SECTOR ASSESSMENT (SUMMARY): INFORMATION AND COMMUNICATION TECHNOLOGY

Sector Road Map

1. This assessment of Micronesia's information and communication technology (ICT) sector focuses on the two countries for which Asian Development Bank (ADB) financing will support engagement in this project—Kiribati and Nauru.

1. Sector Performance, Problems, and Opportunities

2. The Micronesian countries participating in the project (Kiribati, Federated States of Micronesia [FSM], and Nauru) are highly dependent on official development assistance, external funds flows, and rents from a limited set of natural resources such as oceanic fisheries and phosphate (for Nauru, and previously, Kiribati). Small and dispersed populations and geographic isolation limit opportunities for productive business activity. The private sector base is narrow and large public sectors dominate economic output and employment. Infrastructure projects tend to be financed by development partners, and private investment is difficult to attract. Private sector development will significantly help the growth outlook in these economies, reducing heavy dependency on public expenditure.

3. **Kiribati.** Kiritimati is part of the northern Line Islands in Kiribati and sits 2,000 kilometers east of Tarawa, the most populated island in Kiribati and location of the national capital. Kiritimati has experienced substantial in-migration from other islands of Kiribati, giving it a population of about 6,000.[1]

4. In 2013, the World Bank assisted Kiribati in selling its government-owned telecommunication (or telecom) company to Fiji-based Amalgamated Telecom Holdings Kiribati Ltd (ATHK). The second mobile service licensee, Ocean Links, is about to set up its operation. ATHK runs 2,500 connections with 3G technology in Kiritimati. ATHK uses two telecom towers (in London and Banana, Kiritimati) and microwave links to provide telecom services to the island. The total internet bandwidth is limited to 5 megabytes (MB) only and is based on costly geostationary satellites.

5. The costly satellite bandwidth is preventing Kiritimati from increasing internet usage. Its geographic isolation and limited demand are a major hurdle to make any independent submarine cable investment viable there. The proposed Southern Cross NEXT (NEXT) cable system provides a unique opportunity to connect via branching unit and spur.

6. The telecom sector regulator, the Communications Commission of Kiribati (CCK), is operational and responsible for ensuring affordable and quality telecom services in Kiritimati. The World Bank is supporting Kiribati separately in connecting Tarawa through a regional cable system, East Micronesia Cable. Kiribati has set up state-owned cable company, BwebwerikiNet Limited (BNL), to implement and operate the cable infrastructures in Tarawa and Kiritimati.

7. **Nauru.** After the Republic of Nauru Telecommunication Corporation terminated its services in 2009, the Government of Nauru signed an agreement with international mobile operator Digicel to provide telecom services for 15 years (through to 2024). As a result, Digicel

[1] Kiribati National Statistics Office. 2010. *Report on the 2010 Census of Kiribati Population and Housing. Volume 1: Basic Information and Tables*. Tarawa. The report put the population of Kiritimati at 5,586.

Nauru was set up with a 20% government shareholding. Nauru relies entirely on medium earth orbit satellite (O3b) links for international connectivity, with Digicel Nauru purchasing internet bandwidth capacity under a Digicel Group contract on a wholesale basis from O3b.

8. Digicel Nauru owns and operates eight mobile towers providing mobile and Wi-Fi services. It has 13,000 mobile subscriptions (133% of the population). Apart from some dead spots, the island has nearly full mobile coverage with 75% on 4G LTE, the rest is being upgraded from 3G. Nauru has no public fixed-line network. The international internet capacity in Nauru is currently estimated at 360 megabits per second (Mbps). The Australian Regional Processing Centre for refugees (40 Mbps), state-owned enterprises (20 Mbps), and the government (10 Mbps) are the main internet consumers.

9. Cenpac, under the Ministry of Telecommunications & Media, is a government-controlled internet service provider to the government and state-owned enterprises. Cenpac also runs a small public internet cafe and provides software services for the government. Cenpac purchases all internet capacity from Digicel Nauru. The Government ICT Center has implemented a domestic fiber-optic cable, using a cable donated by Japan, which has provided connectivity for the Civic Center, the Hospital, and most of the schools. The domestic connection is being further expanded to cover the entire island, connecting all schools and government departments.

10. The cost of the retail internet service in Nauru is high compared with that in any developed country. Internet service is only available in prepaid schemes at different data volumes through 3G/4G LTE, WiMAX, and Wi-Fi hotspots. The affordability index for broadband in Nauru is 23.3% of the gross national income, based on the average price of a 1GB (postpaid, computer-based) broadband plan, compared with 4.9% in Australia.

11. In early 2017, the Government of Nauru signed a memorandum of understanding with the People's Republic of China-based Acclinks to become a new full-service telecom operator.[2] The government holds a 60% stake in Acclinks, which will operate under Cenpec. Acclinks is planning to set up its own satellite equipment and to lease capacity on existing fiber cables from the government. Acclinks has promised "fiber to the home" by the end of 2017 and plans to set up three more telecom towers for mobile services. Discussions on the interconnection of networks and number portability between Cenpac, Acclinks, and Digicel Nauru are ongoing

12. In May 2017, the Government of Nauru passed the Telecommunications and Regulatory Affairs Act 2017 and established the Department of Telecommunications and Regulatory Affairs under the minister of telecommunications.[3] The department is responsible for authorizing, monitoring, and controling telecom systems and services for use in Nauru. The minister, in consultation with the Cabinet, appointed a regulator as the head of the department. The regulator is responsible for issuing, amending, or revoking telecom licenses; facilitating interconnection between telecom networks of different providers; advising the minister; and providing other regulatory services.

2. Government's Sector Strategy

13. **Kiribati.** The Kiribati Development Plan, 2016–2019 commits to "increase the rate of usage (…) of the internet". The government has already reformed the telecom market, opening it to private service providers, and set up a telecom regulator (CCK) responsible for the full range

[2] http://www.acclinks.com/
[3] http://ronlaw.gov.nr/nauru_lpms/index.php/act/view/1218

of regulatory services. Improving connectivity in Kiritimati island is a key component of Kiribati's development strategy for the northern Line Islands, and the government would like to utilize the opportunity brought by the proposed NEXT cable system. Kiribati, supported by the World Bank, is working separately with FSM and Nauru on a cable system connecting Tarawa. Kiribati is currently establishing a submarine cable company to operate both cable systems.

14. **Nauru.** The Government of Nauru has prepared the Nauru National Broadband Plan and Nauru ICT Strategy, and strengthened the existing telecom regulation, to ensure continued improvement of the national ICT infrastructure, and the operation of Digicel Nauru and Acclinks on a fair and equitable wholesale basis. This will promote the flow of benefits from the proposed submarine cable to the people, businesses, and Government of Nauru.

15. The government adopted a regional approach working with neighboring FSM and Kiribati on a submarine cable solution under a consortium arrangement. This will provide an opportunity to share resources and aims to save operational costs. The government has already established the Nauru Cable Corporation, which is mandated to negotiate a construction and maintenance agreement with its proposed consortium counterparts in FSM and Kiribati. The consortium will implement and operate the regional cable system and is expected to be in place by the first quarter of 2018.

3. ADB Sector Experience and Assistance Program

16. Globalization and digitalization offer challenges and opportunities, particularly for ADB's small and isolated Pacific developing member countries (DMCs). ADB's Pacific Approach, 2016–2020 prioritizes ICT for improved connectivity among Pacific DMCs and between Pacific DMCs and the rest of the world.[4] ADB's regional operations business plan, 2017–2019[5] supports the goal of governments within the region to develop ICT infrastructure and reflects this proposed project. ADB takes a sector-wide approach to ICT projects in supporting policy and legislative strengthening, institutional development, ICT infrastructure investments, and ICT use for public service delivery.

17. Tonga was successfully connected by a submarine fiber-optic cable to the existing global international submarine cable network in 2013 through an ADB–World Bank financed project.[6] ADB is implementing similar submarine cable projects in Palau and Samoa.[7] ADB provided technical assistance to support preparatory work in the development of these projects, and will support other Pacific DMCs in identifying and assessing the feasibility of future investment options for further international connectivity.[8] Project development included reforms to the policy, legislative, and regulatory environments, as well as creating appropriate institutions to implement and manage submarine cables. This technical assistance has further allowed ADB to share knowledge on ICT sector issues, build sector-specific capacity in DMCs, and identify and implement sector-specific (e.g., health, education) ICT applications to support inclusive growth and poverty reduction.

18. Promoting competitive pricing in ICT services requires an appropriate regulatory

[4] ADB. 2016. *ADB's Pacific Approach, 2016–2020*. Manila.
[5] ADB. 2016. *Regional Operations Business Plan: Pacific, 2017—2019.* Manila.
[6] ADB. 2011. *Tonga-Fiji Submarine Cable Project.* Manila
[7] ADB. 2015. *North Pacific Regional Connectivity Investment Project: Report and Recommendation of the President*. Manila; and ADB. 2015. *Samoa Submarine Cable Project: Report and Recommendation of the President*. Manila
[8] ADB. 2009. *Technical Assistance for Information and Communication Technology-Based Inclusive Growth and Poverty Reduction in the Pacific*. Manila.

environment. In late 2014, ADB approved technical assistance 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. The World Bank is providing follow-on resourcing to the center, which in turn directly supports country efforts.

Problem Tree for Information and Communication Technology (in Micronesia) Sector Assessment (Summary)