

SECTOR ASSESSMENT (SUMMARY): INFORMATION AND COMMUNICATION TECHNOLOGY¹

Sector Road Map

1. Sector Performance, Problems, and Opportunities

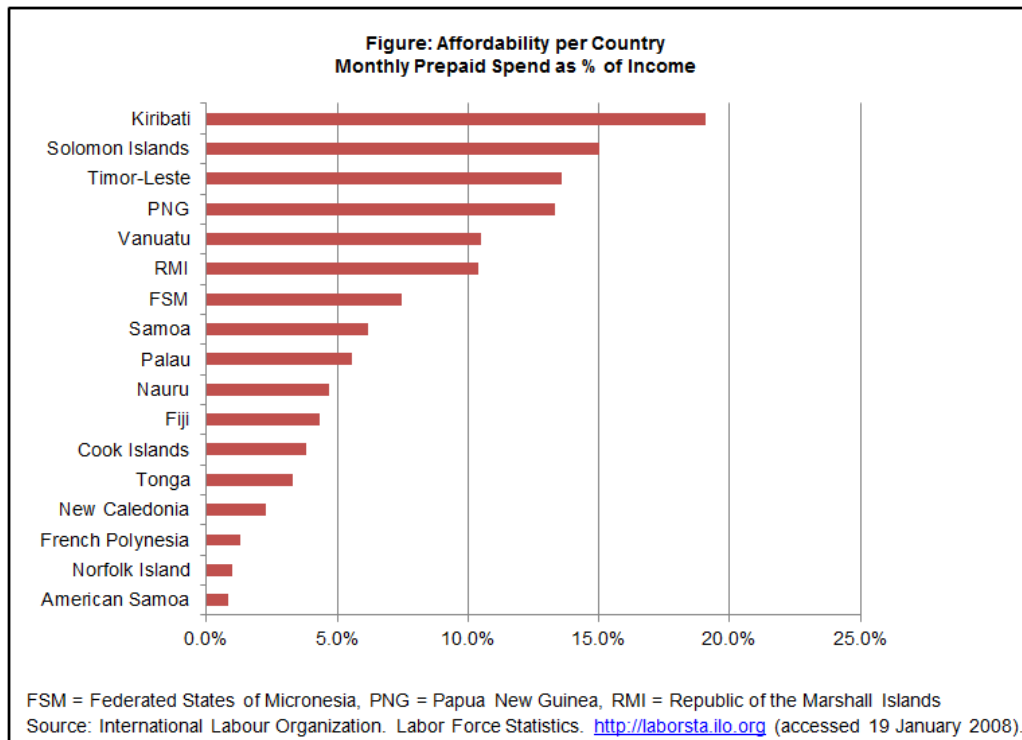
1. Palau relies entirely on satellite links for international connectivity. Operators purchase capacity on a wholesale basis from major providers such as Intelsat, New Skies, and others. At up to \$2,000 per Megabits per second (Mbps) per month for a full duplex link, the cost of such satellite capacity is more than three times the rate achievable with an international submarine cable such as the one envisaged for this project. A further limitation of such satellites is that their round-trip time delay or latency can cause problems for many interactive internet applications. Satellite services are also susceptible to interruption during cyclones or when wind speeds exceed 100 kilometers per hour. Current international satellite capacities in use by Palau are estimated to total about 172 Mbps.

2. The high cost, limited availability, and inhibited latency nature of this international bandwidth is a major constraint to future development of the information and communication technology (ICT) sector, and economic growth in Palau more broadly. It is a continued drag on improvements in the commercial and day-to-day life of the people. Poor internet quality, even where service is available, means that online commercial transactions and e-services (such as distance learning and telemedicine) are not achievable. In Palau, whose economy is heavily dependent on tourism, poor ICT services are also a drag on tourism growth.

3. Mobile service coverage (voice and short messaging service [SMS] only) in Palau is estimated at 85% and penetration at 90%.² In terms of the affordability of mobile voice services, Palau is midrange compared with other Pacific island nations (Figure). However, the Broadband Commission for Sustainable Development has targeted the cost of broadband (256 kilobits per second (Kbps) minimum) being less than 5% of a country's per capita gross national income by 2015. For Palau, this would mean reducing the current monthly charge for 256 Kbps from \$650/month to \$45/month. The Cook Islands, which has similar demographics, recently moved to O3b Networks (O3b) service and can offer speeds up to 2 Mbps for less than \$50/month. Some medium-term cost relief and quality improvement has been achieved from the use of the O3b medium earth orbit satellite service, which started operating in late 2014. For example, Palau National Communications Corporation (PNCC) has doubled its bandwidth while retaining the same retail tariff.

¹ This summary is based on consultant report, available on request.

² Estimation necessary because of lack of reported data.



4. The wholly state-owned PNCC was established in 1982 and provides a full range of services—mobile voice and SMS, fixed line telephony, fixed line internet access, and cable TV services. It is the dominant telecommunications operator. PNCC's financial performance is constrained by a \$39 million loan it took out with the United States Department of Agriculture Rural Utilities Service in 1992. The funds were used to lay domestic fiber optic cables and to construct a new switching center. At that time, the internet was not a priority and the loan was used to enable the growth of fixed line voice services. The annual repayments of \$2.3 million represent the majority of PNCC's non-operating expenses. When added to its (unsubsidized) universal service obligations in rural areas, PNCC struggles to generate a profit. This has impeded PNCC's ability to reduce prices and make timely network and technology investments. PNCC has a very limited number of roaming agreements in place, which is an impediment to growing revenues from business visitors and tourists. It started providing mobile data services through 3G from the fourth quarter (Q4) of 2014. However, very few can afford this costly service, and coverage is limited while mobile base stations are converted from thin-line microwave to a fiber-optic cable.

5. A second provider, the privately owned Palau Telecoms, offers broadband wireless internet service, primarily to hotels, internet cafes, businesses, and the government. Palau Telecoms primarily uses its own wireless links and in some cases capacity leased from PNCC to serve its customers. It estimates that it can cover 30% of the population. It operates its own international satellite ground station and leases capacity from wholesale satellite operators. It has not ruled out becoming a mobile operator and has the necessary spectrum licenses in place.

6. A subsidiary of Viamedia Mobile Corporation of Taiwan, PMC-Sierra Technology (Shanghai) Limited, started operations in 2006. However, it suspended operations from July 2014 and remains inoperative, with no clarity as to if, and when, it plans to reopen. Up to this time, PMC had provided mobile phone and data services (3G) within a limited coverage area consisting of the main tourist areas and business district of Koror. PMC operated its own international satellite

gateway and a number of base stations sufficient to cover its area of service. It also offers full international roaming service for foreign visitors. Lack of commercial and technical interconnect arrangements with the much larger PNCC was a significant drag on its ability to grow.

7. No regulations address key ICT market issues such as interconnection between mobile operators, numbering, tariffs, and competitive behavior.

2. Government's Sector Strategy

8. As a tourism-driven small economy, the government watched with interest the expansion of submarine cables in the Pacific—including the connection of neighboring Pohnpei State, Federated States of Micronesia and the Marshall Islands with Hawaii. In July 2013, the President of Palau issued Executive Order 344 authorizing the formation of a Palau High Speed Broadband Internet Task Force to pursue the submarine cable project, which included the then three operators. In April 2014, the executive order passed that mandate to the three Palau appointees' MicroPal Fibre Optic Joint Committee formed by the FSM and Palau governments to oversee the project. During its September 2014 mission to Palau, ADB requested that Palau task force be reconstituted to consult with stakeholders and keep them informed of the progress of the cable project. The opportunity for Palau to join with the SEA-US consortium in building the proposed Palau cable will secure for the country a future-proof supply of affordable high quality broadband and internet capacity.

9. In November 2013, the Government of the Republic of Palau issued the Palau National ICT Policy, setting out its goals, objectives, and strategies for ICT during 2013–2016. One of these goals is that, all citizens in the Republic of Palau shall have equitable and affordable access to ICT to improve the quality of life through socio-economic development.³ The policy also calls for the establishment of an independent ICT regulatory authority. The Ministry of Public Infrastructure, Industries and Commerce is responsible for implementation of the policy.

10. The government has recognized the need for technical assistance (TA) to help build the capacity to implement and manage the regulatory reforms and functions for a modern ICT sector. The owner and operator, Belau Submarine Cable Corporation (BSCC), of Palau's capacity on the proposed submarine cable will effectively have monopoly control over low-cost high-quality international broadband internet capacity for the foreseeable future. Adequate regulations are necessary to ensure that all licensed operators or internet service providers in Palau have equal access to broadband capacity in terms of wholesale pricing and interconnect arrangements. In late 2014, the government engaged consultants to develop this regulatory framework. The consultants are drafting the organizational and governance structure of the regulatory office. They are also advising the government to establish the necessary legal provisions to address issues related to adequate use policy, code of conduct, competition, and tariff control in the ICT sector. The office is expected to be in place by 2017.

11. Adoption of these initiatives and implementation of the regulatory reform are essential for the continued improvement of national ICT infrastructure and the operation of BSCC on a fair and equitable wholesale basis, if the benefits of the proposed submarine cable are to flow to the people, businesses, and government of Palau.

³ Government of the Republic of Palau. 2013. *Palau National Information and Communication Technology Policy, 2013–2016*. Koror.

3. ADB Sector Experience and Assistance Program

12. Globalization and digitalization offer challenges and opportunities, particularly for ADB's small and isolated Pacific developing member countries (DMCs). ADB's Pacific Approach, 2010–2014 prioritizes ICT for improved connectivity among Pacific DMCs and between Pacific DMCs and the rest of the world.⁴ ADB's country operations business plan, 2015–2017 for Palau,⁵ in line with the Strategy 2020 Midterm Review,⁶ supports the government's goal of developing ICT infrastructure.

13. The regional policy and advisory technical assistance (R-PATA) initiative for ICT-based inclusive growth and poverty reduction aimed to support regional knowledge sharing and identify new investment opportunities for ICT applications.⁷

14. Tonga was successfully connected by a submarine fiber optic cable to the existing global international submarine cable network in 2013 thanks to a jointly-financed ADB–World Bank project. ADB is implementing a similar submarine cable project in Solomon Islands. It is also preparing one in Samoa as well as the proposed Palaucable. ADB provided TA 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 further international connectivity.⁸

15. Promoting competitive pricing in ICT services requires an appropriate regulatory environment. In late 2011, ADB approved TA for the Pacific ICT Regulatory Resource Center, contributing in the Pacific to (i) frequent sharing of experiences and international best practices, (ii) strengthening the capacity of ICT regulatory bodies and policy makers, (iii) providing demand-driven advisory services, and (iv) raising broad-based awareness to demand better ICT regulations.⁹ The World Bank is providing follow-on resourcing to the center.

16. ADB is also supporting projects to identify and implement ICT applications to support inclusive growth and poverty reduction.

⁴ ADB. 2009. *ADB's Pacific Approach, 2010–2014*. Manila.

⁵ ADB. 2014. *Country Operations Business Plan: Palau, 2015–2017*. Manila.

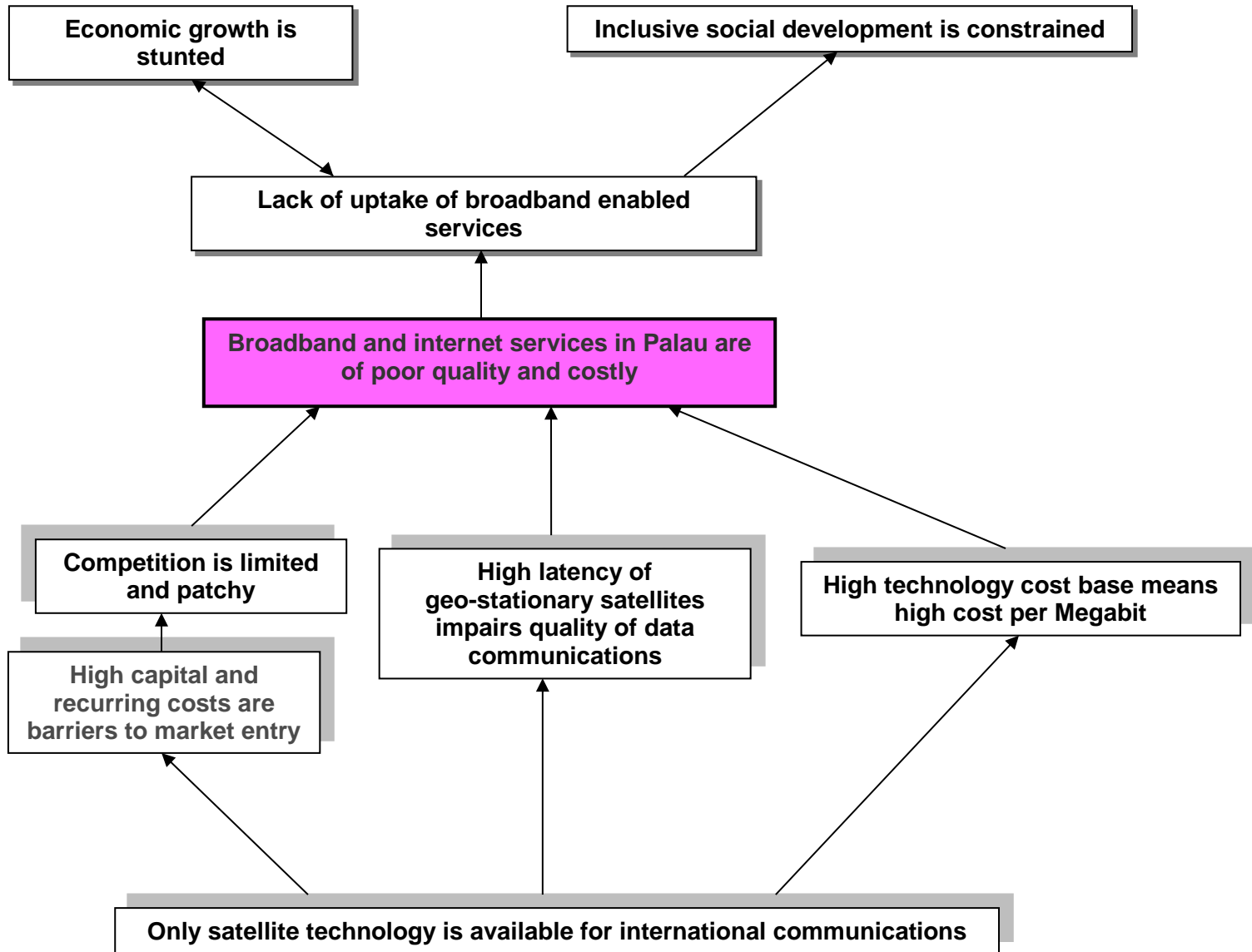
⁶ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.

⁷ ADB. 2009. *Technical Assistance for Information and Communication Technology-Based Inclusive Growth and Poverty Reduction in the Pacific*. Manila.

⁸ ADB. 2014. *Technical Assistance for Results-Based Strategy and Sector Planning in the Pacific*. Manila.

⁹ ADB. 2014. *Technical Assistance for Strengthening Regulatory Capacity for Information and Communication Technology Development in the Pacific*. Manila.

Problem Tree for the Information and Communication Technology Sector



Sector Results Framework (Information and Communication Technology)

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
Affordable quality internet in Palau	By 2019, internet price reduced by 30% (2015 baseline)	Affordable and efficient broadband internet is available throughout Palau	By 2019: Mobile data (3G) coverage has reached 50% The average retail price of mobile data/Megabit decreased to less than 10% of per capita gross national income from 40% (2015 baseline)	Planned key activity areas Palau submarine cable project	Planned key activity areas Establishment and efficient operation of the Palau submarine cable system by Belau Submarine Cable Company

ADB = Asian Development Bank.

Source: Asian Development Bank and World Bank estimates.