

SECTOR ASSESSMENT (SUMMARY): INFORMATION AND COMMUNICATION TECHNOLOGY

Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. **Institutional arrangements.** Samoa was one of the first countries in the region to liberalize its information and communication technology (ICT) sector. Sector reform began in 1999, when the Posts and Telecommunications Department was corporatized and renamed SamoaTel. In 2006, two mobile telephone service licenses were awarded, introducing competition into the mobile sector. In 2010, Posts was separated from SamoaTel and SamoaTel was fully privatized in March 2011.

2. The Ministry of Communications and Information Technology is responsible for ICT policy and planning. The 2012 Five-Year National ICT Policy provides the overarching framework to harmonize the national ICT priorities of various industry sectors and government ministries.¹ The Office of the Regulator was established in 2006 and regulates telecommunications, broadcasting, postal services, and electricity. The Telecommunications Act of 2005 is the key legislation.

3. Samoa relies on a submarine cable and satellite service for its international internet connectivity. Samoa is connected to the American Samoa–Hawaii (ASH) cable system via the Samoa–American Samoa cable, which has a remaining useful life of 5 years. The current system capacity of 1 gigabit per second (Gbps) is above Samoa’s bandwidth demand of 420 megabits per second (Mbps) in 2015, but will be significantly below projected bandwidth demand of 6 Gbps in 2022 and 30 Gbps by 2028. The proposed submarine cable, with a minimum capacity of 1 terabit per second and a regulated bandwidth price below current price levels, can facilitate broader internet access and meet Samoa’s growing demand.

4. The main retail internet service providers in Samoa are BlueSky Samoa, Digicel Samoa, and Computer Services Ltd (better known as CSL). BlueSky Samoa offers global systems for mobile, fixed-line, and internet services. It started operations in 2011, when it bought the then state-owned SamoaTel. BlueSky Samoa is owned by BlueSky Communications (American Samoa), the Unit Trust of Samoa, and other investors from Samoa and American Samoa. BlueSky Samoa is the main user of the existing ASH cable capacity. BlueSky's domestic backbone network is primarily an 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.

5. Digicel Samoa started its global mobile system in November 2006 by buying out the state-owned Telecom Samoa Cellular, with 80% population coverage at launch. It has a metropolitan fiber loop in Apia, leases some fiber from the Electric Power Corporation, and otherwise uses microwave for backhaul.

6. In 1998, locally owned CSL was established, providing computing services to the government and the public. It launched Samoa's first dial-up internet service and has since expanded its digital subscriber line broadband operations for residential and business customers under its Zoom Broadband brand. It is currently leasing 45 Mbps internet bandwidth from the ASH cable under a 10-year fixed-price contract (ending 2019).

¹ Government of Samoa. 2012. *National ICT Policy 2012–2017*. Apia.

7. **Access and pricing.** Current high wholesale prices of about \$1,500 Mbps/month on the ASH cable system are contributing to limited internet penetration. Broadband penetration is estimated at about 1% (fixed) and 27% (mobile). Medium-earth orbit satellite provider Other Three Billion Networks² is also introducing high-speed data services in the region at lower wholesale prices, although meeting Samoa's capacity demands may present an issue.

8. The affordability of telecommunications services is improving, but prices are still high relative to income levels. The main driver of high retail internet prices is a high wholesale internet bandwidth cost. Tariffs have dropped significantly since 2008, when an asymmetric digital subscriber line entry-level fixed broadband subscription was \$169 per month. In 2015, a fixed broadband subscription package for a 3-gigabit allowance at a speed of 2 Gbps costs \$38 per month, while a 600-megabit prepaid mobile broadband package is about \$7.

9. Samoa has one of the highest rates of mobile phone coverage and access in the Pacific region. As of end-2014, over 95% of the population was covered by mobile networks. Mobile penetration had reached 89%, while mobile broadband is estimated at 27%, and this market segment is growing rapidly thanks to increasingly competitive operator pricing strategies.

10. In 2014, the Samoa National Broadband Highway fiber-optic cable network was launched to serve government departments' internal high-speed connection needs, although it does not provide a direct connection to internet broadband services. The \$20.49 million project was funded with a soft-term loan from the Export-Import Bank of the People's Republic of China. Huawei Technologies of China constructed the network. The network is currently underutilized and the government has yet to allocate an appropriate support and maintenance budget.

11. Limited access to internet is constraining Samoa in business development and delivery of social services. Higher-quality and lower-cost connectivity will support stronger service delivery, trade, and communications between Pacific island economies, and contribute to more efficient use of revenues within the region.

12. **Health.** Within Samoa's health sector reform, strengthening e-health is an important component. The country aims to establish a unified, standard-based, inter-operable health information system within a comprehensive e-health enterprise. Currently, health information is fragmented and data is not adequately used for planning. Moreover, Samoa envisages strengthening the use of ICT for health service delivery, training of health workers, and for managing referrals for integrated health service delivery. This includes accessing tertiary care through telehealth outside the country, and training health workers through regional and global professional networks. Samoa relies mostly on New Zealand for tertiary care when unavailable in the country, and about 300 patients are treated overseas each year, triaged to the most critical cases. With a comprehensive e-health enterprise in place, ICT-based processes for remote care as well as equipment to allow for remote diagnostics, treatment, and digital data processing can be accessed. Samoa already participates in the Pacific Open Learning Health Network with a center established in Apia. Similar ICT-based access to online learning resources can further bridge knowledge gaps. Given Samoa's dispersed rural areas, e-health solutions can also remove hurdles to access to care, even if take-up is slow or non-existent as of now. In an effort to establish the basic building blocks for ICT usage in the health sector, called e-health enterprise building,³ the proposed project includes a component to facilitate investments in e-health

² Commonly known as O3B.

³ Asian Development Bank (ADB) brief: Universal Health Coverage by Design – ICT-enabled solutions are the future of equitable, quality health care and resilient health systems. Manila: 2015.

solutions that will support the government in its efforts to establish an integrated national health information system aimed at improving patient care.

13. **Education.** In the education sector, the Asian Development Bank (ADB) provided ICT-based support through the SchoolNet and Community Access Project aimed at improving the quality of education through electronic teaching and learning materials to support teacher development and better learning outcomes.⁴ The project connected 37 secondary schools throughout Samoa with ICT equipment and e-library resources. The Ministry of Education is assessing how to better integrate the use of ICT-based resources within its policy framework, though no concrete outcomes have been formulated thus far. At the tertiary level, the National University of Samoa responds to the nation's ICT demands by offering undergraduate and postgraduate computing degree programs. It utilizes e-learning on a limited basis for a handful of pilot virtual classrooms, using the open-source application Moodle, and is participating in the Cisco Networking Academy, a global e-learning program for a curriculum based on information technology. While the sector is progressing in terms of ICT utilization, no formal sector-led policies or sector plans to support the efforts exist. High interconnection costs and unreliable service delivery have also inhibited greater take-up of e-learning opportunities.

14. **Private sector.** Private sector stakeholders have continuously voiced their concern, either in consultations or through their representative bodies, that limited connectivity is inhibiting business growth. This is especially valid for the tourism sector, which relies on international connectivity for marketing purposes and for ensuring customer satisfaction during their stay. Samoa's banking system is closely linked within the region, but high interconnection costs are delaying wider use of local electronic and mobile banking systems, access to banking services in remoter areas, and cash-less transactions. The media industry, in particular broadcast media, faces similar challenges in providing local coverage of international current affairs, or likewise facilitating coverage of Samoan affairs abroad. The latter is especially relevant in the context of a large international Samoan community that contributes an equivalent of almost 25% of gross domestic product through remittances. Only a small ICT service sector has established itself thus far, although some providers are already developing cutting-edge mobile services for a niche market. If connectivity constraints are removed and a regulatory framework is in place to ensure reasonable connection costs to consumers, the private sector could take advantage of ICT services to optimize its operations and improve service delivery, which in turn will drive commerce and economic development.

2. Government's Sector Strategy

15. A key outcome of the Strategy for the Development of Samoa 2012–2014 (SDS)⁵ is universal access to reliable and affordable ICT services. Samoa's vision of "ICT for all" reflects its desire to empower citizens and promote sustainable social and economic development through the use of ICT. The National ICT Policy set out five goals based on the key themes of accessibility, capacity, and community (footnote 1):

- (i) to achieve accessible and affordable communications for all;
- (ii) to create an enabling environment for the development and adoption of ICT through policy reform and improvements to legal frameworks;
- (iii) to strengthen ICT human resources and increase human resource development opportunities through ICT;
- (iv) to improve economic growth and social improvements, and their sustainability; and
- (v) to utilize ICT for good governance.

⁴ ADB. 2007. *Schoolnet and Community Access Project (Samoa)*. Manila.

⁵ Government of Samoa. 2012. *Strategy for the Development of Samoa 2012–2014*. Apia.

16. The Ministry of Communications and Information Technology and the Office of the Regulator are tasked with implementing the planning, policy, and regulatory functions. A cybersecurity policy is in preparation, and a National ICT Steering Committee has been established to support the implementation of government ICT initiatives. A more effective ICT infrastructure, such as the proposed submarine cable system, linked with a strong regulatory regime, will clearly support the implementation of the government's policy goals.

3. ADB Sector Experience and Assistance Program

17. Globalization and digitalization offer challenges and opportunities for ADB's small and isolated Pacific developing member countries (DMCs). ADB's Interim Pacific Approach 2015, which extends the Pacific Approach 2010–2014 and serves as the country partnership strategy for Samoa, prioritizes ICT for the improvement of connectivity among Pacific DMCs, and between Pacific DMCs and the rest of the world.⁶ ADB's country operations business plan, 2015–2017 for Samoa,⁷ in line with ADB's Midterm Review of Strategy 2020,⁸ supports the government's goal of developing ICT infrastructure.

18. The regional technical assistance initiative for ICT-based inclusive growth and poverty reduction supports regional knowledge sharing and identifies new investment opportunities for ICT applications.⁹

19. In 2013, with support from ADB and the World Bank, Tonga was successfully connected via a submarine fiber-optic cable to Fiji's existing global international submarine cable network.¹⁰ ADB is currently implementing a similar project in Solomon Islands¹¹ and is preparing a proposed Palau–Yap–Guam cable, also jointly with the World Bank. ADB provided technical assistance to support preparatory work in the development of these projects, and will support other Pacific DMCs in assessing the feasibility of future investment options for international connectivity.¹²

20. Promoting competitive pricing in ICT services requires an appropriate regulatory environment. In 2011, ADB technical assistance supported the Pacific ICT Regulatory Resource Center, thereby contributing in the Pacific to (i) frequent sharing of experiences and international best practices; (ii) strengthening the capacity of ICT regulatory bodies and policymakers; (iii) providing demand-driven advisory services; and (iv) raising broad-based awareness on demand for better ICT regulations.¹³ The World Bank is providing follow-on resourcing to the center. ADB is also supporting projects to identify and implement appropriate ICT applications to support inclusive growth and poverty reduction, including in Solomon Islands and Tonga (footnotes 9 and 10).

⁶ ADB. 2015. *Interim Pacific Approach*. Manila; ADB. 2009. *ADB's Pacific Approach 2010-2014*. Manila.

⁷ ADB. 2014. *Samoa: Country Operations Business Plan (2015-2017)*. Manila.

⁸ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.

⁹ ADB. 2009. *Technical Assistance for Information and Communication Technology-Based Inclusive Growth and Poverty Reduction in the Pacific*. Manila.

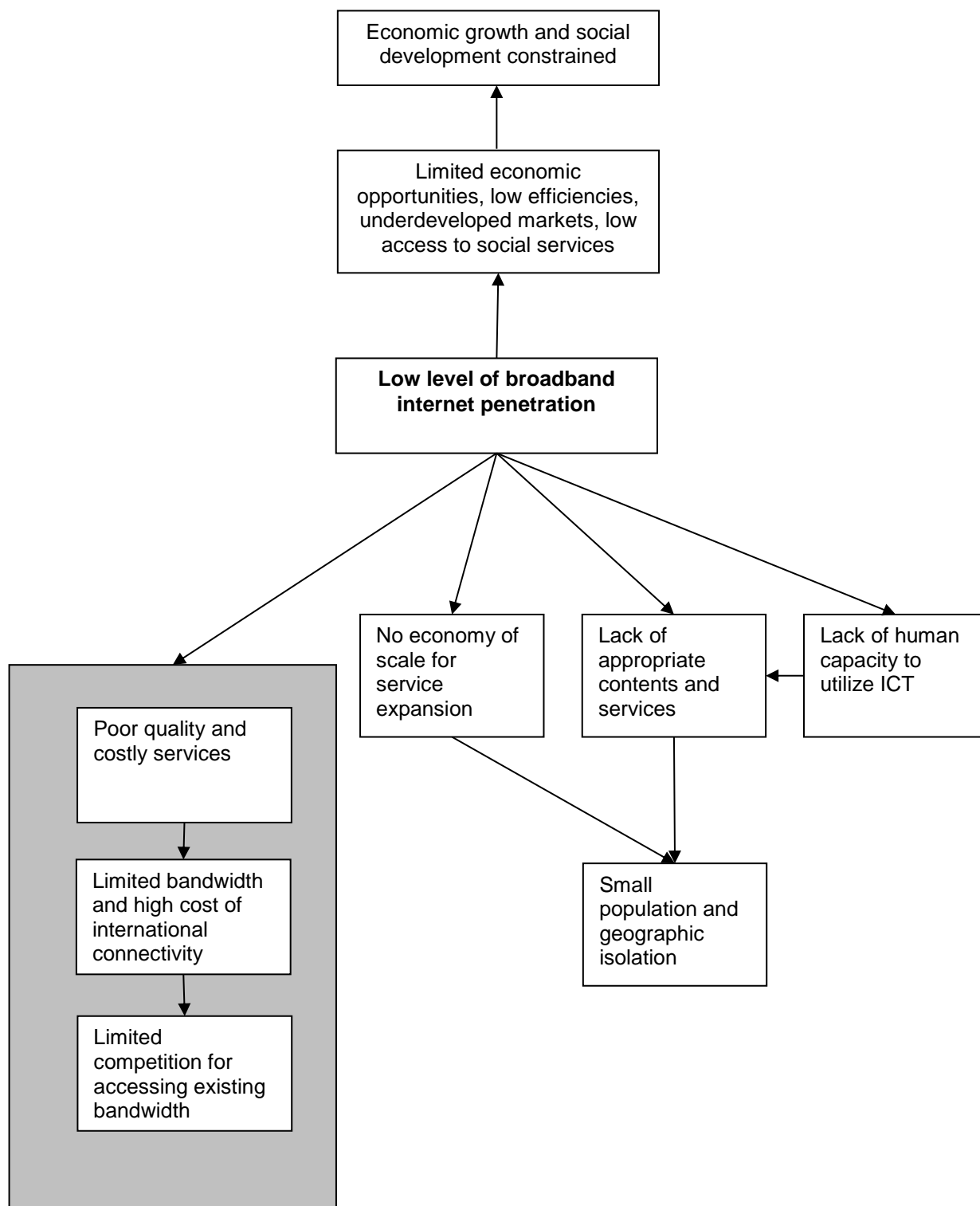
¹⁰ ADB. 2011. *Report and Recommendation of the President on the proposed grant to Tonga for the Tonga-Fiji Submarine Cable Project*. Manila.

¹¹ ADB. 2012. *Report and Recommendation of the President on the proposed loan and grant to Solomon Islands for the Broadband for Development Project*. Manila.

¹² ADB. 2014. *Regional Technical Assistance for Results-Based Strategy and Sector Planning in the Pacific*. Manila.

¹³ ADB. 2014. *Technical Assistance for Strengthening Regulatory Capacity for Information and Communication Technology Development in the Pacific*. Manila.

Problem Tree for Information and Communications Technology



ICT = information communication technology

Sector Results Framework (Information and Communications Technology, 2015–2017)

Country Sector Outcomes		Country Sector Outputs		ADB Sector Operations	
Outcomes with ADB Contribution	Indicators with Targets and Baselines	Outputs with ADB Contribution	Indicators with Incremental Targets	Planned and Ongoing ADB Interventions	Main Outputs Expected from ADB Interventions
Universal access to reliable and affordable ICT services.	<p>By 2020: Increase demand to 3 Gbps (2014 baseline: 420 Mbps)</p> <p>The number of fixed-line internet service subscribers increased by at least 15% (2014 baseline: 1%)</p>	Quality broadband services available at affordable price	<p>Wholesale internet bandwidth price decreased to \$300 per Mbps per month (2014 baseline: \$1,500 per Mbps per month)</p> <p>Speed performance of fixed-line internet connection has increased by 60% (2014 baseline: tbc)</p> <p>Retail prices of internet services decrease to \$19 per Mbps per month for residential users and \$200 per Mbps per month for businesses (2014 baseline: \$43 and \$630 per Mbps per month)</p>	<p>Planned target subsectors</p> <p>ICT infrastructure – second submarine cable system (74% of funds)</p> <p>Health system development (24% of funds)</p> <p>Pipeline project with estimated amount</p> <p>Samoa Submarine Cable Project (\$25 million)</p>	<p>Planned target subsectors</p> <p>Commissioning of a second submarine cable system from Apia to Suva with spurs to Savai'i, Savusavu, Fiji, and Wallis and Futuna.</p> <p>Commissioning of an integrated national health information system and exploring e/m-health initiatives.</p> <p>Pipeline project</p> <p>Construction of 1,360 km submarine cable system from Apia (Upolu, Samoa) to Suva, Fiji with a spur to Savai'i, Samoa.</p> <p>Procurement and installation of an integrated national health information system.</p>

ADB = Asian Development Bank, e-health = electronic-health, Gbps = gigabits per second, ICT = information and communication technology, Mbps = megabits per second, tbc = to be confirmed.

Source: Asian Development Bank.