable deployment –marine operations. The proposed cable route is depicted in Figure A2-1. The cable length is 1,300 km. At a distance of about 1300 kilometers, Fiji is the nearest international connectivity hub to Samoa. A new cable on this path will provide Samoa with abundant international bandwidth capacity. A cable to Fiji will provide Samoa with access to direct IP transit services from Fiji suppliers, or cable extension capacity via Southern Cross to Australia, Hawaii or the US west coast. Fiji is a well-established submarine cable hub with connections to Australia, New Zealand, Hawaii, Tonga and Vanuatu. Costing for the Apia – Suva Cable assumes the turn-key supply and installation of a single fibre pair cable, 10 new repeaters, new PFE, and 100G SLTE for both ends. The estimated cost of the "wet segment" including the marine survey, cable manufacture and marine operations is US$28 million to be procured through a single supply contract. *IDA will finance US$14.0 million or 50 percent of this subcomponent. ADB will finance the other 50 percent. This will be through joint cofinancing.*

Figure A2.1. Proposed Samoa-Fiji Cable



4. *Component 1(b) Landing Stations and Ancillary Equipment.* Construction of landing stations and ancillary facilities in Savaii and Upolu, including acquisition and installation of onshore equipment. The cable will land at the Fintel cable station at Laucala Bay in Suva where the Southern Cross (SSCC) lands. Fintel advise the there is space available at this location as well as spare ducts from the beach manhole to the their cable station. The landing in Apia is proposed to be at the same location at Fagalii as SAS and use the same BMH with its spare ducts to the sea. The cable station location will be about 1 kilometer up the hill behind the Fagalii landing point and adjacent to the golf course. The Savai'i cable landing station will be located at Tusitivi. The estimated cost of the cable landing station and related onshore facilities is US$6 million. *This component will be financed by ADB, DFAT and SSCC.*

5. *Component 1(c) Additional Costs* will finance two IRUs comprising the prepayment of 10Gbps for capacity on SCCN (US$3.4 m) and for landing station services ($2.4 million) in Suva for a total cost of US$5.8 million. It will also finance technical Project/contract management costs plus required permits and licenses associated with the cable system ($1.4 million). The estimated cost is US$7.2 million. *This component will be financed by the SSCC.*

Component 2. ICT Regulatory Technical Assistance

6. Carrying out a program of activities designed to enhance regulatory capacity of the Office of the Regulator, such program to include, *inter alia*: (a) review, development and implementation of effective regulation for the ICT sector with a particular focus on wholesale markets; (b) review (and update) of existing legal regulatory framework; and (c) carrying out a nationwide consumer survey on the benefits of ICT. This component will include provision of legal and regulatory expertise, especially for competition and market regulation activities; review of existing legal regulatory framework including drafting new instruments and reforms; and training and skills development. The component will also support specific advisory assistance on wholesale tariff regulation, including price and nonprice terms for access to all international fiber optic bandwidth services in Samoa.

7. Focus areas identified by OoTR include: market definition, declaration of dominance in new markets, licensing, regulation of wholesale prices especially for providers of Internet capacity, regulation of new and existing cable companies, cost modelling for provision of

capacity and establishment of appropriate quality of service standards. The component will support a nationwide consumer survey to understand the benefits of ICT particularly for women, including gender focus group discussion. Additionally, funding will be provided for procurement of technical equipment that is needed to administer and plan effective arrangements for the sector.

Component 3. Project Implementation and Administration

8. This is for Project transactional implementation and management support to the MoF. This component will finance: (a) project finance and transactional assistance in connection with the institutional design and operationalization of the SSCC pursuant to PPP arrangements, including independent appraisal of the proposed structure of SSCC; (b) overall Project coordination, financial and contract management, procurement, communications and outreach plus reporting, audit, monitoring and evaluation.

Regional IDA Eligibility

9. **The Project meets the eligibility criteria for Regional IDA financing.** The activities to be financed with an IDA grant have been endorsed by the region's ICT community of stakeholders. Improved connectivity will contribute to regional infrastructure development, institutional cooperation for economic integration, and coordinated interventions to provide regional public goods.

10. *Regional strategy and ownership*. The Pacific Regional Connectivity Program series of projects as a whole has supported the objectives of the Framework for Action on ICT for Development in the Pacific prepared collaboratively in 2010 by multiple development partners in the region, under the coordination of the Secretariat of the Pacific Community. The framework has seven themes and 12 guiding principles. Its goal is to develop and improve ICT services to support development and governance and create new livelihood opportunities for communities in the Pacific. The themes are: (a) ICT leadership, governance, coordination and partnerships; (b) ICT policy, legislation and regulatory frameworks; (c) ICT capacity-building; (d) ICT infrastructure and access; (e) international connectivity; (f) cyber security and ICT applications, and (g) ICT financing, monitoring and evaluation. This framework will be renewed at the forthcoming ICT Officials Meeting and ICT Ministerial Meeting to be held in Nuku'alofa Tonga on June 17 to 19, 2015 under the leadership of The University of the South Pacific which is now responsible for guiding the region's ICT-enabled development.

11. *Country participation.* The Project directly involves Samoa (an IDA-eligible country and vulnerable economy) and Fiji. The infrastructure to be financed also enables potential onward connections to other regional, including outer islands of Tonga (IDA eligible), and Wallis and Futuna, as part of a regional system.

12. *Spillover effects.* Pacific island countries are characterized by their small size and extreme geographic isolation. Analysis undertaken for the 2009 World Development Report ("Reshaping Economic Geography") indicates that the average Pacific island is located 11,500 km from any other randomly selected country, making the Pacific islands the most remote countries in the world. Distance from markets is not simply a geographic reality but results in substantial economic disadvantages for Pacific island countries. Countries that are close to

markets have a natural advantage over more remote locations since the exchange of goods, services, labor, capital and ideas is easier and more rapid—a finding borne out by a clear correlation between market access and economic growth.

11. For many Pacific island economies, overcoming this "tyranny of distance" will hinge on their ability to stimulate domestic growth and on the extent to which they can integrate with each other and with their larger neighbors. Isolation and limited economies of scale also mean that Pacific economies often rely heavily on aid, remittances, natural resource rents, and tourism. In this context, improving connectivity throughout the region has the potential to support national economic growth and to underpin the critical processes of regional coordination and integration. Greater and more affordable connectivity in the Pacific would help lower transaction costs, create new economic opportunities and enhance communication and delivery of services to currently isolated domestic communities. From a regional perspective, improved connectivity has the potential to enhance the efficient use of resources, to facilitate cooperation on a wide range of transnational issues, such as, management and monitoring of natural resources (e.g., fisheries), comprehensive mitigation efforts addressing natural disasters, climate change and adaptation, as well as collaborative service delivery.

ANNEX 3: IMPLEMENTATION ARRANGEMENTS

Pacific Regional Connectivity Program: Phase 3 - Samoa Connectivity Project

Project Institutional and Implementation Arrangements

Project administration mechanisms

1. **Recipient.** The Recipient of IDA funds will be the MoF. For Component 1 MoF will provide the funds to the SSCC once it is established and operational on terms and conditions acceptable to IDA.

2. **Implementing entity/agencies.** The implementing entity for Component 1 will be SSCC. The Recipient shall vest responsibility for implementation of Component 1 in the MoF until such time as the SSCC shall have been established and made operational. The implementing agency for Component 2 will be the OoTR. The implementing agency for Component 3 will be MoF.

3. For day-to-day administration of the entire Project MoF will recruit support to assist with overall Project coordination, procurement, financial management, communications and reporting, and audit functions. In addition, SSCC will retain the services of a technical specialist to assist with procurement and contract management under Component 1.

4. These arrangements will require the following legal documents: (a) a Grant Agreement between IDA and the Recipient; (b) subsidiary agreements between the Recipient and SSCC; and (c) Project Agreements between IDA and the SSCC. The agreements with SSCC will be negotiated and executed once the SSCC has been established, operationalized and assessed by IDA for fiduciary responsibilities (FM and Procurement).

Financial Management, Disbursements, and Procurement

Financial Management

5. **Responsibility for financial management.** It is recommended that this function be consolidated under MoF so that all Project documentation is collated by the Project Finance Officer and submitted for payment through MoF. This is consistent with other World Bank financed Projects in Samoa. Once SSCC is established and the Subsidiary Agreement and Project Agreement are in place SSCC will be responsible for the financial management of Component 1.

Budgeting Arrangements

6. Given the limited number of activities a whole of Project life budget broken into fiscal years will be prepared by MoF with assistance from the Finance Officer. As the Project is implemented and more details become available of the specific consultancies then the budget should be updated. Potential currency fluctuations also need to be monitored through the budget.

Accounting/Staff Arrangement

7. As MoF have limited staff capacity to dedicate to the FM requirements of the Project it is recommended a Finance Officer is financed by the Project to maintain the Project accounts. At this stage the person may only be required part time however this may change as the Project requirements become clearer. Under the present structure, there may be fewer than 10 contracts and limited other expenditures.

8. The Finance Officer will prepare the accounting documentation for each transaction and remit to the MoF for payment. MoF will make the payment and record the information into the Finance One accounting software.

9. As the Finance One system only records Project expenditure under one line the Project will be required to maintain parallel records to enable dissection of information for reporting purposes. On a monthly basis MoF will provide the Project with a Project transaction listing which the Project will be required to reconcile to its own records. Copies of the reconciliation should be maintained by the Project and be available for review by the World Bank. When SSCC is operationalized a fiduciary assessment will be undertaken before IDA enters into a Project Agreement with SSCC.

Internal Controls

10. The Government of Samoa accounting processes ensure authorization and payment processes are clearly segregated. All the payment vouchers will be prepared by the Finance Officer authorized by MoF (responsible ACEOs/CEO) or the OoTR for Component 2 and reviewed by the MoF Aid Coordination Unit before payment is processed through MoF. As part of the Government of Samoa internal control system there is a pre-audit review by the Samoa Audit Office of all Project transactions. The Finance Officer will reconcile the payments on its system with those from the Finance One printout as part of normal monthly reporting.

Flow of Funds

11. While a United States-dollar denominated Designated Account (DA) will be opened at the Central Bank of Samoa it is envisaged the majority of the payments will be Direct Payments. Withdrawal Applications will be authorized by MoF but may be prepared by the Finance Officer.

12. Component 1(a) payments will be made in accordance with the terms of the contract for the Submarine Cable System. Invoices consistent with delivery milestones will be provided to the Loans Department to enable both the disbursement and documentation of these funds.

Financial Reporting

13. The Project will be required to prepare quarterly interim financial reports (IFRs) in a format agreed upon with the Bank. The IFRs will be required to be submitted not later than 45 days after the end of the reporting period. The IFRs will be prepared by the Finance Officer in consultation with MoF.

External Audit

14. The Samoa Audit Office will conduct an annual audit of the Project accounts and these will be received by the Bank within six months of the end of each of the reporting periods. The Samoa Audit Office has extensive experience in auditing government departments and World Bank Funded Projects and is an auditor acceptable to the Bank.

Disbursements

15. The Project will be able to use four Disbursement Methods: Advance, Reimbursement, Direct Payment and Special Commitment.

16. In order to facilitate the means of payment for the majority of day-to-day expenses, a DA will be opened to enable the World Bank to advance funds to the Project. The DA will be opened at the Central Bank in United States dollars. The documentation required for the replenishment of the advance will be by Statement of Expenditure and while documentation will not be required to be sent, except for those contracts subject to prior review, the Project will be expected to retain documentation for audit and review by World Bank staff. The Finance Officer will prepare all Withdrawal Applications and it will send the Withdrawal Applications along with accompanying documentation to the Aid Coordination Unit at MoF for checking, signing, and submission to the World Bank.

17. The Project will have the following disbursement categories as outlined in Table A3.1.This table does not include the SSCC financing for Components 1 (c) and 1 (d).

Table A3.1. Disbursement Categories

Category	Amount of the Financing Allocated USD equivalent	Percentage of Expenditures to be Financed by the Grant (exclusive of Taxes)	Amount of the ADB Cofinancing USD equivalent	Percentage of Expenditures to be Financed by the ADB cofinancing (exclusive of Taxes) (%)	Amount of the DFAT Cofinancing USD equivalent	Percentage of Expenditures to be Financed by DFAT (exclusive of Taxes) (%)
(1)(a) Goods, works, non-consulting services, and consultants' services for Component 1(a) of the Project	14,000,000	43	18,500,000	57	0	0
(1)(a) Goods, works, non-consulting services, and consultants' services for Component 1(b) of the Project	0	0	0	0	1,500,000	60
(2) Consultants' services and Training for Component 2 of the Project	1,250,000.0	100	0	0	0	0
(3) Consultants' services, goods and Operating Costs for Component 3 of the Project	750,000	100	0	0	0	0
Total Amount	**16,000,000.0**		18,500,000		1,500,000	

Disbursement Conditions:

18. The following disbursement conditions are proposed:

(a) No withdrawal shall be made under Category 1 for Component 1(a) until all conditions set forth in Section I.B.1 of Schedule 2 to the Financing Agreement relating to the establishment of the SSCC have been met in a manner acceptable to the Association. [FA Schedule 2, Section IV.B.1(b)(i)]

(b) No withdrawal shall be made under Category 1 Component 1(a) until: (i) the Association has entered into a Project Agreement with the SSCC; and (ii) the Recipient has entered into a Subsidiary Agreement with the SSCC; and the Association has received a legal opinion(s) attesting that the Project and Subsidiary Agreements have been duly executed, delivered and ratified and are legally binding upon the Recipient and SSCC. [FA Schedule 2, Section IV.B.1(b)(ii) and (iii)]

(c) No withdrawal shall be made under Category 1 Component 1 (a) until the SSCC has obtained all licenses, permits and approvals required for the operation and supply of international and domestic wholesale communication services, all in form and substance acceptable to the Association. [FA Schedule 2, Section IV.B.1(b)(iv)(B)]

(d) No withdrawal shall be made under Category 1 Component 1 (a) until the SSCC has entered into Landing Party Agreement(s) and all necessary authorization and permits for landing of the cable in Fiji have been obtained, all in form and substance acceptable to the Association. [FA Schedule 2, Section IV.B.1(b)(iv)(C)]

(e) No withdrawal shall be made under Category 1 Component 1 (a) until the SSCC has submitted evidence showing that it has secured adequate capacity for the cable system via the landing station in Suva, Fiji, from a third-party provider, in form and substance acceptable to the Association. [FA Schedule 2, Section IV.B.1(b)(iv)(D)]

(f) No withdrawal shall be made under Category 1 Component 1 (a) until the SSCC has provided all necessary financing required on its part for purposes of financing Part 1(c) of the Project in accordance with Section V.A of this Schedule 2. [FA Schedule 2, Section IV.B.1(b)(iv)(E)]

(g) No withdrawal shall be made under Category 1-Component 1(a) until the Association and the Co-financier have entered into a memorandum of understanding setting forth the joint arrangements for implementation of the Project, in form and substance satisfactory to the Association. [FA Schedule 2, Section IV.B.1(b)(v)]

(h) No withdrawal shall be made under Category 1-Component 1(a) until ADB Cofinancing Agreement and the PRIF Grant Agreement have been executed and all conditions precedent to its effectiveness or the right of the Recipient to make withdrawals under it have been fulfilled. [FA Schedule 2, Section IV.B.1(b)(vi)]

Procurement

19. Procurement for the proposed Project will be carried out in accordance with the *World Bank's "Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers,"* dated January 2011 and revised

July 2014 (Procurement Guidelines); and "*Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers," dated January 2011 and revised July 2014* (Consultant Guidelines); and the provisions stipulated in the Financing Agreement.

20. **Component 1 (a) Samoa-Fiji Cable:** IDA financing of US$14 million will be provided to the SSCC towards the costs and contingencies of the design, supply, and installation of the submarine cable system. Procurement of the system will be carried out in accordance with international competitive bidding as defined in Section II of the World Bank's Procurement Guidelines. The World Bank's Standard Bidding Documents for Procurement of Plant Design, Supply, and Installation will be used. The MoU to be signed between ADB and the World Bank will identify the World Bank as lead cofinancier, and will include the protocols to be followed on procurement reviews and supervision.

20. **Component 2, ICT Regulatory Technical Assistance:** IDA financing of US$1.25 million will be provided for hiring consultants to assist OoTR, and for procurement of small value equipment for the sector. Standard consultant selection procedures and procurement procedures for goods and equipment, as described in the World Bank's Consultant and Procurement Guidelines respectively, will be followed under this component.

21. **Component 3, Project Management and Administration:** IDA financing of US$0.75 million will be provided for hiring consultants for Project implementation support and management services. Standard consultant selection procedures, as described in the World Bank's Consultant Guidelines, will be followed under this component.

22. **The procurement thresholds and prior review thresholds** applicable to the Project are set out in Table A3-2. In addition to the prior review, the capacity assessment of the implementing agency has recommended that procurement implementation support shall be carried out at least once a year.

Table A3.2. Procurement Thresholds and Prior Review Thresholds

Procurement Methods	**Procurement Threshold**	**Prior Review Threshold**
Procurement of Goods & Equipment (other than the cable system)		
International Competitive Bidding (ICB)	≥US$500,000	All contracts subject to prior review
Shopping	<US$500,000	All contracts subject to post review
Direct Contracting	Meet the criteria set out in para. 3.7 of Procurement Guidelines	All contracts subject to prior review
Design, Supply & Installation of Submarine Cable System		
International Competitive Bidding (ICB)	In accordance with the Bank's Procurement Guidelines for ICB.	All contracts subject to prior review
Selection of Consultants		
Firms (QCBS, QBS, LCS, FBS)	In accordance with the Bank's Consultants Guidelines	≥US$100,000 **except** legal assignments, which are all subject to prior review

Procurement Methods	Procurement Threshold	Prior Review Threshold
Firms (CQS)	<US$300,000, In accordance with the Bank's Consultants Guidelines	≥US$100,000 **except** legal assignments, which are all subject to prior review
Firms (SSS)	In accordance with the Bank's Consultants Guidelines	All contracts subject to prior review
Individual Consultants (competitive)	In accordance with the Bank's Consultants Guidelines	All contracts subject to post review **except** legal and procurement related assignments, which are subject to prior review
Individual Consultants (SSS)	In accordance with the Bank's Consultants Guidelines	All contracts subject to prior review

23. **Procurement risk and mitigation measures**. The overall procurement-related risk for the Project is rated high. The key procurement-related risks identified are: (a) delays in selection of consultants due to inadequate in-house technical and fiduciary capacity, (b) delays and noncompliance with procedures in procuring the new submarine cable system due to lack of experience, capacity issues and the uncertainties relating to SSCC, and (c) delays in the internal and external decision-making process.

24. To address these risks, the following mitigating actions have been agreed: (a) recruitment of consultants responsible for, *inter alia*, processing all procurement activities under Components 2 and 3, and overseeing the procurement of the cable system under component 1; (b) hiring technical expertise for assisting MoF, OoTR, and SSCC in the preparation of terms of reference, specifications, and other technical requirements; (c) early and continued interaction between the cofinancing partners and the SSCC, to ensure the Guidelines are clearly understood, and to agree on the process and timelines for procurement of the cable system, and (d) MoF to follow up on internal clearances, and a MoU to be signed between the ADB and the World Bank detailing the protocol to be followed for the external review process.

25. **Procurement plan**. The initial Project procurement plan, which will identify the procurement methods, review requirements and timelines, will be prepared and agreed between the Recipient and the Bank prior to negotiations. It will be published in the Bank's external website. The Procurement Plan will be updated in agreement with the Bank annually or as required to reflect the actual Project implementation needs and improvements in institutional capacity. A summarized procurement plan is provided in Table A3.3.

Table A3.3 Summarized Procurement Plan

Ref. No.	Description of item	Estimated Cost (US$ million)	Category	Procurement/ Selection Method	World Bank Review (Prior/Post)	Contract signed by
SSCC-G-1	Design, Supply & Install Submarine Cable System	32.5*	Works	ICB	Prior	SSCC
MoF-C-1	Technical implementation advisory services: transactional support	0.5	Consultant Services	QCBS	Prior	MoF
MoF-C-2	Project administration services	0.25	Consultant Services	CQS	Prior	MoF
OoTR-C (multiple)	Technical Assistance	1.0	Consultant Services	QCB/QBS/IC	Prior/Post	OoTR
OoTR-G (multiple)	Equipment	0.25	Goods	Shopping	Post	OoTR

***Financed jointly with ADB.*

Environmental and Social (including safeguards)

26. **Proposed Project development.** Component 1 involves laying approximately 1,300 km of submarine fiber optic cable between Suva, Fiji and Apia, Samoa (with a spur to Savai'i) and a new cable station in Samoa will be installed. The preferred cable landing site in Apia (Upolu) is situated at Fagali'i where the existing Samoa/American Samoa (SAS) - American Samoa-Hawaii (ASH) cable landing site and beach manhole (BMH) owned by BlueSky is located. The new cable station will be in proximity to the BMH at Fagali'i and outside of areas vulnerable to flooding to maintain the security of Samoa's international communications. A hardened duct route will be installed within the road reserve from BMH eastwards for 2.2km along the Main East Coast Road, Golf Course Road and Plantation Road to a designated site (approximately 100-200sqm) on government owned land. A small demountable building will be erected to secure the telecommunication plan and backup power equipment (containing diesel generator, batteries, etc.).

27. The cable system includes a spur to Savai'i, where a duct route, BMH and new rack will be installed. The most suitable landing site for the cable is on government land at the main hospital in Tuasivi. A duct route will extend from the BMH behind the chapel along the road reserve to the nearby BlueSky cable station. A 600mm rack will be installed inside the existing BlueSky cable station located adjacent to the hospital and post office (there is sufficient space to accommodate this).

28. In Fiji, the landing point will be the existing Vatuwaqa station in Laucala Bay, Suva operated by Fintel, the termination point for Southern Cross, Tonga and Vanuatu cables. A short duct route to the Fintel cable station will be required; however no major construction is necessary, with the connection enabled through a service agreement and provision of requisite space within existing facilities for the interconnection, shared provision of power, UPS, fire protection and security, etc.

29. **Social aspects.** The Project is expected to result in numerous positive social and economic impacts through improved access to communications across the country (in particular Savai'i). Consultation undertaken in November 2014 with key stakeholders identified that improved operations and connectivity will enhance the socioeconomic opportunities for Samoa, ranging from small business to critical social services (hospitals, education, etc.) and result in a positive impact overall.

30. OP/BP 4.12. Involuntary Resettlement was triggered to ensure the land tenure along the cable routes was fully assessed. Two of the three landing sites are at existing facilities. New infrastructure includes installation of ducts along public roads to connect the cable to landing sites and cable stations. While these roads and other infrastructure locations were notionally identified as government-owned land, the policy was triggered to ensure due diligence in land tenure investigations. An RFP has been prepared.

31. OP/BP 4.10 Indigenous Peoples has not been triggered. A country-level social analysis has been completed as part of preparation of the Environmental and Social Safeguard Procedures for the Pacific Island Countries. This analysis looked at the applicability of OP 4.10 in each PIC based on four criteria. OP 4.10 defines Indigenous Peoples based on four characteristics: (a) self-identification as members of a cultural group, (b) collective attachment to habitats/territories, (c) customary institutions, and (d) and indigenous language. All four characteristics must be present to trigger the policy. In Samoa virtually all of the population is ethnic Samoan and there are no significant ethnic cleavages among them; therefore, they do not self-identify as members of a distinct indigenous cultural group within their own country. Similarly there are no customary cultural, economic, social. or political institutions that are separate from the dominant society and culture because they are the dominant society and culture. There also is no indigenous language different from the official language of the country. Based on this analysis, OP 4.10 is not typically triggered in Samoa. Despite the absence of some of the key criteria, because of the relatively high salience of ethnic identification and interethnic relationships in Fiji, the Policy may be triggered in Fiji under certain circumstances. However given that there are no impacts affecting land or shared resources, OP4.10 will not be triggered in Fiji.

32. The identified landing sites in Samoa are existing cable landing sites including BMHs on government land. Linear ICT infrastructure including narrow duct routes to cable stations will sit within designated road reserves and will not affect, or involve the acquisition of, private or customary land. Due diligence on land tenure, titling and road reserves will be conducted with relevant parties prior to any construction activities to ensure only existing government land will be used.

33. Given experience from previous ICT Projects in Samoa (i.e., the Samoa National Broadband Highway—network commissioned by the Government) and other countries and the limited footprint of the infrastructure, the laying of the cable is not expected to result in the displacement of people, food gardens or physical structures, or disrupt livelihoods. There will be limited disturbance to near-shore areas for the installation of the cable that may have very minor, short-term impacts upon fishing, gleaning and recreational activities, considered to be negligible. Construction-related impacts will be managed in accordance with the ESMP and in consultation

with nearby villages/residents and businesses to ensure disturbance to local communities is minimized.

34. On Savai'i the site for the cable landing and beach manhole BMH at the hospital is adjacent to the chapel and mortuary. Consultations and the timing of construction activities will respect cultural sensitivities regarding this site. The ESMP has detailed measures to ensure access to the hospital is not restricted and utility services are not disrupted. A full list of mitigation measures will be contained within the ESMP.

35. **Environmental aspects**. The Project not expected to have any major environmental impacts and has been categorized as Category B. The Project will comply with OP4.01 Environmental Assessment, OP4.04 Natural Habitats and OP4.11 Physical Cultural Resources. An ESIA/IEE has determined potential environmental impacts of the preferred routing and appropriate mitigation measures according to their level of significance in accordance with Fijian and Samoan environmental legislation and OP4.01 requirements.

36. The submarine cable will be buried in shallow water approaches to the landing sites and will be surface-laid on the seabed along the deep-water route. A marine bathymetric survey will characterise the route to avoid environmentally significant areas and other features with potential design or cable integrity implications such as seamounts and hydrothermal vents. Cable installation has the potential for some disturbance in near-shore environments where burial techniques are employed and where the cable route passes through coral reef environments; however surface-laid sections in deeper water are unlikely to cause any significant impact. Construction-phase impacts will be temporary and site-specific and avoidance strategies will be employed in near-shore environmentally-sensitive areas.

37. **Documentation**. A detailed ESIA in the form of an IEE funded by ADB was prepared to identify key social and environmental impacts and benefits of the preferred Project routing and sites, with consideration of alternatives. The IEE included a social assessment. Impacts were be assessed according to their level of significance and mitigation measures were established in an ESMP and Resettlement Policy Framework and Resettlement Action Plan that meet World Bank safeguard requirements and are aligned to Samoa's Codes of Environmental Practice. The key potential impacts are on sensitive marine habitats from construction activities, including cable placement damaging coral assemblages or other deep sea marine habitats. No significant land-based environmental impacts are anticipated as existing infrastructure will be utilized or infrastructure sited in cleared road easements or other non-vegetated areas.

38. The key environmental mitigation measure is avoidance through design. The detailed design process—informed by the marine bathymetric survey and marine ecological assessment—will allow sensitive habitat areas to be avoided. In near-shore environments where the cable will be in the vicinity of coral assemblages, the cable laying process will be guided by ecologically-qualified divers who will ensure that the cable avoids coral heads.

39. **Institutional capacity and arrangements**. Project management staff (MoF, then SSCC once established) will have overall responsibility to ensure safeguard compliance in the preparatory phase and will work in collaboration with key agencies with regard to safeguard requirements. In addition, MoF has experience with ADB and World Bank Projects and

safeguard requirements. The IEE identified existing capacity gaps for ESMP implementation and compliance. PUMA will maintain a regulatory role and oversee environmental compliance in accordance with the ESMP.

40. **Public consultation**. A Consultation Plan was developed by IEE consultants hired by ADB, in collaboration with the Government. Consultation is taking place in two phases: (a) by the IEE consultant to inform the ESIA/IEE process and assessment, including confirmation of preferred site locations (these consultations were undertaken in March 2015, and (b) by MoF/SSCC to coordinate development consent, permits for construction activities, and to secure formal land leasing and subleasing agreements. A range of stakeholder groups will be consulted including government ministries, potentially affected communities, key service providers, and a comprehensive list of stakeholders is detailed in the Consultation Plan. The Consultation Plan outlines the grievance procedures and consultative approach in adherence to cultural formalities in Samoa, Code of Environmental Practice 3 and World Bank public consultation and information disclosure requirements. Disclosure at the national and international level involved uploading ESIA/IEE, ESMP, RFP and relevant safeguard documents onto the MCIT website in Samoa, the Fintel website in Fiji, as well as submission of key documents through the World Bank's *Infoshop*.

41. **Grievance redress mechanism**. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit www.worldbank.org/grs. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org."

Monitoring and Evaluation

42. Monitoring and evaluation will be undertaken by the MoF, with core data collection and analysis undertaken by the OoTR in accordance with the Results Framework established for the Project, with data to be provided by SSCC and the telecommunications service providers. Data on actual Project outputs and outcomes will be gathered and analyzed by the OoTR and included in semi-annual progress reports to be submitted to the World Bank by MoF.

Role of Partners (if applicable)

43. The ADB and Australia's Department of Foreign Affairs and Trade are co-financing Component 1 (b) of the Project. Construction of the submarine cable system will be implemented using the World Bank's policies in relation to, *inter alia,* procurement, safeguards, fraud and corruption, financial management, communication, etc. Within these limits, issues that have arisen so far as a result of the different policy regimes of ADB and the World Bank have been dealt with pragmatically, and have been addressed through consultations and the sharing of

documents. In particular:

(a) *Joint safeguards requirements and monitoring.* ADB and the World Bank recognize the importance of environmental and social safeguards under the Project and agree to cooperate in implementation and monitoring safeguards under Component 1;

(b) *Consultation and coordination.* To ensure smooth operation and efficient implementation and monitoring of Project implementation, a cofinanciers' coordination committee composed of ADB and World Bank representatives will be put in place.

(c) *Joint procurement arrangements.* These are described in paragraph 19 of this Annex.

44. Moving forward into implementation, ADB and the World Bank will make best efforts to field joint missions and will, in any event, share any aide-memoires, back-to-office reports, and other key information to ensure that all aspects of the overall Project remains in compliance with World Bank safeguards requirements.

ANNEX 4: IMPLEMENTATION SUPPORT PLAN

Pacific Regional Connectivity Program: Phase 3 - Samoa Connectivity Project

Strategy and Approach for Implementation Support

1. The Implementation Support Plan focuses on mitigating the risks identified in the SORT, and aims at making implementation support to the client more flexible and efficient. It seeks to provide the technical advice necessary to facilitate achievement of the PDO (linked to results/outcomes identified in the result framework), as well as identify the minimum requirements to meet the World Bank's fiduciary obligations.

- **Procurement.** Implementation support will include: (a) providing training to implementation agency staff on procurement; (b) supporting the Procurement specialists hired under the Project; (c) reviewing procurement documents and providing timely feedback to the implementing agency; (d) providing detailed guidance on the World Bank's Procurement Guidelines to the Government; (e) monitoring procurement progress against the detailed Procurement Plan; and (f) providing just-in-time training and support at key moments in the procurement cycle;
- **Financial management.** Implementation support will include: (a) reviewing of the country's financial management system, including but not limited to, accounting, reporting and internal controls; (b) leveraging the financial management specialists hired to support the Project; (c) hiring additional staff and providing training as needed to the implementing agency; and (d) reviewing submitted reports and providing timely feedback to the Project Steering Committee, SSCC, and OoTR.
- **Other issues.** Sector level risks will be addressed through policy dialogue with the Government's departments and agencies.

Implementation Support Plan

2. Samoa has experience in implementing World Bank financed projects, however, given the relative complexity of structuring and implementing the Project, this operation will require fairly intensive supervision, especially during the first two years of implementation. The World Bank team is based primarily in country offices, and will be available to provide timely, efficient and effective implementation support to the clients. Formal implementation review and field visits will be carried out at least four times annually in the first two years, with two to three annual visits in later years of the Project. These will be complemented with bi-monthly audio-conferences to discuss Project progress. In addition, as there is no World Bank country office in Samoa, an Infrastructure Specialist or Implementation Support Specialist will be deployed on an extended mission basis to provide advice and support as needed to the Project implementing entities. Detailed inputs from the World Bank team are outlined below:

- Legal specialist inputs. Legal and regulatory related inputs will be required to assist in the institutional, financial and governance arrangements for the design of the PPP framework, deployment of the submarine cable system and the legal and regulatory capacity building which will focus on supporting the enabling environment and promoting competition particularly in wholesale markets.

- Technical inputs. Assistance to ensure sound technical specifications and assessments, and confirmation that activities are in line with Government' ICT and growth strategies.
- Fiduciary requirements and inputs. Training will be provided by the World Bank's financial management and procurement specialists as needed. The World Bank team will help identify capacity building needs to strengthen financial management capacity and to improve procurement management efficiency. Financial management and the procurement specialists will be based in the region to provide timely support. Formal supervision of financial management will be carried out semi-annually or annually, while procurement supervision will be carried out on a timely basis as required by client needs.
- Safeguards. Inputs from gender, environment and social specialists will be provided as needed.
- Operation. The Task Team will provide day-to-day review of all operational aspects, as well as coordination with the clients, partners (ADB) and among World Bank team members. Relevant specialists will be identified as needed.

3. The World Bank will conduct a minimum of two review missions per year during Project implementation. This will be undertaken jointly with the ADB, and the particular modalities of cooperation will be agreed. A midterm review will be conducted after 2.5 years, which will encompass: (a) a thorough review of the execution of the Project and the achievement of Project objectives to date; and (b) agreement between the World Bank and the Government on recommended measures to ensure efficient execution of each component and successful achievement of the Project objectives in the period after the review, all in accordance with agreed performance indicators. The Government will provide the World Bank a Project Completion Report six months prior to Project closing and inputs to the Implementation Completion Report to be prepared by the World Bank. The World Bank will support public dissemination of Project information.

Table 4.1. Implementation Support

Time	Focus	Skills Needed	Resource Estimate (SWs)
Years 1-3	Technical review of submarine cable system implementation, TA documents and outputs	Technical and Legal Specialists	16
	Environmental Monitoring	Environ. Specialist	3
	Social Monitoring	Social Specialist	1
	Review of financial management & training	FM Specialist	8
	Review of procurement & training	Procurement Specialist	6
	Implementation Support	Infrastructure Specialist	10
	Implementation Support	Program Assistant	6
	Team Leadership	Task Team Leader	8
	Communications advice and support	Communications Specialist	6
Years 4-5	Technical Reviews of TA Outputs & Reform Progress	Technical & Legal Specialists	12

Time	Focus	Skills Needed	Resource Estimate (SWs)
	Environmental Monitoring	Environmental Specialist	3
	Social Monitoring	Social Specialist	1
	Review of procurement documents	Procurement Specialist	6
	Review of financial management	Financial Specialist	8
	Implementation Support	Infrastructure Specialist	24
	Implementation Support	Program Assistant	6
	Communications advice and support	Communications Specialist	4
	Team Leadership	Task Team Leader	18

Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
TTL	26	8	Country office based
Program Assistant	12	0	Country office based
Technical Specialist	36	12	Globally sourced
Legal Specialist	25	8	Globally sourced
Environmental Specialist	6	2	Country office based
Social Specialist	6	1	Country office based
Financial Management Specialist	16	6	Country office based
Procurement Specialist	12	6	Country office based
Infrastructure Specialist	34	12	Country office based
Country Counsel	8	1	For negotiations and review of conditions/compliance.
Communications	8	2	Country office based

Partners

Name	Institution/Country	Role
Mr. Tupaimatuna Iulai Lavea	MoF, Samoa	Chief Executive Officer
Hon. Tuisugaletaua Aliimalemanu Sofara Aveau	MCIT, Samoa	Minister
Mr. Tu'aimalo Ahsamu	MCIT, Samoa	Chief Executive Officer
Mr. Suluimalo Amataga Penaia	MNRE, Samoa	Chief Executive Officer
Mr. Donnie De Freitas/Ms. Unutoa Fonoti	OoTR, Samoa	Regulator
Mr. Paul McCann	Project Steering Committee, Samoa	Project Coordinator
Mr. Hugh McGarry	Project Steering Committee, Samoa	Co-Project Coordinator
Mr. John Hibbard	Project Steering Committee, Samoa	Technical Advisor
Mr. Austin Cawardine	Project Steering Committee, Samoa	Legal Advisor
Mr. Pepe Christian Fruean	Digicel, Samoa	Chief Executive Officer
Mr. Adolfo Montenegro	Bluesky Samoa Limited	Chief Executive Officer
Ms. Laeimau Oketevi Tanuvasa,	CSL, Samoa	Chief Executive Officer
Mr. Clyde Hamilton	DFAT, Samoa	Acting Counsellor
Ms. Maria Melei,	ADB, Philippines	Task Team Leader

Mr. Sibesh Bhattacharya	ADB, Philippines	Senior Infrastructure Specialist

ANNEX 5: SAMOA ICT SECTOR OVERVIEW[8]

Pacific Regional Connectivity Program: Phase 3 - Samoa Connectivity Project

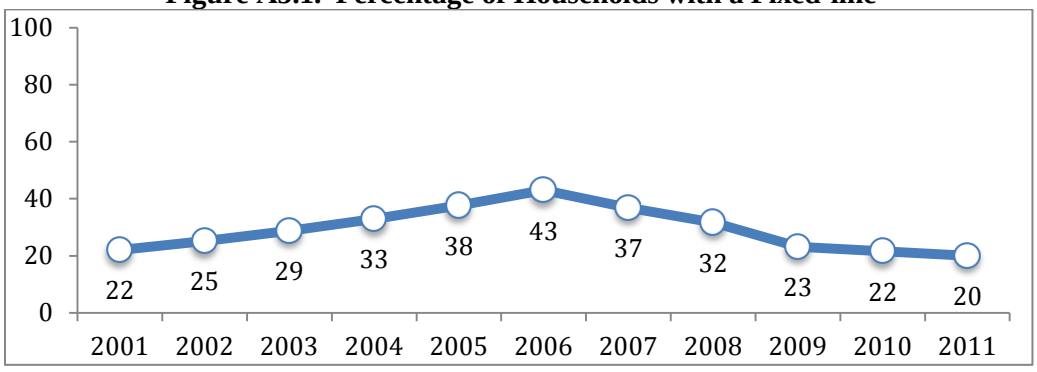
Industry Structure, Regulation, and Liberalization

1. ICT Sector reform in Samoa began in 1999 when the Posts and Telecommunications Department was corporatized and renamed Samoa Communications Ltd (SCL). It changed its name to SamoaTel in 2002. In 2007, postal responsibilities were spun off from SamoaTel. Three years later the government invited tenders for 75 percent of SamoaTel. It was privatized in March 2011 through its sale for US$11 million to Bluesky, a telecommunications company based in American Samoa and 85 percent owned by Spanish holding company Amper (through an intermediary subsidiary called eLandia).[9] The Unit Trust of Samoa, a government-owned investment fund, holds the remaining 25 percent of Bluesky. The Unit Trust of Samoa valued its investment in Bluesky at US$8 million in 2011 from which it was expecting an annual return of 3 percent.

2. **Policy responsibility.** MCIT is responsible for policy while the OoTR, established in 2006, is responsible for oversight of telecommunications, broadcasting, postal services and electricity. The Telecommunications Act of 2005 is the key legislation for the sector. A World Bank sector reform Project has been instrumental in triggering market liberalization in Samoa. In 2006, two GSM licenses were awarded, introducing competition into the mobile sector.

3. **Fixed-line services.** Bluesky provides fixed telephony services. Samoa had a relatively high penetration of fixed telephone lines for a developing economy peaking at 43 percent of households in 2006. This is partly the legacy of the delay of introducing mobile competition. Following the entry of a second mobile operator and launch of GSM networks, landlines declined rapidly and by 2011, only one-fifth of households had a fixed-line, less than the level ten years earlier (Figure A5.1).

Figure A5.1. Percentage of Households with a Fixed-line



Note: Data is from Census (1997, 2001, 2006 and 2011) and household survey (2009). Data for intervening years are estimated based on annual average growth rates between surveys.

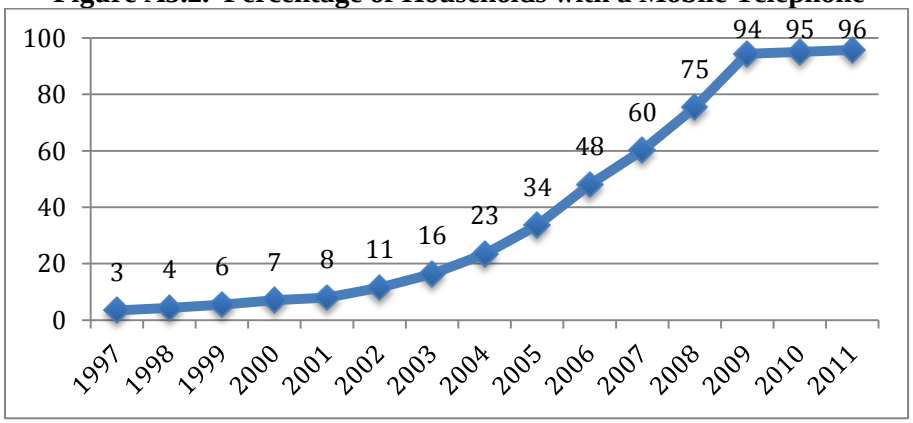
[8] Information on Samoa's ICT sector was collected as part of a regional study on ICT and Economic and Social Development in the Pacific supported by PRIF.
[9] http://www.prnewswire.com/news-releases/bluesky--government-close-samoatel-sale-119051024.html

Source: Adapted from Samoa Bureau of Statistics.

4. **Mobile services.** Telecom Samoa Cellular Limited (TSCL) began operation in July 1997 with an analogue AMPS network as a joint venture between the Government of Samoa and Telecom Pacific Investments (a subsidiary of Telecom New Zealand). In 2001, TSCL launched a digital AMPS network, rather than the popular GSM technology. Since TSCL had an exclusive ten-year license, the government had to negotiate a "Deed of Settlement" in 2005 where TSCL surrendered its exclusivity in exchange for the right to deploy a GSM network and to have its own international gateway.[10] Two GSM licenses were awarded in the first half of 2006 to TSCL and Digicel, a pan-Caribbean operator owned by Irish investors making its first foray into the Pacific. However, Digicel ended up purchasing Telecom New Zealand's stake in TSCL. Digicel started its GSM network in November 2006 with 80 percent population coverage at launch. The second GSM license was awarded to then state-owned fixed-line operator SamoaTel who launched its network in 2007.

5. Penetration of mobile phones in Samoan households rose dramatically following the launch of competition, rising from less than half of households in 2006 to 96 percent in 2011 (**Figure** A5.2.). In fact, mobile phones are the most prevalent consumer item in a Samoan home, with a greater penetration than even radios and TVs. There is scarce difference in penetration between urban (97.1 percent) and rural (95.3 percent) households and the top seven ranked districts in terms of mobile penetration are all considered rural.

Figure A5.2. Percentage of Households with a Mobile Telephone



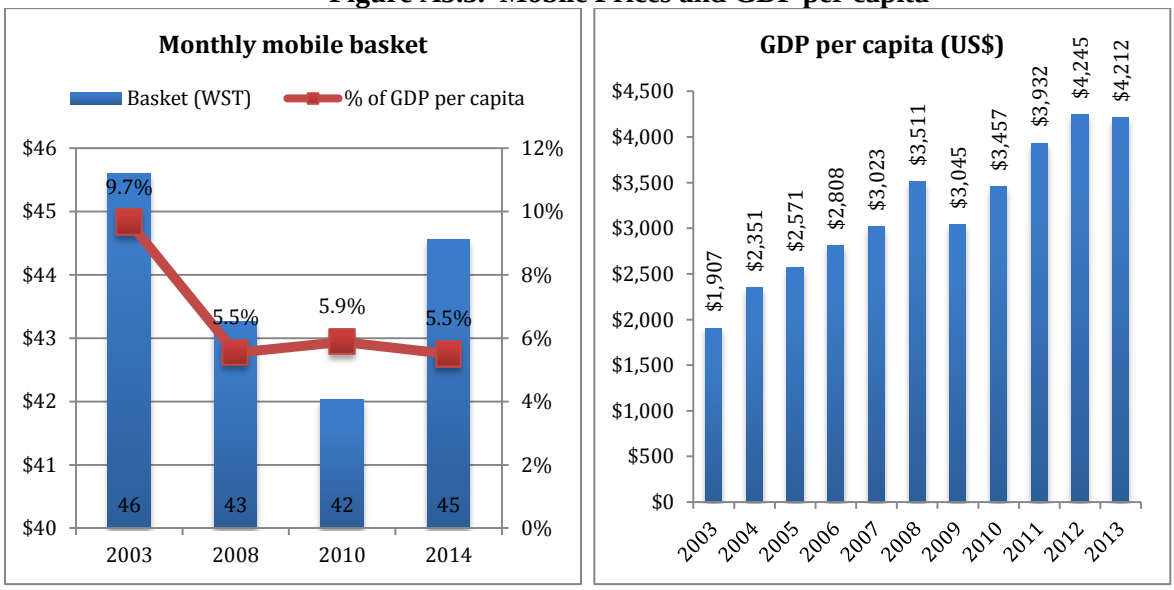
Note: Data is from Census (1997, 2001, 2006 and 2011) and household survey (2009). Data for intervening years are estimated based on annual average growth rates between surveys.
Source: Adapted from Samoa Bureau of Statistics.

6. Despite competition, published mobile tariffs have actually increased slightly since 2003 (FigureA5.3). A monthly basket of prepaid calls and text amounted to 5.5 percent of income in 2014, down from 2003 but the same level as 2008. The affordability of mobile services has only increased due to rising incomes rather than drops in published prices with per capita income

[10] See: Ministry of Communications and Information Technology. *Annual Report 2005/2006*.

increasing by over 100 percent between 2003 and 2013 (Figure A5.3). The rigidity of published mobile prices is somewhat surprising given that mobile termination rates for voice calls declined by 27 percent and for text messages by 30 percent in 2013. It is not clear whether there is a link between affordability, which has not improved since 2008 and household penetration, which has barely budged since 2009. It could be that actual prices are better reflected by ongoing promotions but not passing price drops on to published prices makes it difficult to compare trends over time. Since traffic data is not available, it is not possible to gauge how tariffs are affecting usage.

Figure A5.3. Mobile Prices and GDP per capita



Source: Adapted from operator web sites (left chart) and World Bank (right chart).

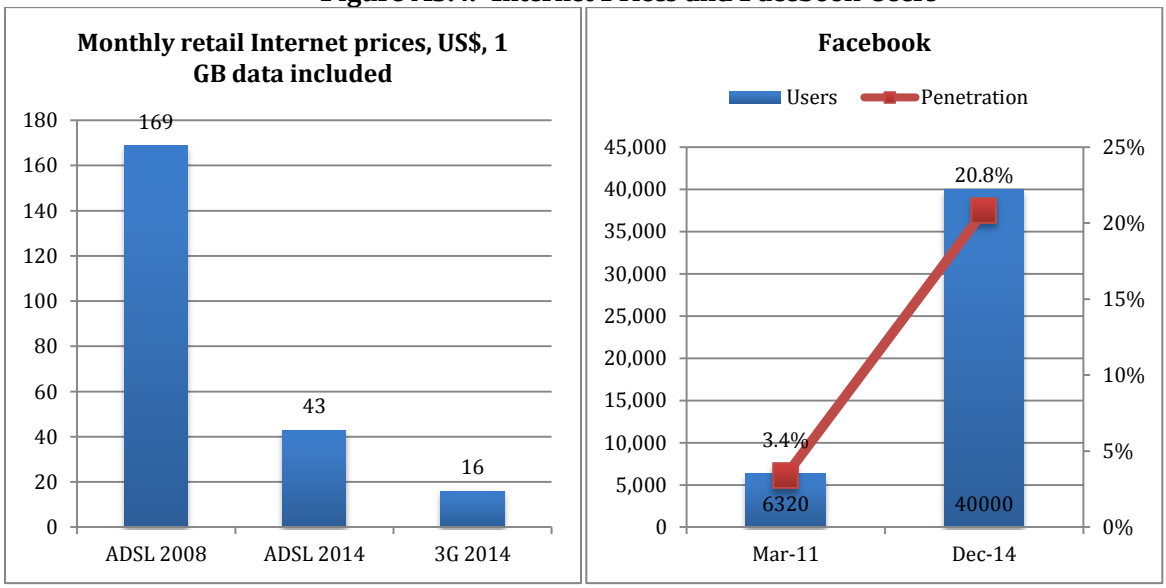
7. **Internet services.** In 1998 CSL established to provide computing services to the government, launched Samoa's first dial-up Internet service, later followed by Lesa Telecommunication Services. A third Internet provider, iPasifika was launched in 2000. Since then Bluesky has launched fixed broadband using ADSL technology. Both mobile operators launched mobile broadband in 2011 using HSPA+ technology with theoretical download speeds of 21 Mbit/s.[11] According to operators, population coverage of 3G is 73 percent. Today there are four Internet service providers: the two mobile operators, CSL and Lesa with access available over the mobile networks, dial-up and ADSL using the telephone network and fixed wireless using Wimax. As of end-2014 the estimated number of fixed broadband subscribers was about 1,300 percent; and mobile broadband subscribers about 27,000.

8. Pricing generally varies by data usage rather than speed or technology. Internet tariffs have dropped significantly since 2008 when an entry-level ADSL subscription was $169. In 2014, a monthly ADSL subscription was $43 whereas 1 GB month using mobile Internet was

[11] [11] eLandia. "Bluesky launches first 4G networks in Samoa and American Samoa." *Press Release*. 19 December 2011. http://files.shareholder.com/downloads/ELAN/0x0x529861/88ba72e0-546d-42A5.b7c6-28da7f122b17/ELAN_News_2011_12_21_eLandia.pdf

$16 Figure A5.4). According to Facebook, 40,000 Samoans were using the social network in December 2014 or 21 percent of the population, up over 500 percent from March 2011 (Figure A5.4).

Figure A5.4. Internet Prices and Facebook Users



Source: Adapted from Bluesky, Digicel and Facebook.

9. The MCIT issued the National Broadband Policy in 2012 calling for higher penetration of high-speed services. The MCIT proposed broadband adoption targets for 2015 and 2020 (Table A5.1).

Table A5.1. Broadband Adoption Targets

	2015			2020	
	Households (%)	**Businesses (%)**		**Households (%)**	**Businesses (%)**
Urban	11-20	~30	**Urban**	31-40	~60
Rural	0-10	11-20	**Rural**	21-30	~40

Source: MCIT 2012.

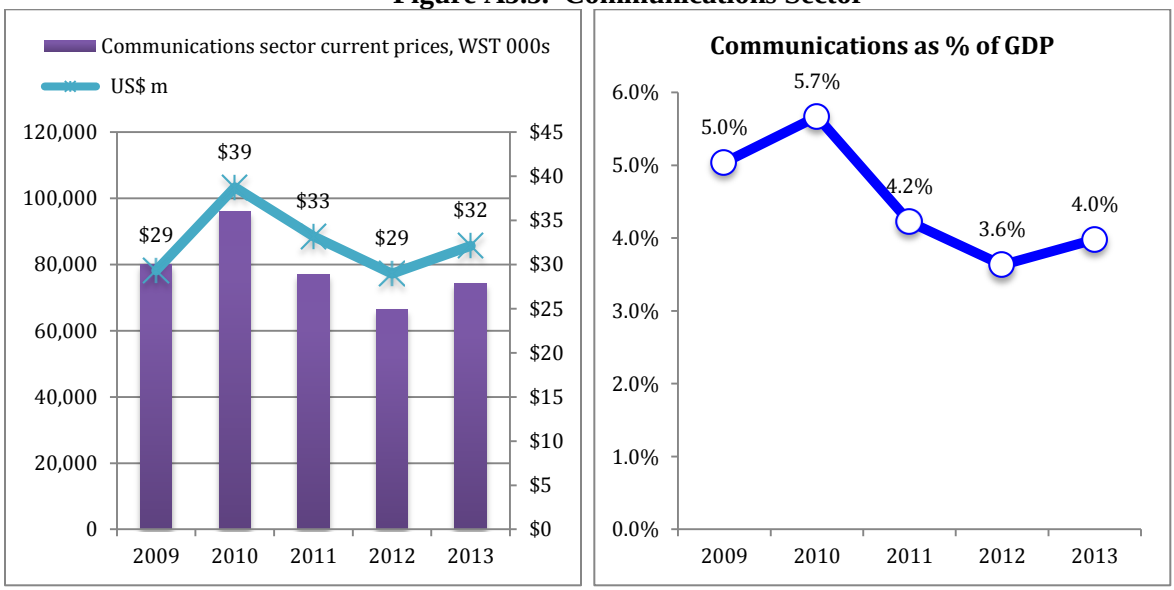
Backbone Networks

10. Bluesky's domestic backbone network is primarily underground fiber optic cable, which is generally resilient to cyclone-related hazards. Some domestic transmission is conducted over microwave, generally in less densely populated areas. Digicel has a metropolitan fiber loop in Apia and uses microwave for backhaul in other areas as well as leasing fiber from the Electric Power Corporation. The Samoa National Broadband Highway is a private network of the Government of Samoa, financed with a loan from China's Eximbank, and installed by Huawei technologies. It is managed by CSL. It connects all government offices as well as schools and health facilities.

Economic Impact

11. Value added of the communications sector (comprising telecommunications and postal services) was WST 74 (US$32) million in 2013. The sector's contribution to GDP was 5.0 percent in 2009 but had dropped to in 2013 even though in terms of the United States dollar, communications value added rose to around $3 million due to strengthening of the Samoan currency. The contribution of the communications sector has dropped due to greater competition stimulating a faster reduction in prices than growth in demand and usage.

Figure A5.5. Communications Sector



Source: Adapted from Samoa Bureau of Statistics.

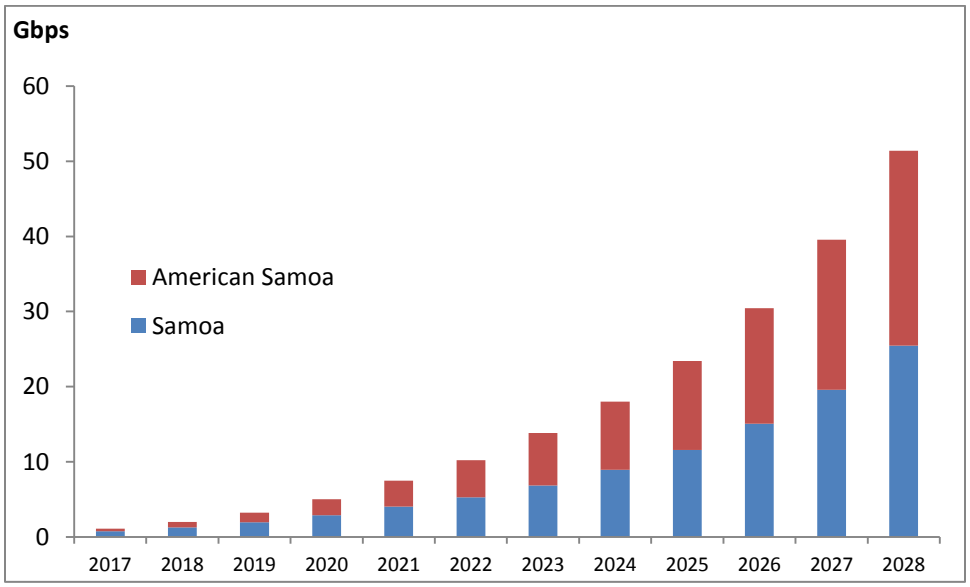
ANNEX 6. FINANCIAL AND ECONOMIC ANALYSIS

Pacific Regional Connectivity Program: Phase 3 - Samoa Connectivity Project

A. Financial analysis

1. *Assumptions.* The model assumes that total demand for bandwidth in Samoa is projected to grow from 428 Mbps as of December 2014 to 4.8 Gbps by 2021, and to 29 Gbps by 2028 which underpins the technical assessment that new submarine fiber optic capacity is needed. Total demand across both Samoa and American Samoa is projected to grow from 893 Mbps to 9.9 Gbps and 62 Gbps over the same period. It assumed SSCC will capture approximately 80 percent of the total demand for bandwidth in Samoa and American Samoa, with the balance supplied by the existing ASH cable and other broadband capacity suppliers (e.g., KA band satellite systems).

Figure A6.1 Projected Capacity Sold on Samoa-Fiji cable (Gbps)



2. The model further assumes an initial pricing level for wholesale bandwidth at US$103 per Mbps, with annual price decreases of 20 percent. This level of pricing is significantly below the cheapest currently available international capacity available in Samoa.

3. Operating costs (OPEX) considered are related to wet plant operations and maintenance/O&M (4 percent of CAPEX), landing party costs in Apia and in Suva, network operations center/NOC, permit fees, contingency, and other. It is assumed that these costs will grow at an annual rate of 3 to 5 percent. It is also assumed that transport costs from Fiji to Hawaii will be covered by an upfront $3.4 million IRU and annual O&M costs of $0.1 million. Landing party costs in Suva are covered by an upfront $2.4 million IRU, plus annual costs at $0.1 million.

4. CAPEX costs include route survey, cable material, marine operations, equipment and system, and Apia station establish and condition, beach manhole, duct, project management and other. We assume a direct route from Samoa to Fiji, with a spur to Savai'i. Potential spurs to Wallis and Futuna are not taken into account in the CAPEX, since it is likely that the corresponding investment would not be incurred by Samoa. The cable system's lifetime is at least 25 years.

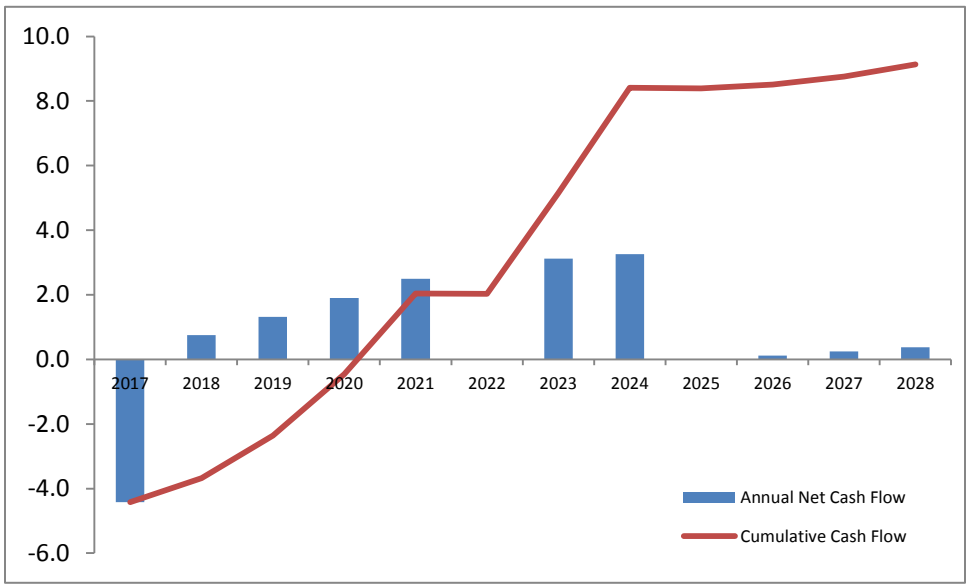
5. *Results.* The estimated capital costs (CAPEX) for the submarine cable system is $34 million, plus annual operations and maintenance (OPEX) costs of $1.3 million. The financing calculations are summarized in Table A6.1. Figure A6.2 shows cash flow projections; the Project is expected to be cash flow positive by 2021.

Table A6.1 SSCC viability analysis

Project characteristics	CAPEX (cable system + landing stations)	$34m
	OPEX	$1.3m (+3% p.a.)
	15-year IRUs (year 1) (10 Gbps + landing station rights)	$5.8m
	15-year IRU for 10 Gbps capacity (as needed)	$3.4m
	IP transit cost (in Hawai'i)	$10
SSCC captures 80% of demand	Price for bandwidth in 2018 (per Mbps/month)	$103 (-20% p.a.)
	NPV (including grant)	$3.8m
Government charges 1.5% for use of donor funds ($34m)	Price for bandwidth in 2018 (per Mbps/month)	$112 (-20% p.a.)
	NPV	$2.8m

6. As shown in Figure A6.2, there is no need for continuous funding (i.e. cash contributions) as the annual cash flows are positive, as soon as 2016.

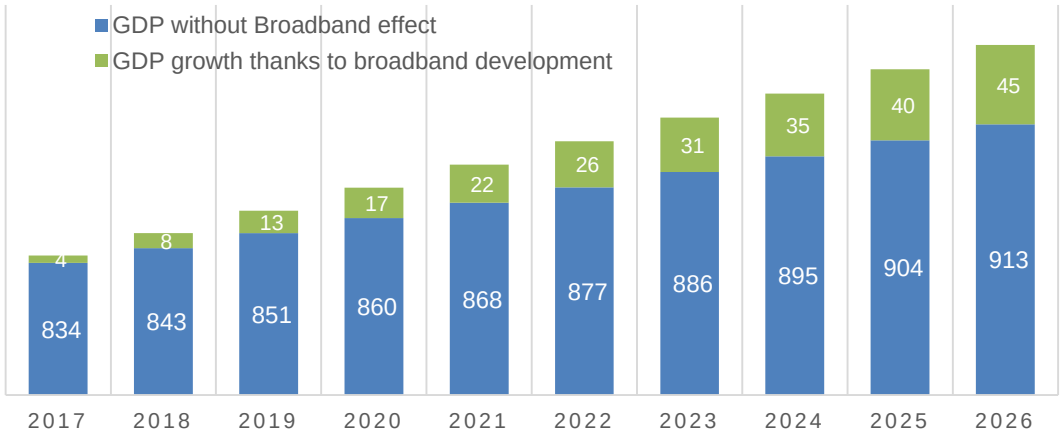
Figure A6.2 Projected Net Cash flow for SSCC



7. *Sensitivity analysis.* If it is assumed that SSCC only captures 20 percent market share, the price for bandwidth in 2018 would increase to $235 (without the 1.5 percent charge to Government) and $283 (including the 1.5 percent charge).

8. The economic impact of the Samoa-Fiji Project for Samoa is assessed by estimating the impact on GDP growth over the next 25 years. The cumulated discounted economic growth generated by the Project over the next 25 years is $235 million. This corresponds to the annual impacts of broadband on economic growth over the project duration discounted at 10 percent. Figure A6.3 describes the total broadband impact on GDP growth over 10 years (2017-2026).

Figure A6.3 Impact of Broadband Internet on Samoa's GDP growth



9. For instance, in year 2017, Samoa GDP would increase to $838.7 million, broken down as follows:

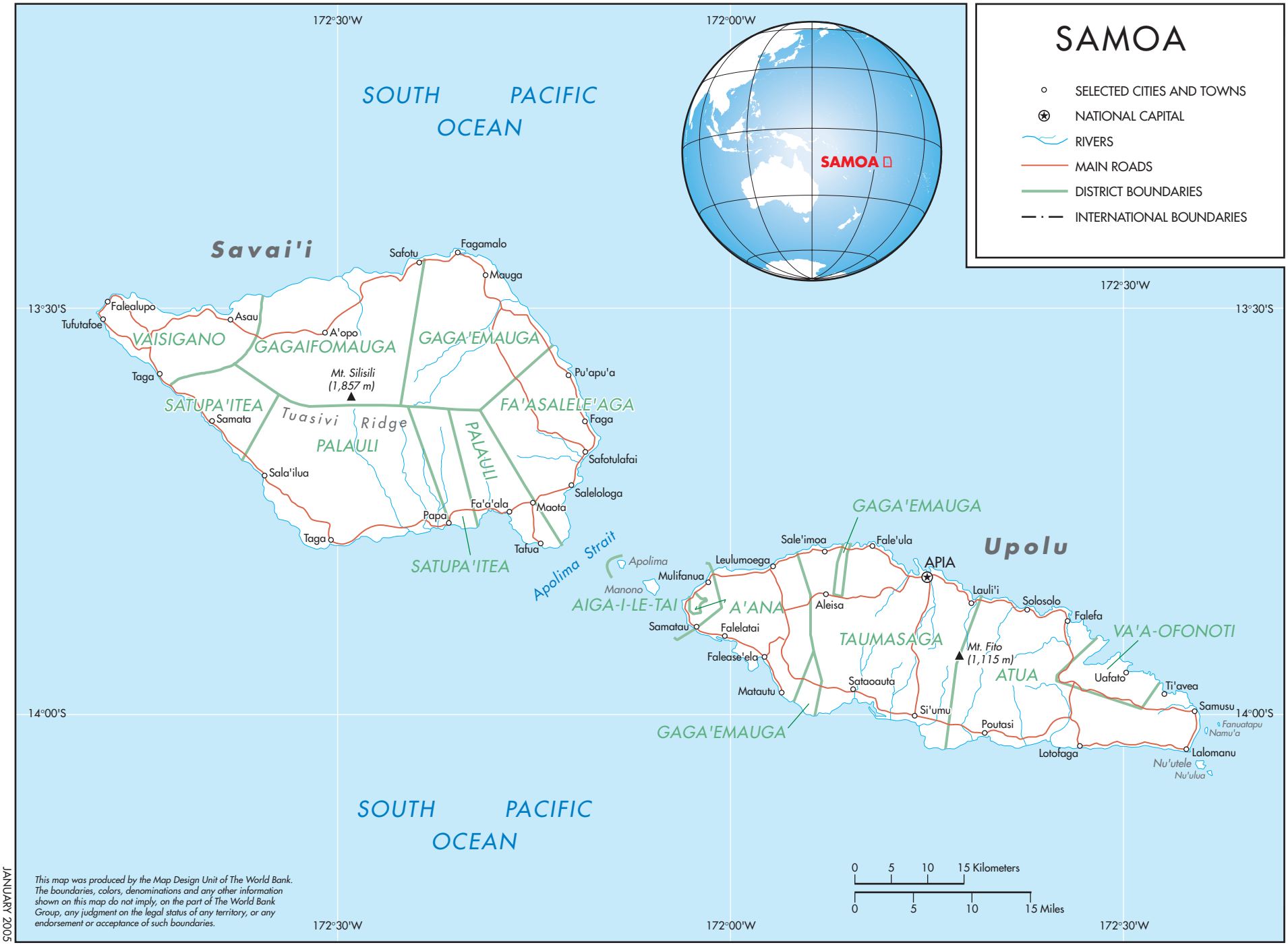
- GDP without broadband effect: $834.5 million considering an annual constant GDP growth rate of 1 percent
- Broadband impact on GDP: $4.2 million thanks to an increase in broadband penetration of 3.6 percent, calculated as follows: 3.6%/10% x 1.38% x $834 million

10. These annual impacts on GDP growth, cumulative over 25 years and discounted at a 10 percent rate, represent a total economic impact of $235 million. Considering that the initial investment is $34.4 million, the net economic impact of the Project is $201 million. The economic rate of return is 33 percent. This analysis is based on the assumption that broadband penetration (both fixed and mobile Internet) will rise from 18 percent to 53 percent within 10 years due to the submarine cable, and data indicating that a 10 percent increase in broadband penetration (wireless Internet + broadband) correlates with a 1.38 percent increase in GDP in developing countries. The submarine cable Project could generate an additional one percent employment increase.[12] Another study[13], which indicates a ratio between 0.2 and 0.3 percent of job creation per year for 1 percent increase of broadband penetration. According to preliminary analysis undertaken by the World Bank on IT-enabled job creation, there is potential for creation of 400-1,200 direct and 1,460-4,400 jobs in the global services/outsourcing area.

11. Social benefits of broadband are difficult to quantify, but they are nonetheless an essential part of the overall value of broadband along with its economic benefits: delivery of essential public services such as health care and education in a more efficient way, achieving digital inclusion for people from remote areas, attracting and retaining workers.

[12] Qiang, Christine Zhen-Wei, Rossotto, Carlo Maria, and Kimura, Kaoru "Economic Impacts of Broadband" in *Information & Communications for Development 2009: Extending Reach and Increasing Impact* World Bank (2009). This ratio is quite conservative especially for Pacific Islands as populations are usually concentrated in the main cities and this concentration is supposed to improve the level of impact of a submarine cable which is landing directly in the main city.

[13] Crandall**,** William Lehr**,** and Robert Litan**, "**The Effect of Broadband Deployment on Output and Employment**:** A Cross-section Analysis of U.S. Data", The Brookings Institute: *Issues in Economic Policy* (July 2007**)**



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