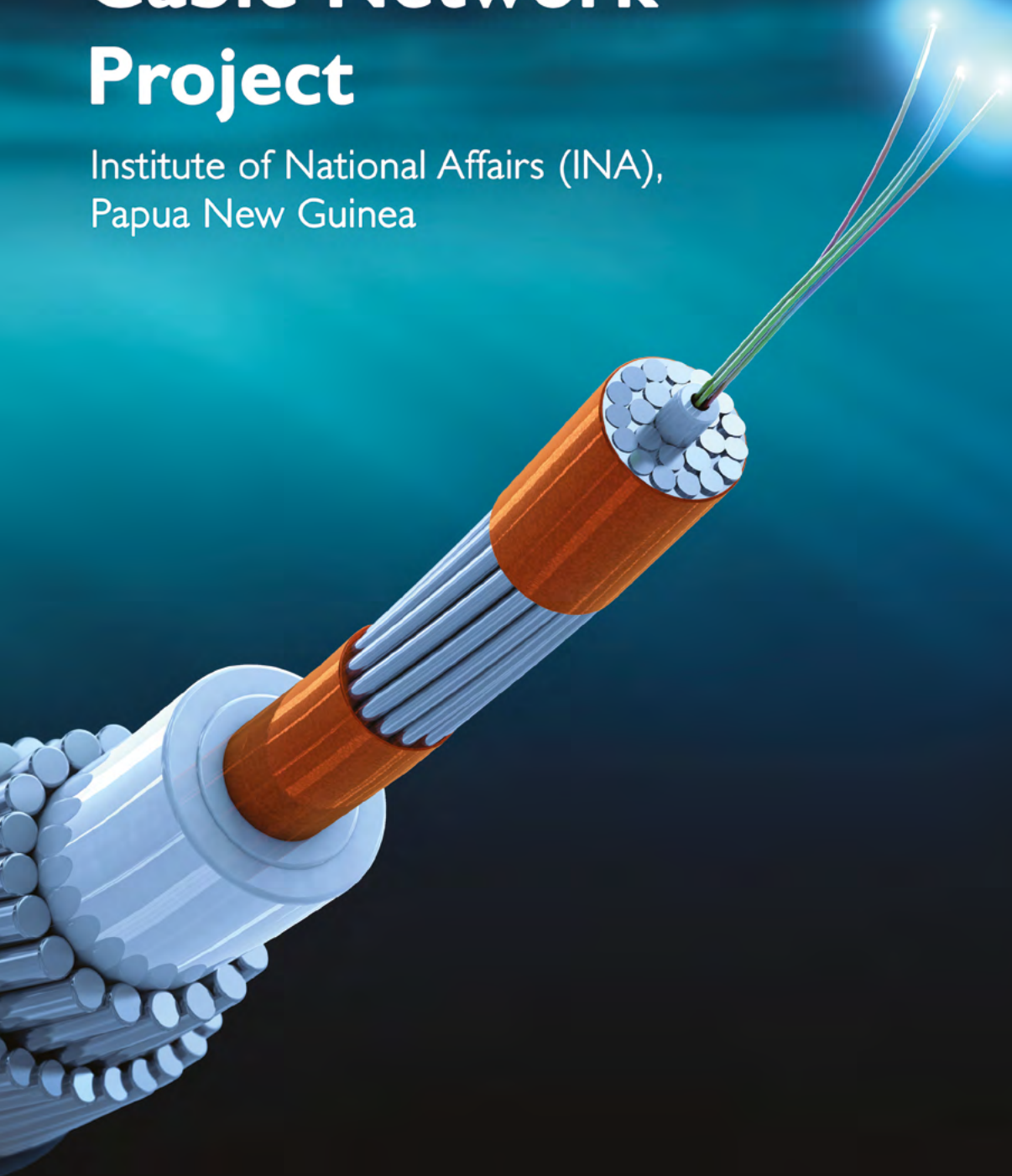


BRI MONITOR 

Case Study: Kumul Submarine Cable Network Project

Institute of National Affairs (INA),
Papua New Guinea





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KUMUL SUBMARINE CABLE NETWORK PROJECT (KSCNP)

ACRONYMS/ABBREVIATIONS

APNG-2	Australia PNG Cable (installed 2006)
BBNJ	Biodiversity Beyond National Jurisdiction
CS2	Coral Sea Cable
EXIM	The Export-Import Bank of China
GoA	Government of Australia
GoPNG	Government of Papua New Guinea
GoSI	Government of Solomon Islands
INA	Institute of National Affairs
KCH	Kumul Consolidated Holdings
KSCN	Kumul Submarine Cable Network
KSCNP	Kumul Submarine Cable Network Project
KTH	Kumul Telikom Holdings
MCLS	Modular Cable Landing Station
NICTA	National Information and Communications Technology Authority
NTN	National Transmission Network
PNG	Papua New Guinea
PRC	People's Republic of China

Introduction

The Institute of National Affairs (INA) is part of a group of think tanks in Southeast Asia and the Pacific implementing a project that aims to promote transparent and accountable governance in the region. The project is supported by the Center for International Private Enterprise (CIPE) with overarching goals of mitigating the impacts of corrosive capital and making best use of capital inflows. Corrosive capital is a term used to label financing from either state or private sources originating in authoritarian regimes—mainly China—that lacks transparency, accountability, and market orientation and exploits and worsens governance gaps in recipient nations.¹

This project includes a review of the legislative framework governing the procurement of goods and services in PNG. This is accompanied by four project case studies assessed for their compliance with PNG's procurement policies and guidelines, with the findings intended to raise awareness among individuals and organizations and devise appropriate strategies to address gaps and weaknesses.

The first case study is the Pacific Maritime Industrial Zone (PMIZ), a project implemented under the technical leadership of the Department of Commerce and Industry with funding assistance from the People's Republic of China (PRC) through the Export-Import Bank of China (EXIM Bank). The second case study is the Kumul Submarine Cable Network Project (KSCN), spanning much of PNG and linking the two data centers of Port Moresby and Madang. The findings of this second case study are presented in this paper.

The Kumul Submarine Cable Network (KSCN) falls under the Belt and Road Initiative (BRI), China's multi-trillion dollar infrastructure initiative. PNG was the first country in the South Pacific to join the BRI when it signed an memorandum of understanding (MOU) in June 2018 during the lead up to the Asia-Pacific Economic Cooperation (APEC) Summit in Port Moresby.² While the initial 2016 KSCN agreement predates PNG's official involvement with the BRI, Chinese officials have since tightly linked KSCN with the initiative.³ Speaking in a media briefing in February 2020, Commercial Counselor at the Chinese Embassy in PNG Liu Linlin said the BRI signing between PNG and China "facilitated the listing of KSCN under BRI" and described the Huawei-DataCo cooperation as a demonstration of "China and BRI's commitment to help promote trade and development."⁴

Chinese telecommunications firm Huawei constructed the project for state-owned company PNG DataCo Ltd.—the wholesale subsidiary of Kumul Telikom Holdings (KTH)—with 85 percent financing from the EXIM Bank. According to Liu, the project is funded and developed under BRI's Government-to-Government (GG) effort, which he said would include USD \$4.46 billion (K15 billion) in Chinese funding

1. "Corrosive Capital," CIPE, May 16, 2021, <https://corrosivecapital.cipe.org/>

2. "China, PNG pledge to further boost ties, cooperation under Belt and Road Initiative," Xinhua, October 31, 2018, http://www.xinhuanet.com/english/2018-10/31/c_137572273.htm

3. The project also falls under the BRI's Five Connectivities: trade, infrastructure, policy, people-to-people, and capital. According to a Chinese official interviewed by Australia-based researcher Peter Connolly, any project addressing these connectivities could be "broadly regarded as a BRI project" even if it had not been formally linked with the initiative. Peter Connolly, "The Belt and Road comes to Papua New Guinea: Chinese geoeconomics with Melanesian characteristics?" *Security Challenges*, Vol. 16, No. 4, (2020), <https://www.jstor.org/stable/26976257>.

4. Clarissa Moi, "Submarine cable network 'a milestone achievement' for PNG, China," *The National*, March 2, 2020, <https://www.thenational.com.pg/submarine-cable-network-a-milestone-achievement-for-png-china/>; "Investors urged to seize prospect," *The National*, March 2, 2020, <https://www.thenational.com.pg/investors-urged-to-seize-prospect/>

for priority impact projects identified under PNG's Vision 2050 plan.^{5,6} During the February 2020 media briefing, Commercial Counselor Liu stressed the KSCN's importance to PNG's digital priorities, noting "when completed, [the KSCN] will propel PNG's digital economy.... This is the beginning of PNG's foray into a higher [level] of global economics and trade."⁷

Background

PNG has minimal internet and telecommunications coverage and has struggled with an underdeveloped telecommunications sector, making the country reliant on an inadequate patchwork of infrastructure provided by a combination of fixed lines, mobile wireless, VSAT satellite systems, and microwave band services.⁸ Most users are located at the periphery of the fixed telecom infrastructure network and access the internet through microwave-based mobile phone networks; in 2017, there were 10.87 mobile broadband subscriptions per 100 people in PNG and only 0.21 fixed broadband subscriptions.⁹ This keeps internet penetration and capacity limited and the cost of connectivity high. In 2017, PNG's internet penetration rate was significantly below the global internet usage rate of 51 percent.¹⁰ Costs of internet connection in PNG are among the world's highest. In 2016, 2G of fixed broadband per month cost more than 100 percent of average monthly income, far higher than the 5 percent of average monthly income identified as the target for affordability by the Broadband Commission for Digital Development.¹¹ As of 2020, prices have remained high and internet connectivity remains low at only 12 percent.¹²

In consequence, the Government of Papua New Guinea (GoPNG) has set a medium-term development objective of improving telecommunications services by upgrading the nation's infrastructure to increase network speed, stability, and penetration.¹³ State-owned PNG DataCo Ltd. is in charge of building, owning, and operating the National Transmission Network (NTN).¹⁴ DataCo is the state-owned enterprise (SOE) established by the GoPNG in 2014 to "provide wholesale services to the Information and Communication Industry." The enterprise is subject to regulatory oversight by the National Information

⁵ In 2011, the GoPNG committed to direct all foreign aid to priority impact projects under Papua New Guinea Vision 2050, its long-term development plan. The plan calls for impact projects in areas including agriculture, fisheries, and tourism in each of its eighty-nine districts. National Strategic Plan Taskforce, *Papua New Guinea Vision 2050, 2011*, <https://sustainabledevelopment.un.org/content/documents/1496png.pdf>; Denghua Zhang, *A Cautious New Approach: China's Growing Trilateral Aid Cooperation* (Acton, ACT: Australian National University Press, 2020), 171

⁶ Moi, "Submarine cable network 'a milestone achievement' for PNG, China"; Bernard Yegiora, "Huawei behind PNG's digital rise," *The Yegiora Files*, January 5, 2021, <https://theyegiorafiles.blogspot.com/2020/07/rise-and-fall-realism-and-china.html>; "Investors urged to seize prospect," 2020.

⁷ "Investors urged to seize prospect," 2020

⁸ World Bank, *Papua New Guinea Economic Update: Slower Growth, Better Prospects*, Ilyas Sarsenov, Andrew Blackman, and Anthony Obeyesekere, January 2019, <https://documents1.worldbank.org/curated/en/597161549016416469/pdf/Papua-New-Guinea-Economic-Update-Slower-Growth-Better-Prospects.pdf>.

⁹ Amanda Watson, "Internet Prices in Papua New Guinea," *DevPolicy Blog*, January 30, 2020, <https://devpolicy.org/internet-prices-in-papua-new-guinea-20200130/>; International Telecommunication Union, "Mobile Broadband Subscriptions," accessed June 30, 2021, <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>; International Telecommunication Union, "Fixed Broadband Subscriptions," accessed June 30, 2021, <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

¹⁰ Simon Kemp, "Digital 2020: Papua New Guinea," *Data Reportal*, February 18, 2020, <https://datareportal.com/reports/digital-2020-papua-new-guinea/>; International Telecommunication Union, "Percentage of Individuals Using the Internet," accessed June 30, 2021, <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

¹¹ Freddy Mou, "PNG Tops Pacific in Internet Cost," *Loop*, March 7, 2016, <https://www.looppng.com/content/png-tops-pacific-internet-cost/>; Broadband Commission for Digital Development, "Broadband Targets for 2015," 2015, https://www.broadbandcommission.org/Documents/Broadband_Targets.pdf

¹² Kemp, "Digital 2020: Papua New Guinea"; Watson, "Internet Prices in Papua New Guinea"

and Communications Technology Authority (NICTA).¹⁵ As the national provider, PNG DataCo Ltd. sets prices for sale of internet services to second-tier wholesalers, subject to approval by NICTA.

The keystone of the DataCo-managed NTN is a fiber optic cable project intended to upgrade the national network and expand high-speed internet services. The project has two components that are implemented concurrently under different financing and implementation arrangements. The first, the Coral Sea Cable (CS2), provides an international cable link to Australia and Solomon Islands and is funded largely from an Australian grant, while the second, the KSCN, comprises domestic cable pathways as well as a link to the existing international cable to Indonesia and is 85 percent financed with a loan from the PRC.¹⁶ According to Duncan Macintosh, CEO of the regional Internet address registry APNIC, these two components are expected to increase national connectivity one thousand-fold.¹⁷ The GoPNG has presented these twin cable projects as reducing the high costs of local internet access and increasing capacity to transmit data domestically and stay connected internationally.¹⁸ It also claims that its ownership of the cable will enable accessibility to all service providers while regulating the information and communications technology (ICT) sector and lowering telecommunications costs substantially.¹⁹ However, it must be recognized that most internet consumers are still only connected through microwave-based mobile phone networks; upgraded and competitive second-tier telecom services (large internet service providers) are critical to achieving more accessible and affordable services.²⁰

The successful completion of both cable projects will enable effective international submarine cable connectivity through Sydney, Australia, and Jayapura, Indonesia, delivering a minimum twenty terabytes of data per second.²¹ But having improved fast and dependable internet at PNG's doorstep does not guarantee country-wide adoption of digital technologies and services. To ensure that all can share the benefits of the country's new connectivity, PNG needs to move its entire economy from analogue to digital, which requires market reforms to increase accessibility, lower prices, and encourage the development of new and innovative digital solutions locally.²²

¹³ "About," PNG DataCo, June 22, 2021, <https://www.pngdataco.com/about/>

¹⁴ *Ibid*

¹⁵ National Information and Communications Technology Authority, "About Us," accessed July 1, 2021, <https://www.nicta.gov.pg/about-us/>

¹⁶ Moi, "Submarine cable network 'a milestone achievement' for PNG, China,"

¹⁷ Duncan Macintosh, "Strengthening the Foundation for PNG's Digital Future," APNIC, May 13, 2020, <https://blog.apnic.net/2020/05/13/strengthening-the-foundation-for-pngs-digital-future/>

¹⁸ Government of Papua New Guinea, *National Cybersecurity Policy and Strategy, 2020*, 6. <https://ict.gov.pg/policy/Draft%20National%20Cybersecurity%20Policy%202021-012021.pdf>

¹⁹ GoPNG, 2020, 167

²⁰ Joseph Kim Suwamaru, "Beneath the veil of the Kumul Submarine Cable Network," *Electronic Journal of Informatics*, Vol. 2 (June 2020): 1-25

²¹ "Set up the market to make the most of new cables," PricewaterhouseCoopers, June 23, 2021, <https://www.pwc.com/pg/en/publications/Points-of-View/set-up-the-market-to-make-the-most-of-new-cables.pdf>.

²² "Set up the market to make the most of new cables," 2021

Figure I. National Transmission Network



The Coral Sea Cable Project

The first component of the network upgrade, known as the Coral Sea Cable Project (CS2), comprised laying a new 4,700 km fiber optic cable linking Sydney, Australia, with Port Moresby and Honiara in Solomon Islands. It was intended to replace and provide a massive upgrade from a second hand fiber optic cable (Australia-Papua New Guinea, or APNG-2) from Sydney to Port Moresby installed in 2006, which had spliced together two stretches of the former PacRimWest cable—each 1,800 kms long—linking Sydney with Guam.²³ The decommissioned cable provided the major link to the global internet network for PNG's National Capital and part of the country. However, various operators had increasingly used a variety of satellite connections due to the old cable's lack of capacity to meet growing business and consumer demand. APNG-2 was decommissioned in February 2021 after sixteen years of service.²⁴ The new CS2 has a capacity of twenty terabits, which is reportedly 20,000 times greater than the former APNG-2 cable; the estimated cost is more than USD \$144 million (K407 million), with the Australian government financing \$100.7 million (AUD\$136.6 or K331 million) under its bilateral assistance programs with the GoPNG and the Government of Solomon Islands (GoSI).²⁵

²³ ASN, "APNG-2," Alcatel Submarine Networks, June 23, 2021, <https://www.submarinenetworks.com/en/systems/australia-usa/apng-2>

²⁴ EMTV, "APNG-2 Cable decommissioned after 16 years of Service," EMTV Online, February 13, 2021, <https://emtv.com.pg/apng-2-cable-decommissioned-after-16-years-of-service/>

²⁵ "Installation of Coral Sea Cable to begin this week," Coral Sea Cable Company, July 9, 2019, <https://coralseacablecompany.com/media-releases/pngs-ict-champions-honoured-at-coral-sea-cable-event-5gl5k-c7cw6>; Kevin McQuillan, "Undersea cable linking Papua New Guinea, Solomon Islands and Australia to be completed late 2019," Business Advantage PNG, June 25, 2018, <https://www.businessadvantagepng.com/undersea-cable-linking-papua-new-guinea-solomon-islands-and-australia-to-be-completed-late-2019/>

The development of the CS2 was based on a tripartite MOU between the Government of Australia (GoA) and the Governments of PNG and Solomon Islands, signed on July 11, 2018.²⁶ Two thirds of the grant funding was provided by Australia with the remaining balance jointly funded by the PNG and Solomon Islands governments.²⁷ The stated aim of the CS2 was to increase information sharing and strengthen relations between the three countries, in light of the insufficient bandwidth capacity in APNG-2 and lack of any cable linking to the Solomon Islands. However, the Australian government's security concerns regarding potential Huawei-installed cables from Port Moresby and Honiara to Sydney were also a critical motivation for its involvement in the CS2, as the funding followed its rejection of a Huawei cable installation in Sydney.²⁸

The main components of the project include:

- Feasibility studies, technical scoping, and design
- Materials and equipment procurement
- Construction of a fiber optic cable network between Sydney and Port Moresby
- Construction of cable landing sites
- Installation of an electronic transmission system
- Installation of an electricity power back-up system to energize the cable network
- Project administration, supervision, and coordination

²⁶ Solomon Submarine Cable, "SISCC: Solomon Islands Submarine Cable Company Limited," Solomon Island Submarine Cable Company Ltd, June 23, 2021, <https://siscc.com.sb/>

²⁷ Submarine Networks, "Coral Sea (CS2)," accessed July 1, 2021, <https://www.submarinenetworks.com/en/systems/asia-australia/coral-sea>; "Australian Foreign Minister Payne joins Prime Minister Hou for Coral Sea Cable ground-breaking ceremony," Coral Sea Cable Company, June 23, 2021, <https://coralseacablecompany.com/media-releases/pngs-ict-champions-honoured-at-coral-sea-cable-event-6a3ch>

²⁸ Winston Qiu, "Coral Sea Cable System Overview," Submarine Cable Networks, December 19, 2019, <https://www.submarinenetworks.com/en/systems/asia-australia/coral-sea/coral-sea-cable-system-overview>; Colin Packham, "Ousting Huawei, Australia Finishes Laying Undersea Internet Cable for Pacific Allies," Reuters, August 27, 2019, <https://www.reuters.com/article/us-australia-pacific-cable/ousting-huawei-australia-finishes-laying-undersea-internet-cable-for-pacific-allies-idUSKCN1VI08H>

²⁹ "The System," Coral Sea Cable Company, accessed June 30, 2021, www.coralseacablecompany.com/the-system; David James, "Ten Questions Answered about the Coral Sea Cable System," Business Advantage PNG, October 30, 2018, <https://www.businessadvantagepng.com/ten-questions-answered-about-the-coral-sea-cable-system/>

³⁰ The Solomon Islands Submarine Cable Company is a joint venture between the Investment Corporation of the Solomon Islands (an SOE) and the Solomon Islands' National Provident Fund. Solomon Submarine Cable, "Solomon Islands Submarine Cable Company Limited: Shareholding," accessed July 1, 2021, <https://siscc.com.sb/>

The main contractor involved in CS2 was Australia-based Vocus Group with France-based Alcatel-Lucent Submarine engaged as a sub-contractor to build and lay cables. The cables were manufactured by Alcatel-Lucent Submarine in Calais, France, and shipped for installation by the company.²⁹ The cable is owned and operated by the Coral Sea Cable Company Pty Limited, an Australian-registered company, with equal shareholding by the Commonwealth of Australia, PNG DataCo Ltd., and Solomon Islands Submarine Cable Company, a wholly government-backed company.^{30,31} The final splice to complete the cable was made on September 27, 2019. The cable went online in February 2020 and was officially launched by PNG's Prime Minister, Hon James Marape on June 5, 2020.³² While now online, the PNG network has not reached the wide usage expected by the government due to delays associated with regulatory and pricing issues between DataCo and NICTA and low uptake by local internet service providers (ISPs), which generally found prevailing satellite connections remained more affordable.³³ As of March 2021, the installation of the cable does not seem to have had any impact on mobile prices, with DataCo's use of the CS2 funding to cross-subsidize the KSCN potentially having a negative impact on prices.³⁴

Figure 2. Coral Sea Cable Landing Station



³¹ "Coral Sea Cable Company," Coral Sea Cable Company, June 23, 2021, <https://coralseacablecompany.com/>; "Solomon Islands Submarine Cable Company Limited: Shareholding," 2021

³² James Marape, "Official Launching of Coral Sea Internet Cable-PM's Keynote Speech", Study in PNG, June 12, 2020, <https://studyingpng.com/2020/06/keynote-address-by-pngs-prime-minister-right-hon-james-marape-official-opening-of-coral-sea-cable-system-5th-june-2020/>

³³ Asia Development Bank, "Broadband Internet Satellite is Key to Achieving Papua New Guinea's Vision for Effective e-Government Services," December 18, 2020, <https://www.adb.org/news/videos/broadband-internet-satellite-key-achieving-papua-new-guineas-vision-effective-e-government-services>; Amanda Watson, Picky Airi, and Moses Sakai, "Mobile Internet Prices in Papua New Guinea: Still No Downward Movement," DevPolicy Blog, March 18, 2021. <https://devpolicy.org/mobile-internet-prices-in-papua-new-guinea-still-no-downward-movement-20210318-1/>

³⁴ Watson et al., "Mobile Internet Prices in Papua New Guinea: Still No Downward Movement"; Robert Potter, "Papua New Guinea and China's Debt Squeeze," The Diplomat, February 2, 2021, <https://thediplomat.com/2021/02/papua-new-guinea-and-chinas-debt-squeeze/>.

³⁶ "Subsea Cables in/across South Pacific," Alcatel Submarine Networks, www.submarinenetworks.com/en/australia-usa; Department of Treasury, "Volume 3b: Public Investment Program for Statutory Authorities and Provincial Governments, 2021-2025," 2021 National Budget, 2021, https://www.treasury.gov.pg/html/national_budget/files/2021/Volume%203B%20PIP.pdf

³⁷ "PNG DataCo completes laying of Kumul Submarine Cable," PNG Buzz, June 4, 2020, <https://pngbuzz.com/tech/5257>; "Kumul Submarine Cable Network will be Finished in Q3 2021," PNG Business News, February 3, 2021, <https://www.pngbusinessnews.com/articles/2021/2/kumul-submarine-cable-network-will-be-finished-in-q3-2021>

The Kumul Submarine Cable Network Project (KSCN)

The second component is the KSCN, a 5,457 km submarine fiber optic cable linking fourteen PNG coastal provinces and the National Capital and connecting to the cable landing for the Indonesia network in Jayapura, Papua Province (see Figure 1). This project is financed largely through a concessional loan from the PRC through the China EXIM Bank and executed by DataCo, which is “required to sustain its operations from revenues derived from the sale of bandwidth to Internet Service Providers.”³⁶ According to DataCo Managing Director Paul Komboi, the laying of the domestic cable was completed on June 2, 2020, to be brought into use in July 2020, with the linkage to Jayapura to be completed by the third quarter of 2021.³⁷

This case study focuses on KSCN's compliance with government public procurement policies and guidelines.

The project components include:

- Construction and laying of 5,457 km sea cable
- Procurement of equipment and materials
- Feasibility study, survey, and technical design
- Project administration, supervision, and coordination

Figure 3. KSCN Landing Station



³⁶ “Subsea Cables in/across South Pacific,” Alcatel Submarine Networks, www.submarinenetworks.com/en/australia-usa; Department of Treasury, “Volume 3b: Public Investment Program for Statutory Authorities and Provincial Governments, 2021–2025,” 2021 National Budget, 2021, https://www.treasury.gov.pg/html/national_budget/files/2021/Volume%203B%20PIP.pdf

³⁷ “PNG Dataco completes laying of Kumul Submarine Cable,” PNG Buzz, June 4, 2020, <https://pngbuzz.com/tech/5257>; “Kumul Submarine Cable Network will be Finished in Q3 2021,” PNG Business News, February 3, 2021, <https://www.pngbusinessnews.com/articles/2021/2/kumul-submarine-cable-network-will-be-finished-in-q3-2021>

Project Financing & Implementation

PNG secured a loan from China's EXIM Bank for the KSCN, accounting for 85 percent of the project costs with the remaining 15 percent to be provided by GoPNG.³⁸ The West New Britain Provincial Government contributed an additional USD \$56,423 (K200,000) to connect the cable network to public institutions in the province, the only provincial government to do so.³⁹ The Kumul Consolidated Holdings' (KCH) website specifies that the loan was for an estimated USD \$270 million (K879 million), but contrasting figures are provided from various official sources.⁴⁰ Although the loan amount is yet to be confirmed, a total figure of USD \$270 million and its equivalent is used and reflected in the project mapping outline (Figure 4) to illustrate the financing arrangements and main stakeholders involved in this project. A separate section below is dedicated to discussing the three different loan figures that are being quoted in media sources and causing confusion. In May 2020, State Enterprise Minister Sasindran Muthavel expressed concern that various cost overruns—including additional expenses incurred due to natural phenomena, such as an earthquake in July 2019—would push the final cost and debt servicing cost well beyond the capacity of users to pay unless the state incorporated it as part of the national infrastructure.⁴¹ He also stated that “the fact of the matter is we owe China EXIM Bank USD \$470 million.... Whether you like it or not [the] Government did borrow and spend K1.6 billion [USD \$450.3 million] on NBN I [a 3G/4G project with towers installed by Huawei] and Kumul Undersea Cable and we have to commercialise these assets to generate revenue.”⁴²

The KSCN was one of the high-priority projects included in the Framework Agreement on Development Cooperation signed between the PRC and GoPNG on July 8, 2016, during former Prime Minister Peter O'Neill's visit to China.⁴³ After PNG joined the BRI in June 2018, the project was listed under the initiative. In August 2018, GoPNG reported that EXIM Bank and PNG had reached a project financing agreement.⁴⁴ According to the GoPNG, actual project implementation began in November 2018.⁴⁵

The main stakeholders in the project are the PRC, which provided 85 percent loan financing through the EXIM Bank, and the GoPNG as the recipient and beneficiary of the funds for implementing the project through PNG DataCo Ltd. Chinese company Huawei Marine is the main contractor responsible for construction and maintenance of the landing equipment. Huawei Marine was established in 2008 as a joint venture between Global Marine Systems (49 percent) and Huawei Technology (51 percent), and

³⁸ “Telecommunications: Submarine Cable (International & Domestic),” Kumul Consolidated Holdings, June 23, 2021, <https://www.kch.com.pg/key-impact-projects/telecommunications/>

³⁹ Nicole Joannes, “Kumul Submarine Cables to Be Launched,” Papua New Guinea Post-Courier, April 16, 2020, <https://postcourier.com.pg/kumul-submarine-cables-to-be-launched/>

⁴⁰ Joannes, “Kumul Submarine Cables to Be Launched”

⁴¹ Johnny Blades, “Viability of PNG cable project uncertain,” RNZ, May 28, 2020, <https://www.rnz.co.nz/international/programmes/delinepacific/audio/2018748241/viability-of-png-cable-project-uncertain>

⁴² “Telco to Help Pay K1.6 billion loan,” Post Courier, August 11, 2020, <https://postcourier.com.pg/telco-to-help-repay-k1-6b-loan/>

⁴³ “Joint Press Release Between the People's Republic of China and The Independent State of Papua New Guinea,” Ministry of Foreign Affairs of the PRC, July 8, 2016, https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/t1378713.shtml

⁴⁴ James Pierce, “Chinese Bank Backs Papua New Guinea Subsea Cable,” Capacity Media, August 10, 2018. <https://www.capacitymedia.com/articles/3822186/chinese-bank-backs-papua-new-guinea-subsea-cable>.

⁴⁵ “China to Fund Cable Project,” The National, August 10, 2018, <https://www.thenational.com.pg/china-to-fund-cable-project/>; “PUBLIC INVESTMENT PROGRAM FOR STATUTORY AUTHORITIES AND PROVINCIAL GOVERNMENTS 2019 – 2023,” Department of Treasury of Papua New Guineans, December 31, 2021,

⁴⁶ Winston Qiu, “Global Marine Group Fully Divests Stake in Huawei Marine Networks,” Submarine Cable Networks, June 6, 2020. <https://www.submarinenetworks.com/en/vendors/hmn-tech/global-marine-completes-sale-of-30-stake-in-huawei-marine-networks-for-85-million>.

was acquired by Hengtong Group in 2020.⁴⁶ Other companies engaged as subcontractors include: China National Machinery Import and Export Corporation, which will supply the fiber optic cable from China; and Optic Marine Services of Malaysia, which laid the cables, including through the use of the Indonesia-registered vessel *Ile De Re*, a deep water cable-laying vessel capable of carrying 5,050 tons of cable.⁴⁷

As reflected in the Project Mapping Outline (Figure 4), the counterpart funds for the KSCN are provided through state-owned companies, similar to the CS2. The counterpart funds for 2018 were budgeted and provided through PNG DataCo Ltd.'s parent company KTH, a majority state-owned entity formed from the merger of three SOEs delivering ICT services that is under the direction of KCH, a trustee for non-mining, gas, and petroleum sector entities.⁴⁸ The funds for 2019 and 2020 were budgeted and appropriated under PNG DataCo Ltd. as the direct implementer of the KSCN.⁴⁹ While DataCo is currently responsible for servicing the debt with the revenue from the project, the need to provide affordable service and DataCo's struggles with debt sustainability have prompted suggestions that GoPNG treat the cable as national infrastructure and undertake the debt, rather than viewing it as a commercial project.⁵⁰

As reflected in the Project Mapping Outline (Figure 4), the counterpart funds for the KSCN are provided through state-owned companies, similar to the CS2. The counterpart funds for 2018 were budgeted and provided through PNG DataCo Ltd.'s parent company KTH, a majority state-owned entity formed from the merger of three SOEs delivering ICT services that is under the direction of KCH, a trustee for non-mining, gas, and petroleum sector entities.⁴⁸ The funds for 2019 and 2020 were budgeted and appropriated under PNG DataCo Ltd. as the direct implementer of the KSCN.⁴⁹ While DataCo is currently responsible for servicing the debt with the revenue from the project, the need to provide affordable service and DataCo's struggles with debt sustainability have prompted suggestions that GoPNG treat the cable as national infrastructure and undertake the debt, rather than viewing it as a commercial project.⁵⁰

The cable was seemingly planned and laid without any of the actors involved conducting any Social and Environment Impact Assessment or securing an approved environment permit, as normally required for any major project under PNG's Environment Act.⁵¹ In response to public concerns regarding the health impacts of the cable, including radiation levels, DataCo Managing Director Paul Komboi assured the public that the NTN "is very considerate on the environment and health aspects."⁵² The International Cable Protection Committee, an NGO whose primary membership is companies associated with the submarine cable industry, has made similar arguments regarding the impact of cables on the marine environment. In its report to the UN General Assembly on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ), the NGO argued fiber optic cables themselves essentially have no negative environmental impact because the small diameter cables have extremely low power usage and lie on the seabed rather than disturbing the marine environment.⁵³

⁴⁷ Moi, "Submarine cable network 'a milestone achievement' for PNG, China,"; Joannes, "Kumul Submarine Cables to Be Launched"; Loop Technology, "Kumul Cable Lands in ARoB," May 19, 2020, <https://www.looppng.com/tech/kumul-cable-lands-arob-92235>; Optic Marine Services, "Vessels," accessed July 1, 2021, <https://opticmarine.com/vessels/>

⁴⁸ "Telecommunications: Submarine Cable (International & Domestic)," 2021

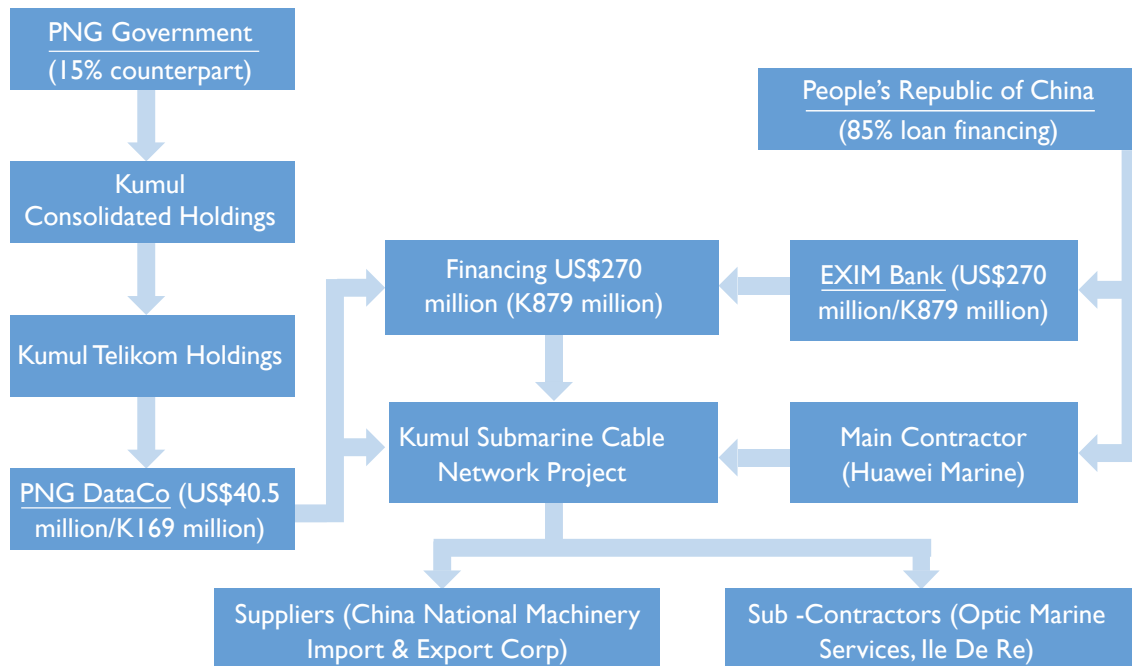
⁴⁹ "Public Investment Program, 2018–2022," Department of Treasury of Papua New Guineans, December 31, 2018, http://www.treasury.gov.pg/html/national_budget/files/2018/Volume%203%20PIP.pdf; Department of Treasury of Papua New Guineans, 2021; "Public Investment Program for Statutory Authorities and Provincial Governments, 2020–2024," Department of Treasury of Papua New Guineans, June 23, 2021, http://www.treasury.gov.pg/html/national_budget/files/2020/Volume%203B.pdf

⁵⁰ Pacific Waves, "Viability of PNG Cable Project Uncertain," May 28, 2020. <https://www.rnz.co.nz/international/programmes/delinepacific/audio/2018748241/viability-of-png-cable-project-uncertain>.

⁵¹ Independent State of Papua New Guinea, Environment Act 2000, No. 64 of 2000, April 19, 2001. http://www.paclii.org/pg/legisl/consol_act/ea2000159/.

⁵² "PNG Dataco denies environmental effects of Kumul cable," *Telecompaper*, July 1, 2020, <https://www.telecompaper.com/news/png-dataco-denies-environmental-effects-of-kumul-cable-1344671>; "No Radiation for Kumul Submarine Cable," *The Loop*, April 8, 2020, <https://www.looppng.com/business/no-radiation-kumul-submarine-cable-network-kscn-91333>.

Figure 4: Kumul Submarine Cable Network Stakeholder Mapping



The KSCN implementation was designed as three systems that were constructed in three phases, as detailed below:

- i) **Phase A:** system two linking Port Moresby, Alotau, Popondetta, Lae, and Madang started in November 2018 with the arrival of the cable-laying ship carrying 6,000 km of fiber optic cable in Port Moresby and was successfully completed on February 19, 2020;⁵⁴
- ii) **Phase B:** system one construction started immediately thereafter in late February 2020, linking Vanimo from Jayapura, and linking Wewak, Lorengau, Kimbe, Kokopo, and Kavieng with the cable network, eventually landing in Kieta on May 18, 2020 (the link to Jayapura to be completed in the third quarter of 2021);⁵⁵ and
- iii) **Phase C:** system three was completed with the landing of the cable in Daru, Western Province on June 2, 2020, marking the completion of the laying of the 5,457 km of domestic cable.⁵⁶

Interestingly, PNG's Engineering General Manager Tony Morisause stated in February 2021 that DataCo is already planning an upgrade to the cable management system, as he claimed current available bandwidth has already been superseded by demand.⁵⁷

⁵³ The International Cable Protection Committee, "Submarine Cables and BBNJ," United Nations, August 1, 2016, https://www.un.org/depts/los/biodiversity/prepcom_files/ICC_Submarine_Cables_&_BBNJ_August_2016.pdf

⁵⁴ PNG eHow, "Stable High Speed Internet expected as PNG Kumul Domestic Cable project completed," PNG eHow, March 11, 2019, <https://tech.pngfacts.com/2019/03/stable-high-speed-internet-expected-as.html>.

⁵⁵ "Kumul Cable Lands in ARoB," 2020

⁵⁶ "Kumul Submarine Cable Network," PNG DataCo, June 8, 2020, <https://www.facebook.com/pngdatacolimited/photos/the-landing-of-kumul-submarine-cable-network-kscn-in-western-province-on-tuesday/687839235342850/>.

⁵⁷ "DataCo to upgrade Kumul cable," PNG Report, February 9, 2021, <https://www.pngreport.com/infrastructure-and-services/news/1404233/dataco-to-upgrade-kumul-cable>.

Project Issues

Transparency and Accountability

The researchers had great difficulty accessing and collecting background primary data in relation to the KSCN, including the terms and conditions associated with the loan, tendering and engagement of contractors, project implementation, and the current status of the project. Despite ongoing efforts to secure further information, including seeking appointments for meetings through phone calls, emails, and written letters to those directly involved in the KSCN planning and implementation, the researchers have received no response. As noted in INA's previous report on the PMIZ, difficulty accessing this information is partially due to the absence of any law clearly identifying the process by which the public can access information as guaranteed under Section 51 of the PNG Constitution.⁵⁹ INA has written formally to the organizations listed below on the dates reflected:

- Secretary, Department of Foreign Affairs and Trade; dated September 25, 2020: requested information in relation to bilateral collaborative partnership framework between PNG and PRC including projects funded under BRI.
- Secretary, Department of National Planning and Monitoring; dated September 25, 2020: requested project implementation updates and other documents relating to the case study projects.
- Secretary, Department of Treasury; dated October 16, 2020: follow-up request for project financing agreements related to all case study projects. The Secretary failed to provide INA feedback after agreeing to assist on September 14, 2020.
- Chief Executive Officer, PNG DataCo Ltd; dated October 15, 2020: requested a meeting and project information with copy to Managing Director, KTH.
- Chief Executive Officer, National Procurement Commission; dated October 30, 2020: requested project information, especially whether the project complied with procurement policies and guidelines. As this question received no response from other key central and line agencies, the researchers undertook to liaise with the Procurement Commission directly but INA has yet to receive a response.

The researchers held several meetings with senior officers from the Department of Treasury, Prime Minister's office, National Executive Council, Department of Information and Communications, KCH, KTH, and the Auditor General's Office regarding our case study projects. These officials stated that information on the projects was available but it was difficult for them to access and release information to INA given the large sums involved and the sensitivities associated with Chinese funding. INA also consulted senior Department of Treasury officials at various junctures over the past six months—including via joint technical working group meetings—on the need to access financing agreements for our case study projects, only to be asked to submit a formal request to either the Secretary or Minister of the Treasury. The former Deputy Prime Minister and Treasurer Charles Abel also confirmed on September 4, 2020, that the Treasury held these documents. As INA's first formal request to the Treasury Secretary via email is still pending despite acknowledgement on September 15, 2020, another follow up in an official letter

⁵⁹ "PNG Needs Right to Information (RTI) Law to Address Public-Sector Corruption," *Transparency International PNG*, September 27, 2019, <https://www.transparencypng.org.pg/png-needs-right-to-information-rti-law-to-address-public-sector-corruption/>

was hand-delivered on October 16, 2020, with an email copy sent to the Secretary in his capacity as head of the organization on October 21, 2020; that is pending.

The researchers' unsuccessful attempts to obtain information illustrates a clear lack of transparency and accountability associated with this project and documentation of planning, budgeting, expenditures, and reporting. Not only did government officials fail to respond to researchers' requests for information, but they also declined to release information to clear up controversies in the general public regarding the loan amount associated with the KSCN. In July 2019, a report circulated on social media alleging that KTH took out a loan of USD \$201 million (K697 million) for this project without the approval of the National Executive Council (NEC), leaving the responsibility for the provision of counterpart funds and loan repayment to the GoPNG.⁶⁰ This report was denied by PNG DataCo Ltd., referring to it as "grossly misleading" and issuing a statement that warned "further commenting or circulating this article... may be defamatory in nature and could contravene existing Cyber Crime Laws in PNG," but did not provide further information on the terms or amount of the loan.⁶¹ In the absence of transparent reporting on public borrowing and the use of public funds, speculation continues regarding the amount and terms of the loan. Annual Budget Volumes—notably the Volume 1 chapters on public expenditure, debt, public sector and SOE valuation, and performance and reform—contain constant references to the CS2 and upgrading the domestic mobile and broadband network, but no reference to the KSCN.⁶²

Without the actual project loan agreement or full provision of details, the amount of the loan obtained for the KSCN remains unclear. Media reports have provided three different figures for the loan: first, the KCH official website lists the figure of an estimated USD \$270 million (K879 million);⁶³ second, State Enterprises and Investment Minister William Duma announced a number of USD \$200 million (K661 million) in August 2018;⁶⁴ and third, former PNG government advisor Jeffrey Wall reported a loan of USD \$279 million (K1 billion) in September 2020.⁶⁵ Annual Budget documents have specified a much lower figure of USD \$68.6 million (K239.75 million)—released to KCH/DataCo in annual increments—of which USD \$57 million (K200.22 million) was sourced from the China EXIM Bank and USD \$11.5 million (K39.35 million) from GoPNG counterpart funding, with an additional USD \$33 million (K119 million) in GoPNG counterpart funding owed to Contractor as of 2021.⁶⁶ However, EXIM Bank lending by nature may be provided directly to the SOE which, until recently, would limit public access to this information. Although details regarding EXIM bank lending to SOEs would presumably also be recorded

⁶⁰ PNG Breaking News, "KTH borrows K697m loan from EXIM Bank with NO NEC approval," PNG Breaking News, July 25, 2019, https://www.facebook.com/pngbreakingnews/posts/2220534788055127?comment_id=2224093614365911

⁶¹ PNG DataCo, "Public Notice," July 26, 2019, <https://m.facebook.com/pngdatacolimited/posts/462534084540034?fs=8>

⁶² Papua New Guinea Department of Treasury, "Volume 1: Economic and Development Policies," 2019 National Budget, 2019, https://www.treasury.gov.pg/html/national_budget/files/2019/Volume%201.pdf

⁶³ "Telecommunications: Submarine Cable (International & Domestic)," 2021

⁶⁴ "China to fund cable project," 2018

⁶⁵ Jeffrey Wall, "China's 'Debt-Trap Diplomacy' is About to Challenge Papua New Guinea—and Australia," *The Strategist*, September 8, 2020, <https://www.aspistrategist.org.au/chinas-debt-trap-diplomacy-is-about-to-challenge-papua-new-guinea-and-australia/>

⁶⁶ Papua New Guinea Department of Treasury, "Volume 2a: Estimates of Revenue and Expenditure for Government Departments," 2019 National Budget, 2019, https://www.treasury.gov.pg/html/national_budget/files/2019/Volume%202a.pdf; Papua New Guinea Department of Treasury, "Volume 2: Estimates of Revenue and Expenditure for National Government Departments," 2019 National Budget, 2019, https://www.treasury.gov.pg/html/national_budget/files/2019/Volume%202c.pdf; Papua New Guinea Department of Treasury, "Volume 3b, Public Investment Program for Statutory Authorities and Provincial Governments, 2020-2024," 2020 National Budget, 2020, https://www.treasury.gov.pg/html/national_budget/files/2020/Volume%203B.pdf; Papua New Guinea Department of Treasury, "Volume 2d: 2021 Budget Estimates for Statutory Authorities, Provincial Governments, Debt Services, and Trust Accounts," 2021 National Budget, 2021, https://www.treasury.gov.pg/html/national_budget/files/2021/Volume%202d.pdf; Papua New Guinea Department of Treasury, "Volume 3b: Public Investment Program for Statutory Authorities and Provincial Governments, 2021-2025," 2021 National Budget, 2021, https://www.treasury.gov.pg/html/national_budget/files/2021/Volume%203B%20PIP.pdf.

under the state's contingent liabilities, these numbers would have been inaccessible until mid-2019, as the Treasury was seeking to keep official public debt figures down.⁶⁷ In mid-2019, Treasury began providing comprehensive debt figures, including court orders, guarantees, and contingent liabilities, with contingent liabilities estimated at USD \$3.9 billion (K14.1 billion).⁶⁸ In February 2020, GoPNG began a Staff Monitored Program with the International Monetary Fund (IMF) to implement public debt reforms.⁶⁹ In order to minimize confusion regarding the level of debt taken on by the country, the actual loan amount must be confirmed by the Department of Treasury and KTH, the entities which have primary responsibility for loan negotiations and project implementation oversight, or by the Auditor General.

As the researchers have not had the opportunity to meet formally with PNG DataCo Ltd. or its parent

Table 1: GoPNG Budget Appropriations for KSCN, 2016-2020 (million USD \$, million Kina)

	2016	2017	2018	2019	2020 (estimate)	2020 (estimate)	2020 (estimate)
Total Funds Appropriated	USD \$1.9 K1.85	None listed	USD \$10.7 K35	USD \$2.3 K7.72	USD \$35.7 K125	USD \$19.4 K70	USD \$68.6 K239.75
GoPNG Funding	USD \$1.9 K1.85	None listed	USD \$4.6 K15	USD \$0.7 K2.5	USD \$2.9 K10	USD \$2.8 K10	USD \$11.5 K39.35
PRC Loan	K0	None listed	USD \$6.1 K20	USD \$1.5 K5.22	USD \$32.8 K115	USD \$16.6 K60	USD \$57 K200.22

Source: Various.⁷⁰

entity KTH and are not privy to the KSCN loan agreement, it is difficult to assess whether an open and competitive bidding process was followed in the selection of project service providers. As KSCN was funded by an international loan, it may not have been subject to the requirement under PNG law that projects must undergo competitive bidding. Under Section 7(4) of the 2018 National Procurement Act, if a loan “agreement contains a condition that the provider shall originate from the country of the donor, procurement of the provider shall be in accordance with the agreement.”⁷¹ Given the opacity of the procurement process and the prominence of Chinese companies—namely, Huawei Marine and China Import and Export Corporation—as major contractors and sub-contractors in this project, it seems likely that this exception was used. There were certainly other international firms that would have been eager to bid for this contract had it been open.⁷²

⁶⁷ International Monetary Fund, “Papua New Guinea: Request for Disbursement Under the Rapid Credit Facility,” June 2020. <https://www.imf.org/~/media/Files/Publications/CR/2020/English/1/PNGEA2020002.ashx>.

⁶⁸ Satish Chand, Junaid Sadiq Masood, and Vijaya Ramachandran, “Managing Fiscal Challenges in Contemporary Papua New Guinea,” Center for Global Development, May 2020. <https://www.cgdev.org/sites/default/files/managing-fiscal-challenges-contemporary-papua-new-guinea.pdf>.

⁶⁹ Ibid.

⁷⁰ Papua New Guinea Department of Treasury, “Volume 2a: Estimates of Revenue and Expenditure for Government Departments,” 2019; Papua New Guinea Department of Treasury, “2019; Papua New Guinea Department of Treasury, 2020; Papua New Guinea Department of Treasury, 2021

⁷¹ “National Procurement Act (NPA) 2018,” Department of Finance, November 28, 2018, http://www.finance.gov.pg/wp-content/uploads/2019/02/Certified_National_Procurement_Act_2018.pdf,

⁷² Personal communication with Digicel

The Treasury Department along with the Department of National Planning and Monitoring's Public Investment Program prepares and makes public its annual estimates of revenue and expenditure and submits these with the Annual Appropriation Bill and other budget legislation for consideration and approval by Parliament. These documents are intended to provide information on the allocations for the previous and current years and projected allocations for publicly funded projects and recurrent activities, including background information. However, the relevant volumes of GoPNG budget documents (Volume 2d and 3) from 2016 to 2021 lack details concerning financing terms, other stakeholders involved in project implementation, and changes in scope, if any.⁷³ PNG DataCo Ltd.'s official website provides a map of its network with small annotations along with photographs of cable landing stations, but gives no detail on the project's financial aspects.⁷⁴ The website of parent company KTH provides little additional detail on the project, but the KCH's 2019 Annual Review indicates some of the challenges facing the consolidated KTH, saying it has "struggled to deliver quality, affordable and accessible ICT" and maintains less than a 15 percent share of PNG's ICT market.⁷⁵ Specific issues include legacy technology, structural inflexibility, and lack of working capital, "with some entities in the group unable to invest in major capital projects to compete effectively."⁷⁶ KTH continues to have a negative return on capital; it recorded a loss of USD \$12.6 million (K41.5 million) in 2018 and unaudited loss of K72.4 million in 2019.⁷⁷ Despite projected falls in revenue, KTH continues to spend; in its budget it records a revenue of USD \$151 million (K518.6 million) in 2019 but forecasts this dropping to USD \$138.7 million (K486.2 million) in 2020.⁷⁸ Its capital expenditure is recorded as rising from USD \$115 million (K395 million) in 2019 to USD \$237.1 million (K831 million) in 2020, but no further details were provided for this USD \$122.1 million (K436 million) increase.⁷⁹ As of July 2021, KTH's annual report for 2020 is not available.

The KSCN was implemented over a seventeen-month period starting on November 17, 2018, with the laying and construction of more than 5,457 km in submarine optic cable covering fourteen coastal provinces and the National Capital in PNG completed in early June 2020.⁸⁰ It is unclear whether the project was completed under the loan-funded budget ceiling. Delays were attributed to both human events and natural factors, notably earthquake damage severing the cable in three places in the Huon Gulf near Lae in July 2019 and not expected to be fixed until 2022.⁸¹ Landowner disputes, security and operational factors, and inadequate counterpart funds also reportedly delayed implementation. From January 2018 to September 2019, the GoPNG only allocated USD \$4.3 million to the project, which is 12 percent of the USD \$36.2 million total required payment for the period, leaving USD \$31.9 million in outstanding payments.⁸² Notably, the GoPNG's failure to appropriate adequate counterpart funds for the project in 2019 resulted in the deferral of activities from 2019 for completion in 2020.⁸³ The GoPNG only allocated USD \$1.7 million (K6 million) of the total USD \$25 million (K86 million) in planned project

⁷³ Department of Treasury of Papua New Guineans, 2020; Papua New Guinea Department of Treasury, 2019; Papua New Guinea Department of Treasury, 2019; Papua New Guinea Department of Treasury, 2021

⁷⁴ "CABLE LANDING STATIONS NATIONWIDE," PNG DataCo, www.pngdataco.com/cable-landing-stations/

⁷⁵ "KCH 2019 Annual Review," Kumul Consolidated Holdings, 2019, <https://www.kch.com.pg/publications/kch-2019-annual-review/>

⁷⁶ "KCH 2019 Annual Review"

⁷⁷ *Ibid.*

⁷⁸ *Ibid.*

⁷⁹ "KCH 2019 Annual Review," 21

⁸⁰ "PUBLIC INVESTMENT PROGRAM FOR STATUTORY AUTHORITIES AND PROVINCIAL GOVERNMENTS 2019 – 2023," 2021; "PNG DataCo Completes Laying of Kumul Submarine Cable," 2020

⁸¹ "DataCo Working on Cable Outage, says Komboi," Post Courier Online, May 28, 2019, <https://postcourier.com.pg/dataco-working-cable-outage-says-komboi/>

⁸² "Volume 3B: Public Investment Program for Statutory Authorities and Provincial Governments, 2020–2024," 2021.

⁸³ Department of Treasury of Papua New Guineans, 2020

spending for 2019, with PRC loans accounting for the other USD \$23.3 million (K80 million).⁸⁴ The 2019 Supplementary Budget further reduced GoPNG's counterpart allocation to USD \$0.7 million (K2.5 million), and PRC loans were reduced to USD \$1.5 million (K5.22 million).⁸⁵

Transparency and Accountability Issues: Broader context

Transparency is an issue both in PNG public sector projects and with Chinese financing. In 2020, PNG scored only a 27 on Transparency International's Corruption Perceptions Index on a scale of 0 to 100, ranking it 142nd in the world and indicating the country is "highly corrupt."⁸⁶ This represents a decline in transparency since 2018, when PNG scored a 28.⁸⁷ These numbers are significant, as Transparency International argues that "massive disrespect for rule of law" has substantial negative implications for the health of democratic institutions and civil liberties.⁸⁸ Beyond this issue, Chinese-funded projects, particularly those carried out through Chinese leader Xi Jinping's signature BRI, arise largely through informal and relationship-based approaches instead of the rules-based approach favored by Western nations and multilateral lending institutions.⁸⁹ Researchers have argued the norms these agreements create "are not transparent and are often negotiated in countries that lack strong legal norms for complicated transactions spanning all aspects of commercial, financial, and investment law."⁹⁰

While Huawei has become a global leader in telecommunications, in part due to Chinese government support through the Digital Silk Road, it remains a relatively smaller but growing player in the field of submarine cable provision worldwide.⁹¹ Huawei has, however, become dominant in PNG's domestic telecommunications; it not only installed the KSCN, but also the government's own National Data Center, which reportedly used outdated encryption software that exposed government data to potential theft and left the Center inoperable.^{92,93} The potential that Digicel, a multination conglomerate with 3.8 million PNG users, might sell off its PNG business to state-owned China Mobile to defray Digicel's global financial issues prompted concerns about the greater concentration of PNG telecoms under Chinese ownership.⁹⁴ Huawei claims its objectives are commercial and client-focused, but the support the company has received under the BRI has raised concerns about whether "these projects are purely soft-power

⁸⁴ Papua New Guinea Department of Treasury, 2019

⁸⁵ Papua New Guinea Department of Treasury, 2021

⁸⁶ "Transparency International Papua New Guinea," Transparency International, June 24, 2021, <https://www.transparency.org/en/countries/papua-new-guinea#>.

⁸⁷ "PNG Scores 'Highly Corrupt' on the 2018 Corruption Perceptions Index," Transparency International Papua New Guinea, January 29, 2019, http://www.transparencypng.org.pg/wp-content/uploads/2019/01/TIPNG_PR_290119_PNG_scores_as_highly_corrupt_on_2018_CPI.pdf.

⁸⁸ "PNG Scores 'Highly Corrupt' on the 2018 Corruption Perceptions Index," 2019

⁸⁹ Jennifer Hillman and David Sacks, "China's Belt and Road: Implications for the United States," Council on Foreign Relations, March 2021, <https://www.cfr.org/report/chinas-belt-and-road-implications-for-the-united-states/>

⁹⁰ Hillman and Sacks, "China's Belt and Road: Implications for the United States"

⁹¹ Doug Brake, "Submarine Cables: Critical Infrastructure for Global Communications," ITIF, April 2019, <https://www2.itif.org/2019-submarine-cables.pdf>.

⁹² The data center was financed through a USD \$53 million China EXIM loan, which PNG Communications Minister Timothy Masiu argued the country should not have to repay, as the center did not deliver what was promised. Angus Grigg, "Debt-trap Diplomacy: PNG Wants Huawei Loan Cancelled," Australian Financial Review, August 12, 2020, <https://www.afr.com/companies/telecommunications/debt-trap-diplomacy-png-wants-huawei-loan-cancelled-20200810-p55k7w>.

⁹³ Angus Grigg, "Huawei Data Centre Built to Spy on PNG," Australian Financial Review, August 11, 2020, <https://www.afr.com/companies/telecommunications/huawei-data-centre-built-to-spy-on-png-20200810-p55k7w>; Grigg, 2020.

⁹⁴ Leanne Jorari and Ben Butler, "Fears in Papua New Guinea over reports of China Mobile buying major phone carrier Digicel," Guardian, May 31, 2020. <https://www.theguardian.com/world/2020/jun/01/fears-in-papua-new-guinea-over-reports-of-china-mobile-buying-major-phone-carrier-digicel>.

projections” or could be “leveraged for political abuse, undermining cybersecurity, and enabling espionage,” according to Doug Brake, Director of Broadband and Spectrum Policy at the Information Technology and Innovation Foundation.⁹⁵ These concerns are particularly pertinent in PNG’s case, where the country’s core communications network and mechanisms—including the country’s fiber optic infrastructure and 3G/4G towers—have been installed by Huawei.⁹⁶

Cybersecurity concerns associated with Huawei’s role in the PNG telecommunications system have also prompted regional and major powers to provide funding for alternative projects. In November 2018, Australia, Japan, and the United States proposed an alternative to the Huawei-installed KSCN.⁹⁷ While Minister for Public Enterprise and State Investment William Duma rejected the proposal, citing the need for GoPNG to respect pre-existing agreement with Huawei, it is clear that competition for influence in the region has come with additional funding opportunities, including funding from Australia, Japan, the United States, and New Zealand for a power grid upgrade that includes internet infrastructure. While the increased funding availability partly as a result of geopolitical tensions has enabled PNG to upgrade its telecommunications infrastructure,⁹⁸ questions remain regarding debt and financial sustainability for PNG telcos and whether the state will ultimately be responsible for debt undertaken by SOEs, which have historically struggled with commercial sustainability.⁹⁹

PNG Debt Load and Chinese Financing Issues

The China EXIM Bank—like many other EXIM banks—is a state-driven overseas lending institution that prioritizes opportunities for Chinese businesses and, as a key institution delivering BRI, furthers PRC policies.¹⁰⁰ While BRI lending by the China EXIM bank and other Chinese lenders certainly makes financing readily available for priority infrastructure projects in developing and some developed countries, the bank and the initiative have been accused of not subjecting loans and prospective contractors or recipient companies to rigorous accountability and transparency requirements, including recipient countries’ capacities to absorb the project or service the ensuring debt.¹⁰¹ It has been widely suggested that this lending may result in excessive debt loads for recipient entities; products that may not meet quality and durability standards; and, in some cases, seizure of critical national assets, such as the Hambantota port in Sri Lanka.¹⁰²

⁹⁵ Brake, “Submarine Cables: Critical Infrastructure for Global Communications.”

⁹⁶ Amanda H.A. Watson and Jeff Wall, “Australia should step up ahead of Pacific telco’s possible sale,” *The Strategist*, January 27, 2021, <https://www.aspistrategist.org.au/australia-should-step-up-ahead-of-pacific-telcos-possible-sale/>.

⁹⁷ Tom Westbrook, “PNG Upholds Deal with Huawei to Lay Internet Cable, Derides Counter-Offer,” *Reuters*, November 26, 2018. <https://www.reuters.com/article/idUSL4N1Y11UN>.

⁹⁸ Tom Westbrook, “PNG Upholds Deal with Huawei to Lay Internet Cable, Derides Counter-Offer”

⁹⁹ Asian Development Bank, “State Owned Enterprise Assessment,” *Country Partnership Strategy: Papua New Guinea, 2016-2020*. <https://www.adb.org/sites/default/files/linked-documents/cps-png-2016-2020-sd-05.pdf>.

Zhengli Huang and Pritish Behuria, “Convergence and Divergence in Emerging Donor Finance: A Comparative Analysis of Chinese and Indian Exim Banks in Ethiopia,” *China-Africa Research Initiative*, June 2021, <https://static1.squarespace.com/static/5652847de4b033f56d2bdc29/t/60cb7926d72405392b9f5224/1623947558706/WP+49+-+Huang+%26+Behuria+-+Comparative+Analysis+Chinese+Indian+Exim+Bank+Finance+Ethiopia.pdf>.

¹⁰⁰ Institute of Developing Economics, Japan External Trade Organization, “II. The Role of China’s Financial Institutions,” *China in Africa*, Accessed July 9, 2021. https://www.ide.go.jp/English/Data/Africa_file/Manualreport/cia_11.html.

¹⁰¹ Dylan Gerstel, “It’s a (Debt) Trap! Managing China-IMF Cooperation across the Belt and Road,” *CSIS*, October 17, 2018, https://csis-website-prod.s3.amazonaws.com/s3fs-public/181017_DebtTrap.pdf?MKq76YIBpiOgyPZ9EyK2VUD7on_2rIV.

¹⁰² Nick Freeman, “Laos’s High-Speed Railway Coming Round the Bend,” *ISEAS-Yusof Ishak Institute: Perspective*, December 5, 2019, https://www.iseas.edu.sg/images/pdf/ISEAS_Perspective_2019_101.pdf

Another project and country often quoted as entailing excessive and unsustainable debt under BRI is Laos, which has struggled to service debt associated with its Chinese-built and financed high-speed rail system.¹⁰³ However, the scenario is less clear-cut: evidence shows in many cases that much of the fault may lie with the borrowing government entity for choosing loan finance in the first place when sovereign or corporate debt is already excessive, or for failing to capitalize on the asset or secure necessary inputs on a timely basis.¹⁰⁴ Timor-Leste, by contrast, provides an example of a small country that negotiated firmly and secured BRI financing for infrastructure finance on the terms it sought, without onerous conditions favoring the lender, Chinese contractors, or the Chinese workforce.¹⁰⁵

The GoPNG reportedly owes the PRC more than USD \$446.2 million (K1.6 billion or A\$621 million) for communication projects alone, most of which have been carried out by Huawei.¹⁰⁶ These projects include the PNG Data Center and Integrated Government Information System, which INA is interested in for further potential case studies. Vital financing and project implementation documents for both of these projects are not easily accessible by the general public. As confirmed in the Treasury's budget documentation and KCH's 2019 Annual Review, KTH continues to struggle financially—notably from inadequate capital—and organizationally.¹⁰⁷ Its wholesale service provider, PNG DataCo Ltd., is running heavy operating losses linked to various projects implemented by Huawei, with debts that are reported to exceed USD \$557.2 million (K2 billion or A\$777 million).¹⁰⁸ While pressured by the ICT Regulator, NICTA, to open up services to ISPs and bring wholesale prices down substantially, as promised by political leadership notably in association with CS2, PNG DataCo Ltd. is grappling with servicing the debts related to the domestic 3G/4G network and the KSCN installed by Huawei. DataCo has reportedly used the Australian grant-financed CS2 to cross-subsidize its debts to EXIM Bank.¹⁰⁹

The GoPNG high-debt load indicates the government has had to delay maintenance and, in some cases, completion of certain projects; some telecommunications infrastructure has remained inoperative as a result. The state has had difficulty in financing national budgets in recent years, with steady budget deficits since 2012 and the accumulation of total debt and debt servicing costs. The situation was significantly worsened by the impact of and response to the Covid-19 pandemic in 2020 and 2021, which created challenges to fully financing the deficit during these two years, as highlighted in the 2020 Supplementary Budget. The debt also means slower progress on policy initiatives. In a weak fiscal position, the state or its entities may be induced to take further loan packages if they are readily accessible or be vulnerable to making concessions in exchange for repayment extensions. These pressures will be particularly prevalent in 2021 and the lead up to the 2022 National Elections.

Recent elections in PNG have entailed an increasingly disruptive process, invariably filled with major public expenditure commitments and entailing burdensome costs for political parties and candidates to be able to secure votes and subsequently consolidate a coalition to form a government. Fundraising and support, particularly from businesses and the international community, is at the core of these disruptions, with many indications that some of this support is tied to special favours and contract kickbacks.

¹⁰³ Nick Freeman, "Laos's High-Speed Railway Coming Round the Bend," *ISEAS-Yusof Ishak Institute: Perspective*, December 5, 2019, https://www.iseas.edu.sg/images/pdf/ISEAS_Perspective_2019_101.pdf

¹⁰⁴ Kearrin Sims, "Laos Set Its Own Debt Trap," *East Asia Forum*, October 31, 2020. <https://www.eastasiaforum.org/2020/10/31/laos-set-its-own-debt-trap/>.

¹⁰⁵ Enrique Martinez Galan, "The Challenges and Opportunities of the Belt and Road Initiative for Participating Countries: The Case of Timor-Leste," *Hong Kong Trade Development Council*, June 10, 2020, <https://research.hktdc.com/en/article/NDQ3NTk2OTI2>

¹⁰⁶ This amount includes K706.2 million for NBN1 and K954.2 million for KSCN.

¹⁰⁷ Kumul Consolidated Holdings, 2019, 21

¹⁰⁸ Wall, "China's 'Debt-Trap Diplomacy' is About to Challenge Papua New Guinea—and Australia"

¹⁰⁹ Potter, "Papua New Guinea and China's Debt Squeeze"

After the 2012 and 2017 Elections, PNG ministers made multiple visits to China, drawing up innumerable MOUs with different Chinese organizations on new institutional and project developments. The initiators for many of these visits were PNG leaders themselves, rather than the Chinese, often based on unrealistic perceptions of readily available financing from China. However, in other cases, the initiative for funding appears to have come from China, or at the very least GoPNG funding overtures received a prompt, favorable response; this seems most common for projects related to ICT, power generation, transport infrastructure, and some related resource-based economic activities.

Financing has typically come through the China EXIM bank but sometimes through international mechanisms, including the Asia Development Bank (ADB). Chinese SOEs, which have become some of the most price-competitive construction contractors globally, hold the contracts for more than 80 percent of ADB-financed projects in PNG. According to researcher Peter Connelly, the Chinese government views these ADB-financed projects as falling under the BRI.¹¹⁰ During subsequent years, former Deputy Prime Minister and Treasurer Charles Abel had to remain constantly ready to review and set aside, where appropriate, new financing commitments instigated during visits by the prime minister and ministers, which fell outside the government's approved debt strategy and ceiling.¹¹¹ Unlike Australia, whose support has largely come in the form of grant aid, China's has largely come as concessional loans with financial conditions attached. Like other development partners, China has a history of using economic leverage to extract political support. The 2016 joint PRC–PNG press release that accompanied former Prime Minister O'Neill's China visit and the signing of the KSCN loan agreement included key Chinese policy points like voicing PNG's support for the "One China" policy and respect for China's position on the South China Sea.¹¹² Chinese state-owned media outlet CGTN's coverage of the PNG delegation's June 2021 visit to China led by the PNG Foreign Minister Soroi Eoe stresses deepening Belt and Road cooperation and also notes China's appreciation for "PNG's firm adherence to the one-China principle and its impartial position of non-interference in China's internal affairs over issues related to Taiwan, Xinjiang and Hong Kong."¹¹³

While the BRI can provide valuable infrastructure financing, it also comes with major associated risks for the recipient state and SOEs if undertaken outside investment priorities, prudent fiscal and debt parameters, open and competitive procurement processes, and in an environment characterized by weak local implementation, oversight, and accountability capacity.¹¹⁴

Poor Project Design

The KSCN may be unlikely to meet its objectives in lowering consumer costs, particularly in the face of the debt servicing costs currently borne by DataCo/KTH from a succession of recent telecommunications infrastructure projects, with some functioning well below expectations as confirmed by KTH in its 2018

¹¹⁰ Connolly, "The Belt and Road comes to Papua New Guinea: Chinese geoeconomics with Melanesian characteristics?," 55-56; Jevans Nyabiage, "Why Chinese Construction Firms Will Remain the Big Builders in Africa," *South China Morning Post*, April 26, 2021. <https://www.scmp.com/news/china/diplomacy/article/3130988/why-chinese-construction-firms-will-remain-big-builders-africa>.

¹¹¹ Personal correspondence

¹¹² Hillman and Sacks, "China's Belt and Road: Implications for the United States"; Xinhua, "Joint Press Release Between the People's Republic of China and The Independent State of Papua New Guinea," *China.org.cn*, July 8, 2016, http://www.china.org.cn/china/Off_the_Wire/2016-07/08/content_38842349.htm.

¹¹³ China Global Television Network, "China, Papua New Guinea to deepen Belt and Road cooperation," CGTN, June 3, 2021, <https://news.cgtn.com/news/2021-06-03/Chinese-FM-meets-PNG-foreign-minister-10NahnXwunC/index.html>.

¹¹⁴ Potter, "Papua New Guinea and China's Debt Squeeze"

¹¹⁵ "A Year in Review: 2018," *Kumul Consolidated Holdings, 2018*, <https://www.kch.com.pg/wp-content/uploads/2020/06/KCH-Annual-Review-2018.pdf>.

Annual Review.¹¹⁵ As one independent researcher argued, “the asserted claims concerning affordable broadband prices emanating from the KSCN are not supported by credible evidence.”¹¹⁶ While PNG DataCo Ltd. has claimed that it is providing lower costs, its prices must reflect the costs of the project, including the loan.¹¹⁷ However, reports by ISPs do not reflect a substantial drop in wholesale prices—with some suggesting no drop in prices—and suggest that the network is not yet competitive with satellite network providers.¹¹⁸ One second-tier provider complained that PNG DataCo Ltd. had not released the details justifying its pricing.¹¹⁹ However, it is possible that price benefits from the cable have yet to be fully realized: Amanda Watson et al. state “wholesale prices have now been set by the regulator for access to internet cables, with expected decreases on 1 April 2021 and at the start of each of the next two years.”¹²⁰ The CEO of KTH claims “that the price of wholesale data has come down by 80 per cent already and there is scope for lower prices still.”¹²¹ He also claimed substantial uptake of the domestic network; for example, the Madang-Guam cable (PPC-1) increased usage from 3.5 GB/s in 2018 to its full capacity of 10 GB/s by May 2021.¹²² In February 2021, DataCo’s Engineering General Manager Tony Morisause claimed that “excessively high” demand for cable bandwidth had surpassed the bandwidth provisioned by electronics, requiring an upgrade of the associated data center to increase carriage capacity.¹²³ In addition, it appears that despite the reported traffic increase on some components, the project is not being used to capacity, with 80 percent availability in the cable as of February 2021.^{124, 125}

One independent survey of the KSCN illuminated some of the issues preventing the project from achieving its promised goals. One issue is that the cable landing stations are located far away from major second-tier telecommunications providers’ switching centers. Any organization wishing to access the network has to build its own optical fiber for interconnection, which may require prohibitively high capital expenditures and prevent potential customers from enjoying the benefits of the new network. Secondly, several provinces along the KSCN have minimal competition within the second-tier landscape, which may undermine passing on lower wholesale prices for access to high-speed internet.¹²⁶

The independent survey suggests that NICTA, PNG DataCo Ltd. and the service provider; and second- and third-tier wholesalers will need to coordinate to ensure a competitive market.¹²⁷ The GoPNG currently sets the wholesale internet price through NICTA in communication with DataCo, which has been a cause for delays. Dialogue between NICTA and DataCo on access to KSCN and pricing was drawn out throughout 2020, with NICTA claiming at a Consultative Implementation and Monitoring Council (CIMC)

¹¹⁶ Suwamaru, “Beneath the veil of the Kumul Submarine Cable Network”

¹¹⁷ “Internet Still ‘Very Expensive’ after Australia Builds Underwater Fibre Optic Cable,” *Pacific Beat*, January 25, 2021, <https://www.abc.net.au/radio-australia/programs/pacificbeat/png-internet-prices-high-after-australia-builds-submarine-cable/13091822>.

¹¹⁸ “Internet Still ‘Very Expensive’ after Australia Builds Underwater Fibre Optic Cable,” 2021

¹¹⁹ “Internet Still ‘Very Expensive’ after Australia Builds Underwater Fibre Optic Cable,” 2021

¹²⁰ Watson et al., “Mobile Internet Prices in Papua New Guinea: Still No Downward Movement”

¹²¹ “Five things we learned from our Papua New Guinea Telecommunications Update,” 2021

¹²² “Five things we learned from our Papua New Guinea Telecommunications Update,” 2021

¹²³ Maxine Kamus, “DataCo Plans to Increase Bandwidth,” *Papua New Guinea Post-Courier*, February 5, 2021. <https://postcourier.com.pg/dataco-plans-to-increase-bandwidth/>

¹²⁴ Typically, 60 to 85 percent of submarine cable capacity is unlit (not in active use) in order to allow the cables to handle large spikes in demand. Brake, “Submarine Cables: Critical Infrastructure for Global Communications”

¹²⁵ Potter, “Papua New Guinea and China’s Debt Squeeze”

¹²⁶ Suwamaru, “Beneath the veil of the Kumul Submarine Cable Network”

¹²⁷ Suwamaru, “Beneath the veil of the Kumul Submarine Cable Network”

Public Utilities Committee meeting on June 19, 2020, that DataCo was not fully cooperating because it failed to share details of the KSCN financing arrangements as required.¹²⁸ The survey author suggested that the national regulator explore licensing additional mobile network operator(s) to increase second-tier competition and reduce prices. In addition, the regulator, PNG DataCo Ltd., and the Department of Information Communications Technology will need to cooperate openly with independent ISPs, mobile phone service providers, and other government and private sector users—including education authorities—to ensure that e-government, e-health, e-education, and e-commerce objectives and opportunities are achieved.¹²⁹ The Department has been responsible for the development of e-commerce legislation to take advantage of the new CS2 and Covid-associated increase in e-commerce.¹³⁰

The project also reportedly incurred hefty cost overruns partly due to disruptions and damages from an earthquake that struck Morobe Province in 2019.¹³¹ The GoPNG is waiting on the overall costs of the KSCN project after an assessment by the Australian government, as such natural disasters may have contributed to changes in total project costs.¹³² DataCo reports that restoration may not be completed until 2022, with the city of Lae dependent upon redundancy arrangements provided by satellites and the overland cable network in the meantime. The project design has been criticized for allegedly neglecting to account adequately for the impact of earthquakes in a country sitting on the convergence of two major plates.¹³³ DataCo Managing Director Paul Komboi stated that insurance is usually unavailable for natural disasters, including earthquakes. He further noted that although PNG is a member of the South Pacific Marine Maintenance Agreement (SPMMA), the KSCN is not yet covered by the Agreement because it is still in the delivery stage.¹³⁴

Other reports on Chinese-built infrastructure in PNG suggest that the quality is variable. Some reports have alleged that all of Huawei's major projects in PNG have been "spectacular failures," citing the largely inoperable PNG National Data Center and widespread breakage of Huawei-installed 3G/4G towers.¹³⁵ Other reports state that the country may need a full rebuild of much of its telecommunications infrastructure, but given KTH's financial constraints, its capacity for further major expenditures is currently heavily restrained.¹³⁶

¹²⁸ Melisha Yafoi, "NICTA Says Internet Pricing Reduction is Expected," *Papua New Guinea Post-Courier*, June 10, 2020, <https://postcourier.com.pg/nicta-says-internet-pricing-reduction-is-expected/?fbclid=IwAR0vdfEa3-ZctDq66BEff9kjxbf3XKVXgTc82eWtZoaigyL2gGjXUtVtgOE;Watson,Airi,andSakai,> "Mobile internet prices in Papua New Guinea: still no downward movement"

¹²⁹ Suwamaru, "Beneath the veil of the Kumul Submarine Cable Network"

¹³⁰ Paul Chai, "Setting the standard: Papua New Guinea's new 'ecommerce bill' heading to Parliament," *Business Advantage PNG*, June 24, 2020, <https://www.businessadvantagepng.com/setting-the-standard-papua-new-guineas-new-ecommerce-bill-heading-to-parliament/>

¹³¹ Dateline Pacific, "Viability of PNG Cable Project Uncertain," *RNZ*, May 28, 2020, <https://www.rnz.co.nz/international/programmes/datelinepacific/audio/2018748241/viability-of-png-cable-project-uncertain>

¹³² Dateline Pacific, "Viability of PNG Cable Project Uncertain"

¹³³ Wall, "China's 'Debt-Trap Diplomacy' is About to Challenge Papua New Guinea—and Australia"

¹³⁴ "DataCo Working on Cable Outage, Says Komboi,"

¹³⁵ Potter, "Papua New Guinea and China's Debt Squeeze"

¹³⁶ Robert Potter and John Young, "Should Australia Buy Papua New Guinea's Largest Telecom Firm?" *Diplomat*, January 12, 2021, <https://thediplomat.com/2021/01/should-australia-buy-papua-new-guineas-largest-telecom-firm/>

Conclusion and Recommendations

Conclusion

The KSCN is implemented by PNG DataCo Ltd., an SOE with loan financing by the PRC through the EXIM Bank. If debt is absorbed or shared by the state rather than being borne entirely by the company, PNG DataCo Ltd. would stand to benefit from this loan financing and investment if the standard of the new infrastructure is sound and would not incur undue maintenance and repair costs. 5,457 km of undersea cable, apart from the land cable network, is a considerable infrastructure to lay and maintain in a relatively large country, with a relatively small population, and with a low per capita income to spend on internet usage, especially in the remote island and coastal communities. It could be deemed national infrastructure useable by all—including all competing service providers and ultimately consumers—in the same way as roads, port, and airstrips which are built largely at the state's expense, even with cost recovery mechanisms in place for some of them.

On the other hand, it is a service which is largely used by only 12 percent of the population, so it can be viewed as unreasonable for the entire population to subsidize infrastructure that only benefits a typically higher-income minority, unlike roads which are used directly or indirectly by everyone. Subsidizing KCH/DataCo for its infrastructure when other competing service providers have obtained commercial loans to install their infrastructure and remain viable through cost recovery from their clients/service users could raise accusations of an unfair playing field.

Whether KTH could conceivably service and repay the debt and ongoing costs related to the KSCN, on top of debts incurred for the rest of the 7,500 km NTN, is a matter for conjecture. Determining KTH's viability and the associated implications, management, and options for servicing this debt depends substantially on what the actual costs of the NTN are. This in turn requires full public disclosure of borrowings, contract details, level of exposure, and debt service costs faced by KTH and the state, including maintenance costs and additional costs and responsibilities notably associated with earthquake repairs.

As with the first case study, the PMIZ, there is also a lack of transparency and accountability in the management, reporting and use of up to KI billion in loans for the KSCN.¹³⁷ Despite considerable effort on our part, the senior officers of key government agencies directly responsible for planning, supervising and managing the project—especially the Departments of Treasury and National Planning and Implementation and PNG DataCo Ltd.—have failed to meet with or provide the researchers with vital information on the project, making it difficult to obtain details of public or SOE borrowing beyond the estimates provided in the annual budget volumes.

The procurement of goods and services for the KSCN may have been done in compliance with provisions of Section 7 (4) of the 2018 National Procurement Act, relating to the Application to International Agreements on loans where procurement must be done in compliance with the financiers' procurement policies and guidelines—in this case, the PRC—resulting in the use of Chinese companies as the main project contractors and sub-contractors. However, without access to the details of such procurement, it is difficult to say whether Chinese, let alone PNG, procurement requirements have been followed and what negotiations were undertaken with the EXIM bank to determine PNG content in the procurement, insurance and quality/standards requirements, oversight, and maintenance costs and responsibility.

¹¹⁶ Wall, "China's 'Debt-Trap Diplomacy' is About to Challenge Papua New Guinea—and Australia"

The successful completion of NTN will enable broadband connectivity to the global internet to be delivered across the country via domestic and international submarine and land-based cables through Sydney, Australia, and Jayapura, Indonesia, delivering a minimum twenty terabytes of data per second. But delivering fast and dependable internet to provincial hubs does not guarantee accessibility or affordability and, therefore, uptake of the service, which depends upon the capacity and engagement by the country's second- and third-tier service providers that reach the final users, and whether the wholesale price is competitive with other internet access options via other services (satellite, low orbital satellites, etc.)

Price is critical in a country where both public sector service users, such as the Education and Health Departments, operate on very tight and deficient budgets, and where most current and prospective private internet users, both in businesses and households, have low incomes and capacities to spend. Wide adoption of digital technologies and improved services will depend on price and affordability, the existence of the telecommunications infrastructure, and wider economic and social factors, such as education, literacy, numeracy, etc. Ensuring affordable access will depend upon KTH's financial and operational capacity, including level of debt and turnover, as well as KTH's responsibility for the accumulated debt from a succession of contracts with Huawei as opposed to other commitments by the state. As the landing stations are located away from the switching centers and the vast majority of the rural population, extensive regulatory engagement and reform is necessary to improve connectivity, increase competition, and reduce prices for the benefit of the whole economy.

Recommendations

- i) The full details of the Kumul Submarine Cable Network project loan from China EXIM bank and all associated loans for NTN and other ICT facilities, which may have been assumed by DataCo, and the accumulated debt and debt service costs facing DataCo (and its parent companies), together with the details of the procurement process, should be made accessible to the public, including to respective authorities.
- ii) The GoPNG should prioritize the finalization and approval of the Public's Right to Information Bill to introduce or reinforce the requirement for transparency and public accountability in government agencies and companies, including in the public procurement and budget oversight process.
- iii) The public and respective authorities should be made fully conversant of the complete financial status of KTH/DataCo and their capacity to service the debt and ongoing repair and maintenance costs of the 7,500 km cable network, including the 5,457 km KSCN on the basis of forecast demand and planned or envisaged usage charges and details of currently reported cross-subsidization arrangements between the CS2 and KSCN. This full disclosure will be particularly necessary if the short-term and long-term viability of DataCo is in jeopardy without prohibitively high data usage charges, which would in turn severely undermine the development of e-commerce, e-education, and e-government. These details will also be important when considering whether the GoPNG will assume responsibility for part or all of the debt associated with the KSCN, or for rural access or education subsidy.
- iv) If GoPNG decides to privatize DataCo or the KSCN, due to its inability to service associated debt, this could result in the consolidation of control over internet services. Given the dominant role played by Chinese actors in the construction of the KSCN and in PNG's telecommunications industry more broadly, privatization would also carry the risk of internet

services becoming vested with enterprises under undue foreign state control which may not be in PNG's best security or economic interests. This should be monitored carefully and efforts should be made to ensure diversified and price-effective service provisions, even by determining that KSCN constitutes national cable infrastructure.

- v) ICT is critical for PNG's future economic and social development. In order to take full advantage of ICT infrastructure, PNG must have a strong and talented workforce fully versed in the technology and its application into the future. Investment in PNG's human capital through the education system is also needed, as envisaged under the government's new STEM policy.
- vi) Other lessons include the need to rigorously assess the ramifications on the recipient SOE and country prior to major SOE or public/commercial borrowing, including from China or other EXIM banks. In the future, funds may be more readily available both through BRI and other international financing platforms, such as the G7's Build Back Better World. The increase in funding availability due to geopolitical competition provides opportunities for developing countries such as PNG, which are severely deficient in their current basic infrastructure. However, this increase in available funding also poses risks if borrowing reaches unsustainable levels, project negotiations and agreements are deficient or inadequately understood, procurement processes are not transparent or competitive, or a string of contracts go to one or a small network of overseas companies. As the implications of poor choices or deficient processes go well beyond the respective SOE or government department, it is critical there is an open process that not only allows awareness and feedback by all relevant government entities, but also wider stakeholders in the general public and the private sector. Their input and suggestions should be taken into consideration for better planning and design for future infrastructure projects. Furthermore, different financing, implementation options and deliberation processes must be thoroughly explored and considered.

BRI MONITOR