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REG: Improving Internet Connectivity for Micronesia

Initial Environmental Examination

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ABBREVIATIONS

ADB	Asian Development Bank
AGO	Attorney General's Office
BU	Branching Unit
BNL	BwebwerikiNet Limited
CCK	Communication Commission of Kiribati
CSO	Civil Society Organizations
EA	Executing Agency
EAA	Environment (Amendment) Act 2007
ECD	Environment and Conservation Division (within MELAD)
ECOP	Environmental Code of Practice, for Planning and Construction of Submarine Fibre Optic Cable Projects in the Small Tropical Islands of Melanesia, Micronesia and Polynesia (ADB, 2014)
ESMP	Environmental and Social Management Plan
FAD	fish attracting device
FSM	Federated States of Micronesia
GoK	Government of Kiribati
GRM	Grievance Redress Mechanism
IA	Implementing Agency
ICT	Information and Communications Technology
IEE	Initial Environmental Examination
IFC EHS	International Finance Corporation / World Bank Group Environmental Health and Safety Guidelines
ISP	Internet Service Provider
IPSA	Initial Poverty and Social Assessment
IUCN	International Union for Conservation of Nature
km	kilometre
KUC	Kiritimati Uniting Church
KUC	Kiritimati Urban Council
LDS	Church of Jesus Christ of Latter Day Saints
MELAD	Ministry of Environment, Lands and Agriculture Development
MFED	Ministry of Finance and Economic Development
MICTTD	Ministry of Information, Communication, Transport and Tourism Development
MLPID	Ministry of Line and Phoenix Island Development
NGO	Non-Government Organisation
ODF	optical distribution frame
SDA	Seventh Day Adventist
SPRSS	Summary Poverty Reduction and Social Strategy
SPS	Safeguard Policy Statement 2009 (of ADB)
USA	United States of America

EXECUTIVE SUMMARY

The Government of Kiribati (GOK) has requested the Asian Development Bank (ADB) to support a project to improve the internet connectivity for Kiritimati Island in the Republic of Kiribati. It is aligned with government's development strategy for the Line and Phoenix group of Islands. To date the internet connectivity there completely depends on satellite service. Given the limited bandwidth demand in Kiritimati Island, no independent internet submarine cable solution is financially or economically viable. A connection to a passing by cable may provide a sustainable opportunity for Kiritimati.

A new submarine cable, Southern Cross NEXT, between Australia and USA is proposed by Southern Cross Cables Limited which would pass within 400 km of Kiritimati. The proposed project is a submarine cable spur and Branching Unit (BU) from the Southern Cross NEXT cable to Kiritimati Island of Kiribati, together with associated infrastructure.

Based on the preliminary screening, the Project has been classified by ADB as category B for environment, thus requiring an initial environmental examination (IEE). The IEE has been prepared in accordance with ADB Safeguard Policy Statement 2009 (SPS) and meets government requirements as set out under the Environment Act (as amended) 2007. The IEE includes an environmental management plan (EMP) which specifies the mitigation measures required during pre-construction, construction and operation stages and allocates responsibility for their implementation. The IEE has found that with the mitigation measures proposed the identified impacts will be able to be adequately mitigated and/or managed and that there are no significant issues which would prevent the project proceeding.

There is no critical habitat affected by the project. A specialist field assessment has been carried out by a marine ecologist which found that there is very little live coral at the landing site and the cable can be placed without significant impact.

The project has been classified as Category C for Involuntary Resettlement so no Resettlement Plan or Resettlement Framework is required. The project has been classified as Category C for Indigenous Peoples so no Indigenous Peoples Plan or Indigenous Peoples Framework is required. The land is owned by GoK, which has provided letters of support committing to providing the required land for the project. Land Due Diligence and SPRSS reports have been prepared. As the adjacent land is planned to be subdivided, GoK has committed to setting aside the land required for the project.

The project will have a positive social and economic benefit by greatly improving the communications infrastructure provides a range of opportunities for social and economic development and poverty reduction.

The project will have no significant impact on the marine environment and good practice mitigation measures will be applied. The land based works present risks for which standard good practice mitigation measures are to be applied. These include risk of pollution to the freshwater lens, erosion of the coastal dune, and short-term noise, dust, waste, traffic and safety issues. During operation there are ongoing risks of fuel spills, noise and air emissions form the back-up generators. There will be a permanent exclusion zone of nominally 100 m each side of the cable in the near-shore marine area for activities that could damage the cable; community consultation with residents and fishers at the cable site indicated support for this.

The Executing Agency for the project will be Ministry of Finance and Economic Development (MFED). The Implementing Agency for the project will be BwebwerikiNet Limited (BNL). BNL is the state-owned cable operating entity in the process of being establishing by GoK. A Project Management Unit will be established in the implementing agency. BNL will sign a project agreement with ADB; will directly contract Southern Cross Cables Limited for the internet

service in Kiritimati; will be the wholesale provider of the submarine internet bandwidth in Kiritimati; and will be responsible for procurement and financial management activities.

Consultations have been carried out in Kiritimati, including affected people at the cable site including fishers, two separate meetings with women residents at the cable site and with a women's association for the broader community, community leaders, government agencies, business and civil society.

The project was found to have broad community support, as no objections were received from the consultations. Concerns were raised about the cost and quality of internet service, inappropriate use of internet, and the need to be prepared for achieving the benefits of the faster internet including needing access to computers. As there is only one Internet Service Provider (ISP) at present and this is the main direct beneficiary of the project, GoK through the telecommunications regulator Communication Commission of Kiribati (CCK) will implement regulation to ensure the benefits are passed on to the users including cheaper prices. GoK is also implementing an awareness campaign about managing their internet and phone costs, and appropriate use of the internet including the use of filters for inappropriate content. GoK has established an ICT taskforce for all government stakeholders and it has been recommended that this be extended to public consultation.

A consultation and communications plan has been prepared for the project. The plan will be elaborated and updated during project implementation.

A grievance redress mechanism (GRM) is to be established for the project. An outline GRM, based on traditional approaches to conflict resolution and addressing issues as established and successfully implemented on other projects, is included in this report.

I. INTRODUCTION

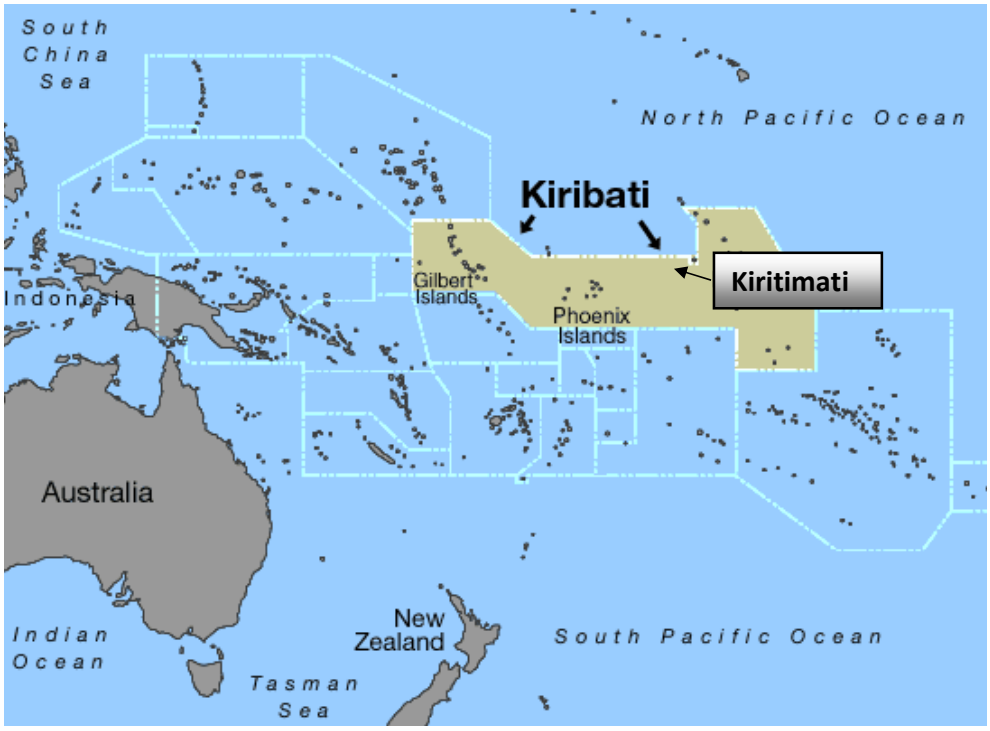
1. This document is an environmental and social impact assessment in the form of an initial environmental examination (IEE) for the Kiritimati ICT Cable Project under the Pacific Information and Communication Technology Investment Planning and Capacity Development Facility prepared in accordance with Asian Development Bank (ADB) Safeguard Policy Statement (SPS) 2009 and the environmental assessment requirements of the Government of Kiribati (GoK).

A. The Proposed Project

2. A new submarine cable, Southern Cross NEXT, between Australia and USA is proposed by Southern Cross Cables Limited which would pass within 400 km of Kiritimati. The proposed project is a submarine cable spur and Branching Unit (BU) from the proposed Southern Cross NEXT cable to Kiritimati Island of Kiribati, together with associated infrastructure.

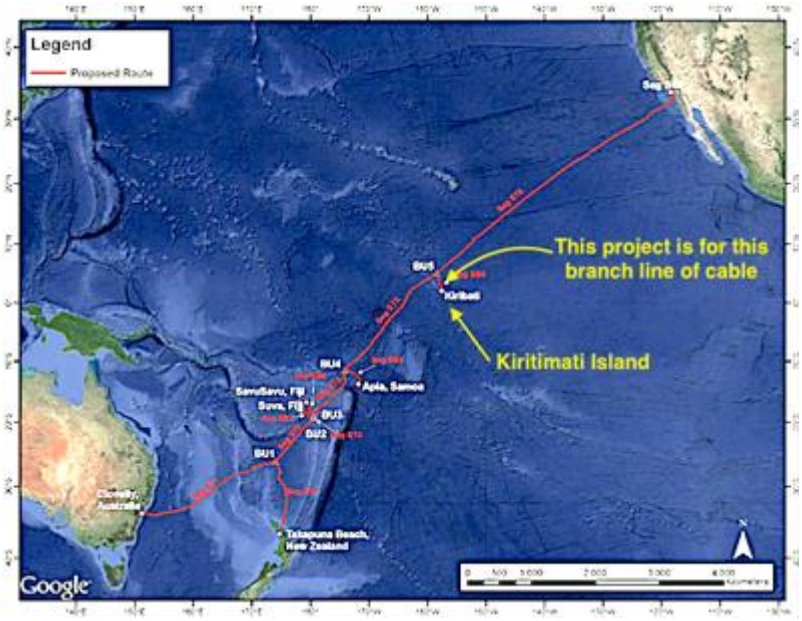
3. The project site is on Kiritimati Island in the central Pacific island nation of Kiribati, shown in the figure below. Kiritimati is an atoll with a population of 6,456 (2015 Census). It is approximately 3,000 km east of the national capital of Tarawa and 2,000 km south of Hawaii. It is remote with poor transport and communication links including a weak satellite-based internet service.

Figure I.1 - Location of Kiribati and Kiritimati



4. The GoK has requested the ADB to support a project to improve the internet connectivity for Kiritimati. It is aligned with government's development strategy for the Line and Phoenix group of Islands. To date the internet connectivity there depends on satellite service. Given the limited bandwidth demand in Kiritimati, no independent internet submarine cable solution is financially or economically viable. A connection to a passing cable may provide a sustainable opportunity for Kiritimati.

Figure I.2 - Map showing Cross-Pacific Cable with Kiritimati Branch[1]



5. The Project has been classified by ADB as Environmental Category B, thus requiring an IEE. The IEE has been prepared in accordance with ADB Safeguard Policy Statement (SPS, 2009).

6. The project has been classified as Category C for Involuntary Resettlement so no Resettlement Plan or Resettlement Framework is required. The project has been classified as Category C for Indigenous Peoples so no Indigenous Peoples Plan or Indigenous Peoples Framework is required.

7. The Executing Agency for the project will be Ministry of Finance and Economic Development (MFED). The Implementing Agency for the project will be BwebwerikiNet Limited (BNL). BNL is the state-owned cable operating entity in the process of being establishing by GoK.

II. POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK

8. The project will be subject to the ADB Safeguard Policies and the policies, laws and regulations of Republic of Kiribati.

A. Legal Framework

9. Legal and policy instruments in Kiribati include the Constitution, Acts of the National Parliament and Ordinances made by local government.

10. The main laws relating to environmental management are the Environment (Amendment) Act 2007, Environment Act 1999, and the Environment Regulations 2001. Environment (Amendment) Act 2007 (EAA 2007), is read concurrently with the Environment Act 1999 (EA 1999). These acts are administered by the Environment and Conservation Division (ECD) within the Ministry of Environment, Land and Agriculture Development (MELAD), including issuing environmental permits.

11. Land administration including issuing leases and development permits is administered by the Lands Division of MELAD.

[1] Source: SouthernX

12. The following Kiribati laws relate to the project environmental management.

Table 1.II.1 – Environmental and Land Legislation[2]

Act/ Regulation	Importance/Issues
Environment (Amendment) Act 2007	This Act together with the Environment Act 1999 and the Environment Regulations 2001 are Kiribati's main guiding legal instruments for the protection of the environment and natural resources general.
Environment Act 1999	This is Kiribati's only guiding legal instrument for the protection of the environment and natural resources general.
Environment Regulations 2001	These regulations are outdated and inconsistent with the EAA 2007. The intention at the time was to have the Regulations amended shortly after the adoption of the EAA 2007, however for many reasons this did not happen.
Draft General (Environment) Regulations, 2011	The Application of Environment Licence fees are not clearly defined in the Act, but required in the Regulation. There are contentious issues which the AGO has tabled and which have not been resolved. These are: a. The EAA 2007 is inconsistent with the Draft Regulations, e.g. the EAA 2007 refers to only one form of environmental assessment and mentions IEE, whereas the draft regulation defines the basic (BEIA) and comprehensive (CEIA) environmental assessment. b. The Regulation now includes Environmental Science Research Projects as an activity subject to the Act and with fees to be charged. The Act does not reflect this requirement. c. Engagement between the AGO and ECD-MELAD needs to be improved for moving forward with amending the Environment Regulations (and the Environment Act).
Schedule of Environmentally Significant Activities	This Schedule lists the activities that require an Environment Licence under the Act. There is an existing list from (Schedule 14 of the Principal Environment Act 1999) but there are questions over whether it is valid. The 2013 update of the list is now complete but has not been endorsed. Further to the above comment, the letter written by the former Solicitor General allowed for the adoption of the Schedule 14 list of prescribed activities according to the AGO, however a copy of this letter was not available for review.
Wildlife Conservation Ordinance	This ordinance is used by the Wildlife Conservation Unit of ECD, located on Kiritimati Island and ECD is moving ahead with two regulations to broadening the application of the ordinance to the entire country and to all wildlife species.
Protected Areas Regulation Protected Species Regulation	These Regulations are important for the protection of the wildlife areas of Kiritimati Island and other Line islands, and the wildlife of Kiribati. They will strengthen the Wildlife Conservation Ordinance (from 1977), and its fit with the Kiribati Development Plan.
Recreational Reserve Act 1996	No recreational reserve or park has ever been declared under the act and as such ECD is in the process to prepared two additional documents as defined in 7.1 and 7.2 below.
Recreational Reserve Declaration	Without the declaration, the areas could be developed as they are not officially declared and this not protected. It is also not possible to manage these areas.
Recreational Reserve Regulation 2014	This regulation provides the legal basis for establishing any protected areas and setting out operating procedures, management, user fees, etc.
Bio-safety Regulation	Controls use application and storage of pesticides and other toxic substances

[2] ADB 2014. *Strengthening Safeguards Capacity in the Urban Sector in Kiribati. Final Report 1: Environmental Safeguards Legal Analysis Report*. Manila

Land Related Legislation[3]	
The Republic of Kiribati Constitution	All natural resources of Kiribati vests in the people and Government of Kiribati. In implementing the Constitution, the customs and traditions will be upheld.
Native Land Ordinance 1956	Native lands cannot be alienated to non-native person. Title to native land registered by the Native Lands Commission.
Neglected Land Ordinance 1959	Provides for the purchase of lands that, in the opinion of the Minister responsible, are neglected.
Land Planning Ordinance 1973	Provides for control of land use and development only in areas designated under the Ordinance.
Environment Act 1999 Environment Amendment Act 2007	Provides for integrated systems for development control, environmental impact assessment and pollution control. Reduce risks to human health and prevent the degradation of the environment. Protect and conserve natural resources.
Local Government Act 1984	Provides for building control and town and village planning is the function of Local Council.
Plants Ordinance 1976	Provides for the protection of plants in Kiribati and for control of plant importation.
Maritime Zones (Demarcation) Act 1983	Establishes Kiribati jurisdiction over an exclusive economic zone. Also, defines international and archipelagic waters and territorial sea.
Foreshore and Land Reclamation Ordinance 1969	Proclaims State ownership over the foreshore and seabed, subject to public rights and navigation.
Laws of Kiribati 1989	Acknowledges customary law that it may be applied to ownership in, over, or in connection with any sea or lagoon area, inland waters or foreshore or reef, or in or on the seabed, including rights of navigation and fishing.
Fisheries Ordinance 1977	Provides for Minister's role in developing the fisheries resources for the full benefit of Kiribati.
Public Utilities Ordinance 1977	Grants exclusive rights over the provision of water in any declared water supply area.
Wildlife Ordinance 1975	This provides for the establishment of wildlife sanctuaries in Kiribati.
Protected Area Ordinance 1957	Provides for the Minister responsible, on the advice of Cabinet, to declare all of any island a prohibited area wherein entry is forbidden without permission.
Closed District Act 1990	Provides for the President, acting on Cabinet advice, to declare closed districts over parts of islands.
Mineral Development Licensing Ordinance 1978	Provides for reporting by prospectors. There is no current legislation to protect national heritage.

B. International Conventions

13. Kiribati is party to the following international conventions in relation to environment:
    - Convention for the Protection of the Ozone Layer (1985)
    - Convention on Climate Change (1992)
    - Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) [London Dumping Convention]
    - Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific (1989)

[3] ADB 2017. *Initial Environmental Examination. REG: Improving Internet Connectivity for Micronesia (East Micronesia Cable (EMC) Cable Project).* Manila

- South Pacific Forum Fisheries Agency Convention (1979)
- International Convention for the Prevention of Pollution from Ships (1973) and its 1978 Protocol
- United Nations Convention on the Law of the Sea (1982) (signed? ratified?)
- South Pacific Nuclear Free Zone Treaty (1985)
- Convention on Biological Diversity
- Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (1986) and related Protocols [SPREP Convention].

C. ADB Policy Requirements

1. ADB Safeguard Policy

14. The ADB Safeguards Policy Statement (SPS) 2009 sets out policy principles and outlines the delivery process for ADBs safeguard requirements in relation to environmental and social safeguards. The ADB has adopted a set of specific safeguard requirements that borrowers/clients are required to follow in addressing environmental and social impacts and risks. ADB ensures that borrowers/clients comply with these requirements during project preparation and implementation.

15. All projects funded by ADB must comply with SPS to ensure that projects undertaken as part of programs funded under ADB loans are environmentally sound, are designed to operate in compliance with applicable regulatory requirements, and are not likely to cause significant environmental, health, safety hazards. The policy promotes international good practice and requires compliance with World Bank's Environmental Health and Safety Guidelines (EHSG).

2. ADB Safeguards Categories

16. ADB Safeguards Categorisation is summarised below.

Table II.2 - ADB Safeguard Categories Summary

Safeguard	Impact Screening	Category	ADB SPS Requirement
Environment	Overall low impact risk. Potential risk of impact on coral reef assessed by specialist Marine Biologist field survey.	B	IEE
Involuntary Resettlement	No physical or economic displacement. All land owned by government. Land will be acquired for the Cable Landing Station. Relevant land and sea access will be required.	C	No Resettlement Plan or Resettlement Framework required. A Land Due Diligence Report prepared in relation to land acquisition.
Indigenous Peoples	No vulnerable ethnic or cultural minority groups.	C	No Indigenous Peoples Plan or Indigenous Peoples Framework required

a. ADB Environment Category

17. The project is categorised as ADB Environment Category B.[4] This means that potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination (IEE) or equivalent is required for Category B projects.[5]

[4] *Concept Paper, Proposed Grant REG: Improving Internet Connectivity for Micronesia, Project Number: 50348-001 January 2017*

[5] ADB Safeguard Policy Statement 2009

18. The project has an overall low impact risk. There was considered to be a potential risk of impact on coral reef. This was assessed by a specialist Marine Biologist including field survey.

19. A category A project is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. This would require a more detailed Environmental Impact Assessment. A category C project is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications would be reviewed, and possibly a simple Environmental and Social Management Plan to accompany bid documents.

b. ADB Involuntary Resettlement Category

20. The project is categorised as ADB category C for Involuntary Resettlement. That is there is expected to be no physical or economic displacement caused by the project. Therefore, no Resettlement Plan or Resettlement Framework is required for the project.
21. All land is owned by government. Land will be acquired for the cable land works. Relevant land and sea access will be required.
22. A category A project is likely to have significant involuntary resettlement impacts and requires a resettlement plan with assessment of social impacts. A category B project includes involuntary resettlement impacts that are not deemed significant.

c. ADB Indigenous Peoples Category

23. The project is categorised as ADB Category C for Indigenous Peoples. There are no vulnerable ethnic or cultural minority groups. Therefore, there will be no Indigenous Peoples Plan or Indigenous Peoples Framework required for the project.
24. A category A project is likely to have significant impacts on indigenous peoples, and requires an indigenous peoples plan (IPP), including assessment of social impacts. A category B project is likely to have limited impacts on indigenous peoples.

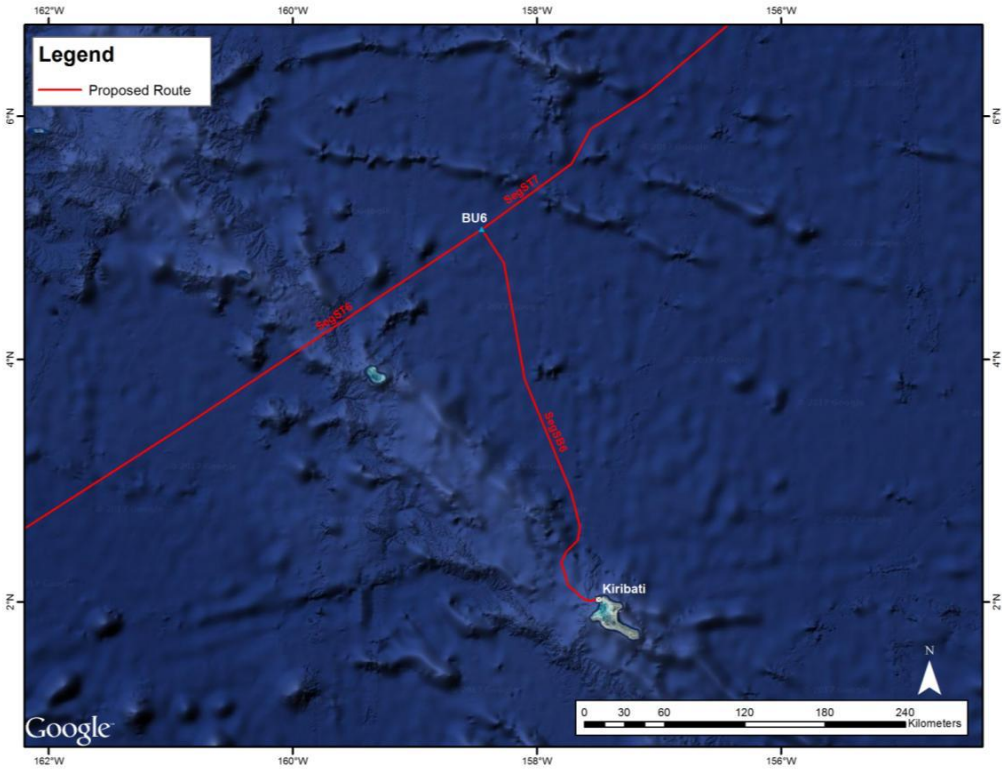
III. PROJECT DESCRIPTION

25. A new submarine cable between Australia and USA is proposed by Southern Cross NEXT which would pass within 400 km of Kiritimati. The proposed project is a submarine cable spur and Branching Unit (BU) from the Southern Cross NEXT cable to Kiritimati Island of Kiribati, together with associated infrastructure.

26. The cable will be laid directly on the sea bed, following a route established by the oceanographic survey carried out for the project.[6] In the open sea the cable will be laid to avoid impacts associated with geological features and on sensitive ecological marine features. Where it reaches Kiritimati, the cable will cross the fringing reef on the western side of the of the island and then be buried as it crosses the beach to a beach manhole to be constructed at the upper end of the beach. The Figure below shows the route taken by the branch line.

[6] Southern Cross Cable Network NEXT Submarine Cable System. 5 June 2017. Kiribati Landfall Report For Cable Route Design And Engineering For Southern Cross Next Submarine Cable System Segment SB6.

Figure 3.1 - Map Showing Branch Line to Kiritimati



27. The locations of the key land works as proposed by the technical consultants are as follows.

Table III.1 - Locations of Land Works

	Lat, Long[7]
Landing point	2° 01.465'N 157° 29.650' W
Beach manhole	2° 1.472N 157° 29.636 W
Cable landing station	2° 1.536N 157° 29.497 W

[7] Source: John Hibbard Consultant (Project technical consultant)

Figure 3.2 - Location of Project Features

28. From the landing point on the beach, the cable will be laid in a trench with a depth of approximately one metre and a length of approximately 350 metres inland to a cable landing station where the cable will terminate, and from there connect to the island's existing internet network.

29. The cable landing station will consist of a small building of modular construction assembled overseas and transported to the island. It will have a nominal size of approximately 6m x 3.5m x 3.8m high, have a metal roof, and will house the terminal equipment, batteries, rectifiers, UPS, fire suppression system and other equipment.

30. The cable landing station will be connected to the existing island power supply via the existing electrical distribution line on the main road. A back-up diesel will be in a separate small shelter with noise attenuation shielding to achieve the EHSG[8] noise requirements. Fuel storage will have lining and bunding to contain fuel spillage in accordance with the EHSG. The site will be surrounded by a steel mesh security fence.

31. The site for the cable landing station has dimensions of 40 m by 40m. The site is owned by the Government of Kiribati and administered by the Lands Division under the State Land Act. The land is proposed to be provided for the project by the Government by issuing a lease for its use. Alternatively, subject to space availability, the cable could be run along the side of the road in the road corridor.

32. The cable landing station was previously proposed to be located at the existing Earth Station in the town of Ronton (London), 5 km south of the site. This would have required a cable to be run along the side of the existing road in a trench approximately 1 m deep, in a plastic pipe conduit encased in concrete. This has been changed to the current proposed site on the existing road adjacent to the landing point. This results in a significant cost saving and a lower negative environmental and social impact.

33. A beach manhole will be constructed on the inland side of the beach to hold the cable in place and provide for pulling the cable ashore to the cable landing station. This is a covered concrete pit with dimensions approximately 3m x 2m x 2m deep, weighing approximately 20 T.

34. From the cable landing station, internet will be distributed by the local carrier(s) using the existing local network. There is an ODF (optical distribution frame) in the cable landing station which is the "end" of the cable system. The local carrier or ISP would have its local network which it would extend to the cable landing station to connect. This network distribution infrastructure beyond the cable landing station is outside the scope of this assessment.

35. The cable is 17 mm in diameter. Where it crosses the inshore area, the cable will be protected with a segmented steel armouring up to 35 mm in diameter. Where the cable is laid in a trench from the beach manhole to the cable landing station the cable will be protected by running through duct pipes encased in concrete.

36. Between the beach manhole and cable landing station, the trench is partly filled with concrete. From the beach manhole to the low water mark, the cable will be in a pipe which will be in a trench nominally 1.5 m deep across the beach which will be subsequently refilled. A narrow shallow trench around 0.5 m deep will be dug in the reef out to a metre or so of water depth at low tide. The cable will be laid in the trench and encased with articulated piping and the trench refilled. Beyond the end of the trench the cable and articulated piping will be laid on the reef to a nominal water depth of approximately 20 m depending on conditions. The double armour cable then continues out to sea with no extra protection.

37. The cable is laid in the open sea using a specialised cable laying ship. Where the cable crosses the fringing reef, the cable will be suspended by floats for installation, and pulled ashore by suitable equipment available locally, such as bulldozer, front end loader or even a

[8] ADB requires projects to comply with IFC EHS Guidelines

truck. The beach manhole will be constructed in place prior to this including ducts (100 mm PVC pipe) encased in concrete, extending to the cable landing station. The cable will be pulled by available cable pulling equipment through the ducts up to the cable landing station, and connected to the system terminal equipment.

38. In the inshore marine section of the cable, it is anticipated that an exclusion zone will be declared for a nominal distance of 100 m each side of the cable. This is for the protection of the cable and is to exclude anchoring, fish attracting devices (FADs), nets, heavy line fishing and any activity that could damage the cable. The exclusion zone will likely be marked with signs on the shore and buoys near the edge of the reef. The declaration of an exclusion zone may be made by the national government.

A. Construction

39. The project activities and works will be developed as follows:

- Update documents based on detailed marine surveys and final cable alignment and obtain all necessary permits
- Community consultation to advise of program and inform about complaints system (grievance redress mechanism)
- Clearing of vegetation, site preparation
- Digging trench for cable and installing conduit (~100 mm plastic pipe)
- Partly fill trench with concrete to protect cable duct and backfill with excavated soil
- Beach Manhole – excavation, place steel reinforcement, install formwork, mix and pour concrete, backfill to surface
- Cable landing station – construct building likely with prefabricated panels and install services
- Fencing, access, security, fencing, staff amenities, office,
- Water supply, electrical supply and communications
- Backup batteries with suitable shelter
- Diesel generator with suitable shelter
- Connection to the existing town grid
- Diesel fuel unloading and storage
- Generators and fuel storage, handling and pumping area to have spill containment in the form of impervious base and bund walls and oil water separation on outlets. Bunding in accordance with latest version of Australian Standard *AS1940 The Storage and Handling of Flammable and Combustible Liquids.* The containment volume required is the volume of the largest container, tank or drum, plus 10 per cent.
- When cable ship arrives, cable is pulled to shore supported by floats and pulled through installed cable ducts to the cable landing station.
- Install equipment ins the cable landing station and connect cable.
- The cable landing station will be connected to the existing communications network on the island via an optical distribution frame (ODF) in the cable landing station.

B. Operation

40. During operation the cable landing station will be manned with operational staff. The cable landing station equipment will operate on electricity from the local grid. Backup diesel generators on site will operate in the case of a failure of the grid supply.

C. Decommissioning

41. Should the project be decommissioned in the future, it is anticipated that all equipment would be removed from the site, subject to the future use of the site and relevant approvals, suitable materials would be taken away for recycling where feasible and the site would be rehabilitated and stabilised to a condition suitable for the next land use.

D. Project Alternatives and Justification

42. The proposed project is intended to be the optimum solution based on technical, economic, environmental and social considerations. Alternatives to the proposed design include the following:

- Alternative sites: the proposed site has been selected based on the need to avoid risk of anchors in shipping areas further south toward or at London or the lagoon entrance, eg direct to the existing earth station at London.
- Continue the cable past proposed cable landing station, along the road to the existing Earth Station in Ronton, which would involve a higher cost and higher environmental and social impact.
- Alternative alignments in the same vicinity on the land side. The nominated route runs along the side of the existing access road, which minimises disruption to adjacent existing and future land use. This will be in the existing road corridor of the access track between adjacent leased lots, or in a newly created lease for the cable corridor, immediately adjacent to the access track.
- Alternative alignments across the reef area in the same vicinity adjacent to the island. The marine ecology report identifies that there are a number of sandy "grooves" between rock/coral spurs, running perpendicular to the coast, which would be environmentally acceptable. The cable laying crew will have discretion in choosing the alignment in one of these grooves.
- Alternative routes in the sea. The oceanographic survey has mapped a route which runs along undersea valleys and avoids features which may represent a risk to the security of the cable and which are environmentally significant and sensitive, including vents and sea mounts.
- Later timing of project would miss the opportunity to connect to the cable across the Pacific Ocean while it is being installed, more costly and impractical to install later.
- No project, that is continuation with existing system. This would be to not take the opportunity to connect to the cable across the Pacific Ocean while it is being installed. This is said to be a rare opportunity as it is far more costly and impractical to install the branch line at a later time.

IV. DESCRIPTION OF THE ENVIRONMENT

A. General Description

43. Kiritimati is a coral atoll, with generally flat and low lying land consisting of sand sitting on coral surrounding a large lagoon. The island is surrounded by coral reef and sits on the rock of a submerged volcano. It is located in the tropics at 2° north.

44. The sandy soil is derived from coral and is underlain by a freshwater lens and below this brackish water. The island is low lying, two to three metres above sea level in the vicinity of the site. The island is generally dry with sparse vegetation due to low rainfall, long dry periods, and highly porous sandy soil.

45. The cable land works site is located just outside the current northern edge of the town of Tabwakea, along the north side of an access track running from the main road to the beach. Land here is being progressively subdivided by the government and leased in ¼ acre residential lots. It is expected that by the time the project is implemented the land beyond the cable route to the north will be occupied by houses.

46. The beach is steep and narrow, backed by a low ridge and then passing gently sloping land undulating to the main road. Vegetation is sparse with trees, shrubs, grasses and vines. There are many introduced species of plants and plant growth is limited by the relatively dry and seasonal climate and the sandy soil. Agriculture on the island is limited with copra and fish the main commodities.

Figure IV.1 – Photos of beach and cable landing site

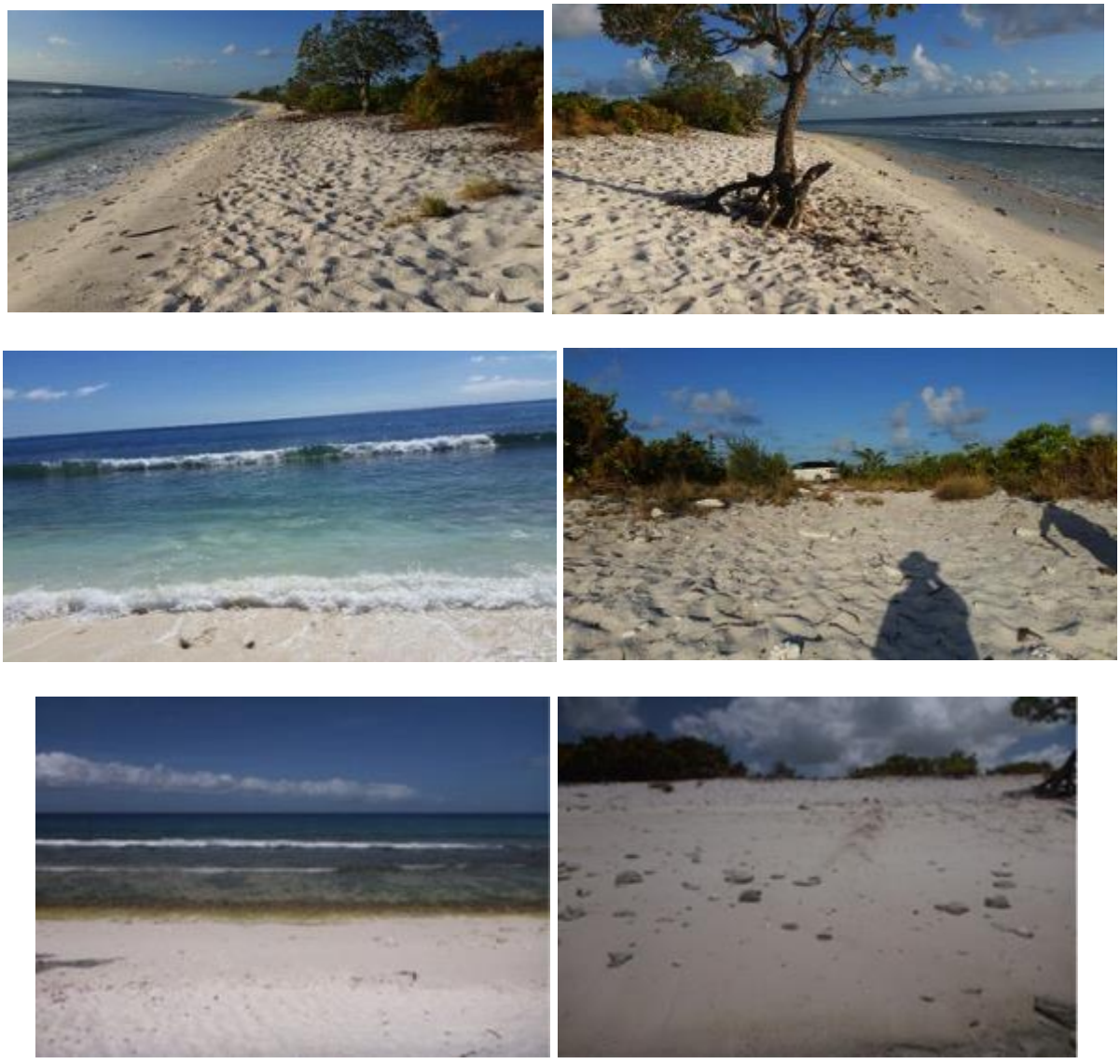


Figure IV.2 - Photos of reef flat and beach bedrock at low tide

Figure IV.3 – Beach manhole site and land cable route (left side of track) from beach manhole site

Figure IV.4 – Land cable route looking east (left side of road) and west (right side of road)

Figure IV.5 – Cable landing site from Main Road (access road is in front of green vegetation)

B. Physical Environment

1. Geology, Soils and Topography

47. The cable route on land runs from the water's edge across a beach approximately 15 m wide to a low ridge and then flat to slightly sloping land to the main road. The land site is low lying and at an estimated 2-3 m above sea level. The adjacent areas are similar.

48. The beach appears to have experienced significant erosion in the time between photos and descriptions by the technical and oceanographic survey teams earlier in 2017 and the inspections for this safeguards assessment in early October 2017. At the time of the latter inspection the beach was relatively steep and narrow, with an increase in slope to approximately 20% at about half way where the sand had been eroded away by wave action. The earlier inspections and photos indicated a gentler slope and wider beach with regular slope to the water's edge. Local consultations with residents close to the site also confirmed that beach erosion is a regular event with large rocks also moved during large wave events. These residents expressed concern for the safety of the cable from storm damage. Residents also reported that the dune or ridge behind the beach at the site is subject to minor overtopping at

times. Further to the south larger breaches were reported and in several locations the dune has been cut through by waves and these breaches have been repaired with rock wall, which local residents say has had to be replaced on occasions.

49. The soil is sandy and derived from coral with coral rocks scattered on the surface. The soil is low in fertility, alkaline, thus reducing the availability of minerals to plants, and has a low water holding capacity, which contributes to the sparse vegetation. The soil has a high infiltration rate, which allows rainfall to soak in quickly without creating significant runoff or surface water.

50. Coastal erosion is a significant hazard due to the low-lying coastline. Storms at times breach the coastline, causing damage to structures, vegetation, and the fresh groundwater lens due to salt water incursion.

51. The inshore marine area is characterised by a reef system with an average width of 150-200 m, with the sea floor sloping steeply from approximately 25 m into deep water. Although protected from the prevailing easterly winds and subsequent waves and swell, this western coastline is subjected to oceanic forces that influences the reef habitats and benthic organisms and causes significant shoreline erosion. The northern corner of the Western reef is strongly influenced by tidal currents that wrap around the point and move in a southerly direction along the reef, passing the proposed cable landing site. The only significant man-made feature along this coastline is the commercial shipping container wharf approximately 2 km south of the cable landing site.

52. The marine survey for the cable route design identified a complex bathymetric profile that included deep ocean ridges, escarpments, volcanic knolls (>1000 m high), seamounts, and thermal vents and varying depths[9]. The proposed cable alignment has been designed to ensure the path of the cable avoids these structures ensuring protection to the unique marine ecosystems whilst ensuring the most efficient delivery system.

53. The figures below from the Marine Survey Report show the undersea terrain from the landing point to the join with the main cable (BU6).[10] This shows volcanic knolls being avoided by the engineered cable route. The route tends to follow valleys and less steep slopes and avoid ridges, and steeper areas. The distance markers in red are in km from the landing point.

[9] Southern Cross Cables Limited. Survey Report for Cable Route Design for Southern Cross Next Submarine Cable System Segment SB6 Kiribati To BU6. June 2017.

[10] Southern Cross Cables Limited. Survey Report for Cable Route Design for Southern Cross Next Submarine Cable System Segment SB6 Kiribati To BU6. June 2017.

Figure IV.6 - Undersea terrain along cable route – 0 – 2.5 km from land

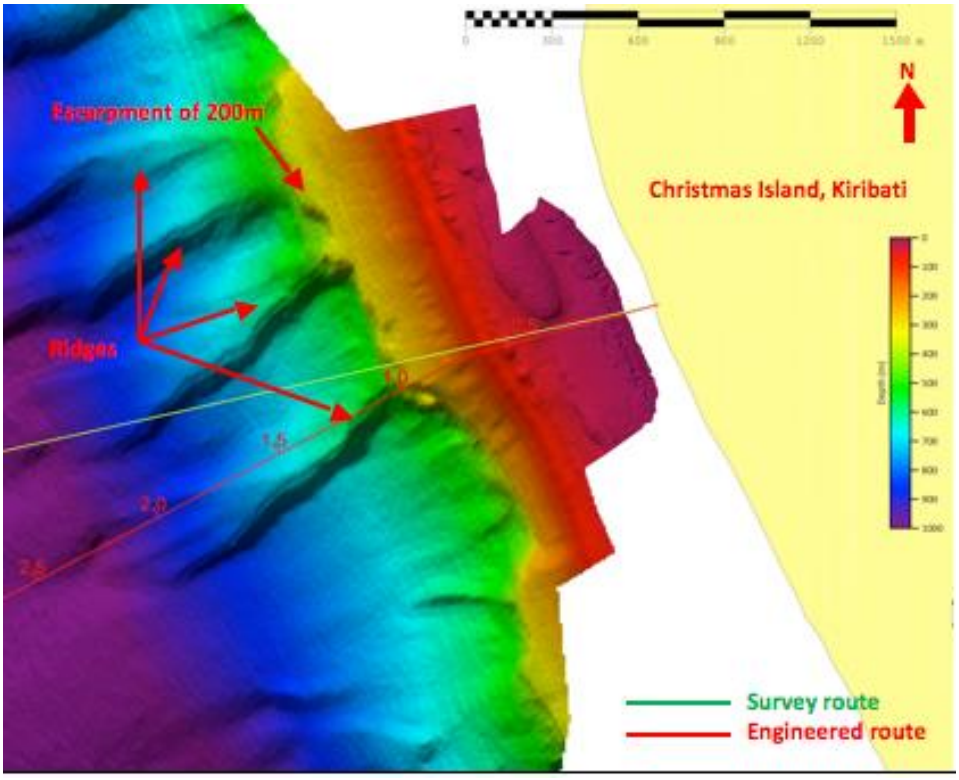


Figure IV.7 - Undersea terrain along cable route – 0 – 45 km from land

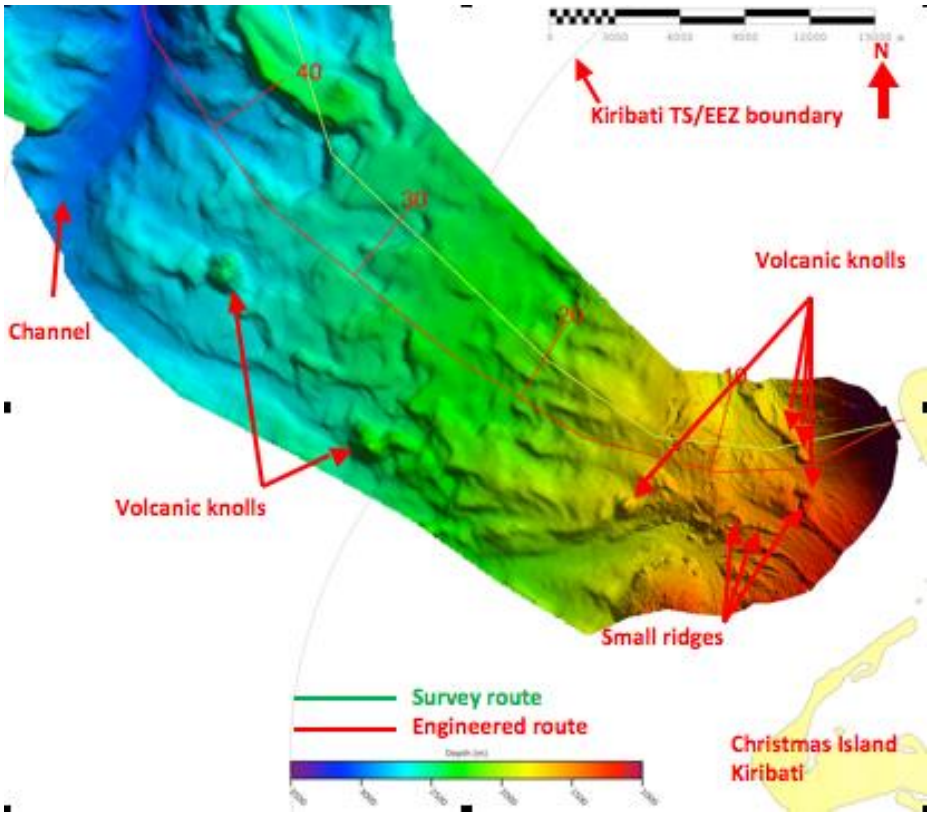


Figure IV.8 - Undersea terrain along cable route – 30 – 140 km from land

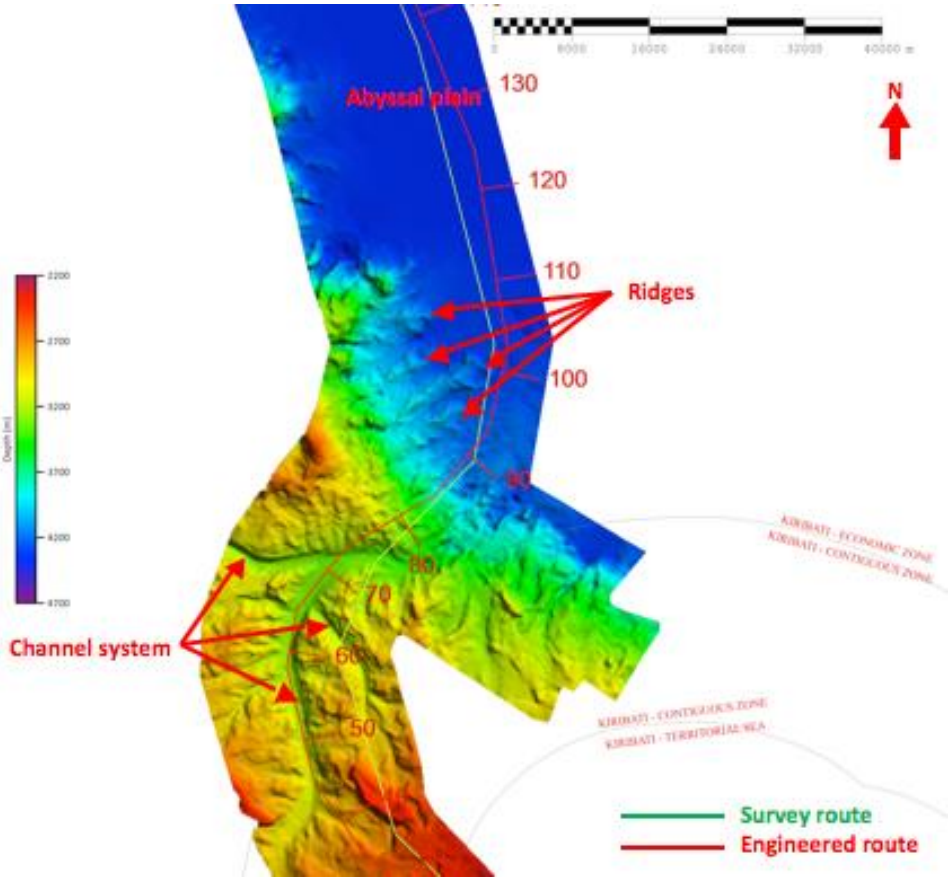


Figure IV.9 - Undersea terrain along cable route – 120 – 320 km from land

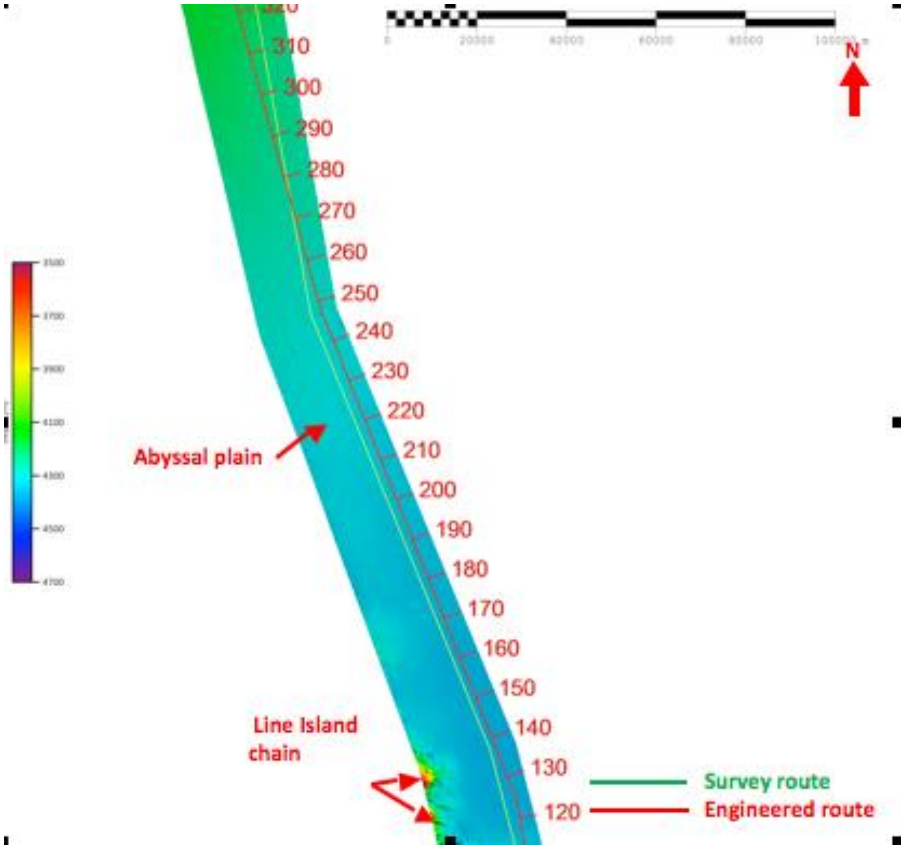
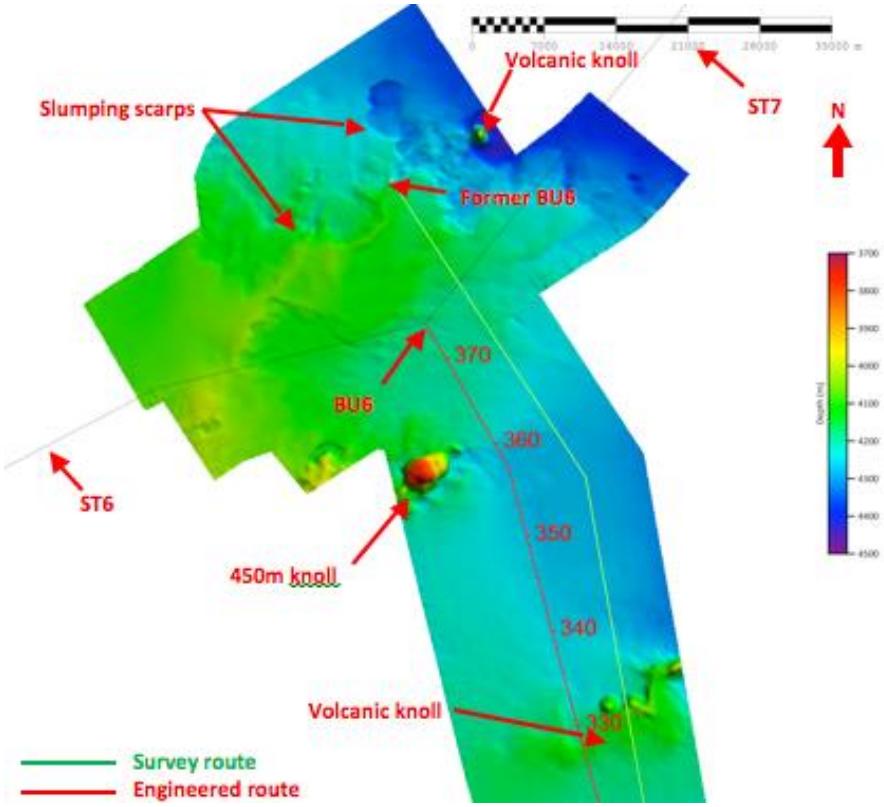


Figure IV.10 - Undersea terrain along cable route – 320 – 374 km from land



2. Water

54. There is no surface fresh water due to the highly permeable soil in which rainfall rapidly infiltrates. There is a fresh water lens at 2-3 m depth. Residents generally have wells or bores, and use this water for domestic purposes. Residents immediately adjacent to the cable route are recent settlers and report the water is good quality. Residents further south who have been established for longer report that groundwater is brackish and not suitable for drinking, while groundwater further from the sea is reported to be more fresh and is used for drinking. This suggests that the freshwater lens may be overdrawn at times allowing salt water to intrude. Groundwater at the project site is also reported to move up and down with the tides, indicating a strong connection with the sea, which would be expected. Other likely existing impacts on groundwater quality include water latrines used by some residents and the waste from pigs and chickens that are kept by many households.

55. Flooding. Local advice is that there is no known flooding due to rainfall at the site. This is expected due to the highly permeable soil.

56. Marine water quality is generally good due to exposure to the open sea. Turbidity and suspended sediment levels appear high in the near-shore area which is considered likely to be due to wave action disturbing sand and other sediment and algal / seaweed material.

3. Air Quality

57. Air quality in the surrounding area is generally good due to the location on a small island, however is impacted at times by smoke from burning off rubbish and vegetation, and low levels of dust from the unsealed access track and other bare areas.

4. Climate

58. Kiritimati (London) has an annual rainfall of 630 mm received mainly from February to June with a peak in April when about a third of the annual rain falls, and monthly average temperature of 27°C, fairly constant throughout the year. Average low and high temperatures are 24 and 30°C. The table below shows average monthly and yearly temperature and rainfall conditions.

Table IV.1 - Weather Conditions, London, Kiritimati

	Annual	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Average Temperature C	27	26	26	27	27	27	27	27	27	27	26	27	26
Average High Temperature C	30	29	29	30	30	30	30	30	30	30	30	30	30
Average Low Temperature C	24	23	23	24	24	24	24	24	25	24	23	24	23
Average Precipitation mm	630	20	70	60	200	80	80	50	10	---	---	---	10
Average Relative Humidity %	78	77	80	80	83	81	80	78	75	74	74	73	75

Source: http://www.weatherbase.com

59. The island experiences droughts over two to six years during El Nina events due to the El Nino Southern Oscillation Index (ENSO). Changes in rainfall pattern over the last 50 years or so has been reported with droughts reducing in intensity, frequent and duration, however it is not confirmed whether this is a longer term change.

60. Cyclones and storm events. The island does not experience cyclones due to its location close to the equator (cyclone are mainly in bands further out from the equator), although damaging storm waves are associated with distant tropical cyclones, including an event in March 2015 in which four people were killed when swept from the main jetty, and damage caused when waves washed into the MLPID office complex and the nearby fuel storage area. [11] [12] [13]

61. **Climate change**. The following climate change predictions are made for Kiritimati[14]:

- Wet season, dry season and annual average rainfall are projected to increase (high confidence)
- intensity and frequency of days of extreme heat are projected to increase (high confidence)
- intensity and frequency of days of extreme rainfall are projected to increase (high confidence)
- incidence of drought is projected to decrease (moderate confidence)
- acidification of the ocean will continue to increase (very high confidence)
- Mean sea level is projected to continue to rise (very high confidence)
- Interannual variability of sea level will lead to periods of lower and higher regional sea levels. In the past, this interannual variability has been about 23 cm and it is likely that a similar range will continue through the 21st century. In addition, winds and waves associated with weather phenomena will continue to lead to extreme sea-level events.

62. Sea level rise in the Line Islands (of which Kiritimati is a part) is projected under medium emissions scenarios to have a mean change of +20 cm by 2055 and +38 cm by 2090.

C. Ecological Environment

1. Terrestrial Flora and Fauna

[11] pers comm. OIC, Kiritimati Meteorology Service
[12] The Kiribati Meteorological Services' Report on Severe Weather Associated with TS Bavi and TC Pam. 2015
[13] pers comm. Kiritimati Port Superintendent
[14] Climate Change in the Pacific: Scientific Assessment and New Research. Volume 2: Country Reports. https://www.pacificclimatechangescience.org/wp-content/uploads/2013/09/Volume-2-country-reports.pdf

63. **Vegetation**. Vegetation is sparse and patchy behind the beach due to the soil being sandy, with a low water holding capacity and alkaline, reducing the availability of minerals. Plants here are grasses, vines and shrubs and a few low trees. Large trees including coconut trees occur in the surrounding area but not on the cable site. Further from the beach there are thickets of saltbush shrubs along the north side of the access road, mainly closer to the Main Road. The cable landing station site itself has been cleared. There is a strip that has been cleared of vegetation as part of a land survey, running parallel and approximately 20 m north of the road. The environment in the salt bush thickets is degraded by the presence of domestic pigs, kept tethered to and in the shade of shrubs, and domestic chickens foraging.

64. Plants identified along the cable route include the following, identified with assistance of Environment Division officers and Lands Division officers. These plants are widespread on the island and none considered to be rare or of conservation significance[15].

- Grasses
- Saltbush shrubs / Te Mao
- Tree Heliotrope
- Te Arou
- Te Ren Varereke
- Strangler Vine / Te Ntanini
- Pig Vine / Te Wao
- Te Kanawa
- Casuarina / Te Burukam – not native
- Pandanus / Te Kaina – not native, used as weaving material.

65. **Fauna**. There are as many as 18 sea bird species breeding on the island, however there are no breeding areas in the vicinity of the site (based on discussions with Environment and Conservation Division and local people).

66. There is one land bird species which is listed on the IUCN Red List as endangered, and is native and endemic to the island, the Bokikokiko or Christmas Island Warbler or Reed Warbler, *Acrocephalus aequinoctialis*. Environment and Conservation Division advise that it is unlikely to be found on the site but is known further north. The Bokikokiko nests in Salt Bush and Tree Heliotrope shrubs, species which are found on the site. Nesting occurs after heavy rain and can be at any time of year.

67. ECD staff undertook a rapid field survey at the project site for the Bokikokiko on 7 October 2017. This involved a search for nests and using a technique of playing bird calls with a tape recorder to see if any birds respond. They reported that no birds were found on the site. They also reported that they would be unlikely to be found here due to the presence of adjacent residences and the presence of domestic pigs being kept by local residents along the location of the cable, tethered to and in the shade of the salt bush shrubs.

68. There are no native mammals on the island. Feral cats and rats are widespread and are a serious threat to seabird colonies. Feral pigs are also present on the island. Domestic pigs are kept by many households. Domesticated dogs are present but only male dogs are permitted to prevent them becoming a feral problem.

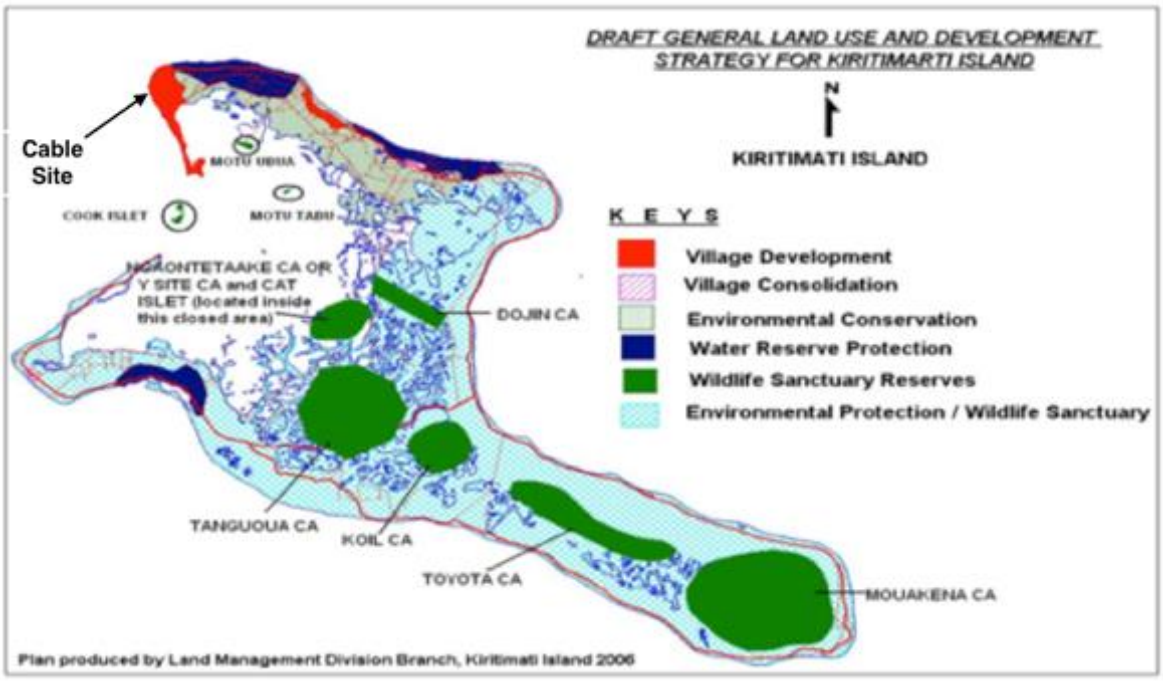
69. There is one species of skink and two of geckos on the island. Sea turtles are reported to not come ashore in this area.

70. Ghost crabs are common along the shoreline and two species of hermit crabs are found on the land.

71. **Protected areas**. There are no protected areas in the vicinity of the project as seen in the figure below.

[15] pers comm. OIC, Environment and Conservation Division

Figure IV.11 – Land Use Plan showing Protected Areas



2. Marine Ecology

72. A specialist marine ecology assessment including field inspection was undertaken by a marine ecologist during October 2017.

73. The shallow water marine assessment documented information (written and photographic) associated with the proposed cable alignment and landing site which includes a distinctive sloping sandy beach that fluctuates in width and gradient height due to the prevailing weather conditions, a solid beach bedrock that is exposed during periods of low tide, an intertidal reef flat which is exposed in parts during low tide events, an inner reef slope and outer reef slope that includes an extensive sandy slope that descends quite steeply into deep water. The key findings of the marine assessment are summarized below.

74. Hard coral percent coverage and diversity throughout the marine assessment site was exceptional low (less than 1 % live coverage over the entire area surveyed) with only isolated colonies of sub massive and massive species (e.g. *Porities lobata and Monitipora foliosa*) located within the deeper areas of the intertidal reef flat and inner and outer reef slope. Branching and digitate hard corals were all but absent throughout the survey area, with the only exception of small individual colonies of *Pocillopora eydouxi* which were located in very low numbers within the deeper areas of the intertidal reef flat and inner reef slope. A small number of hard coral juvenile colonies were located in the upper intertidal reef flat and inner and outer reef slope indicating some recruitment has occurred since the coral bleaching.

75. There were no soft corals located during the assessment.

76. Evidence of previous high coral mortality throughout the assessment site and waters along the Islands western reef system due to the reported coral bleaching event in 2015-2016 is clearly visible. This beaching event had an extreme impact on the coral reefs associated with the cable landing site. Recovery from this event is slow and considerable time (years) will be required before pre- bleaching hard coral coverage conditions are reinstated.

77. Marine invertebrate population's numbers (e.g. sea cucumbers, sea urchins, giant clams, gastropods – snails,) were found in very low in all areas of the reef assessed. The low abundance is attributed to subsistence (clams, urchins and snails) and the commercial exploitation of these marine resources, in particular sea cucumbers.

78. No Crown of Thorns (COTS) (*Acanthaster planci*) were located.

79. Macroalgae (e.g. *Padina sp., Ulva sp., Halimeda sp.)* were found in high abundance throughout the intertidal reef flat and inner and outer reef slope, whilst blue green and filamentous green algae were abundant and covered the beach bedrock and upper areas of the intertidal reef flat. High densities of these algae will be directly related to natural recruitment and competitive behaviour of these organisms after the bleaching event when these habitats were available for colonisation.

80. Finfish populations were found in high population numbers and diversity, especially the macroalgae feeders (e.g. Acanthuridae, Scaridae). Predator finfish population numbers was low during the assessment, however species abundance was reasonable. The low population numbers recorded may be a reflection of the time the marine assessment was undertaken (mid to late morning) and as such the data recorded for predator finfish may not be a true representative of the finfish populations in this area.

81. No ciguatera finfish poisoning has been reported from finfish associated directly with the reef systems within or adjacent to the Project Influence Area (PIA) and as such there is no indication that elevated cases of poisoning will result from the deployment of the cable.

82. No seagrass was located within the assessment site.

83. No Mangrove trees were located within the assessment site.

84. No turtles were located during the marine assessment nor were there any evidence located or provided during stakeholder discussions that the area is used by turtles for feeding or nesting purposes.

85. No marine endemic, rare, red listed or habitat restricted species were located during the assessment.

86. No nursery or breeding grounds for key invertebrate or vertebrate marine species were associated with the PIA.

87. There are no marine or terrestrial protected areas or sites of cultural significant or heritage associated with the proposed cable alignment site.

88. Minor evidence of anthropogenic rubbish was located during the survey, most of which was remnant rope most likely associated with previous boat anchors used by community fishers.

89. There are no freshwater streams or inner lagoons discharging water onto the western coast. It is however suspected that during seasonal rainfall peak periods natural springs discharge freshwater directly into the shallow waters along the shoreline in close proximity to the cable alignment. This is a natural event and will have no impact on the cable deployment or its operation.

90. The marine ecosystem, habitats and species assemblages located at the assessment site are very similar to marine areas to the north and south of the assessment site and as such the cable alignment site does not represent a unique or critical marine habitat.

91. Spinner Dolphins (*Stenella longirostris*) were identified almost daily in the oceanic waters adjacent to the western reef system of the Island. These cetaceans are highly mobile mammals, most likely resident populations and will not be affected by the deployment of the cable. The use of sonar as described in Appendix II and the Environmental Code of Practice (ECOP)

(ADB, 2014) will have little if any impact on the ability of these animals to communicate and or feed during the cable deployment if the recommended mitigation measures are followed.

92. The local tourist dive industry (albeit very small and infrequent activities) does not use the reefs directly opposite nor within the PIA of the proposed cable alignment. Therefore, there are no impacts to this industry expected from the cable construction period.

93. Local fishers (subsistence and artisanal) use the reef systems and deeper waters (trolling for pelagic fin fish) adjacent to the proposed cable alignment periodically to capture finfish and invertebrates using a wide range of fishing gear and techniques, including the deployment of FAD's. Similarly, the commercial "Pet Fish" aquarium fishery periodically utilise the reef systems along the entire western reef to collect their commodities which includes the reef systems adjacent to the proposed cable alignment.

94. All subsistence, artisanal, deployment of FAD's and commercial "pet fish" fishing activities need to be prohibited from entering the PIA during the construction phase of the cable. Provisions for an exclusion zone of at least 250 m either side of the cable alignment from the beach out to offshore waters should be operating during the cable construction period. Public notification and awareness needs to be undertaken to ensure community understanding and compliancy.

95. Once the cable construction period is completed an exclusion zone for all fishing activities should be maintained directly opposite the cable alignment. It is recommended that this exclusion zone be 100 m either side of the cable alignment. Community awareness and understanding is required to ensure compliance. Consideration for land based site specific signage placed at strategic location on shore identifying the cable and exclusion zone. Shoreline exclusion zone markers should also be considered to provide visual landmarks for fishers utilising the waters.

D. Socio-economic Environment

1. Population and Social Indicators

96. Kiritimati island is one of 33 coral atolls which makes up the Republic of Kiribati. Kiribati has a population of 110,136[16], spread across 33 coral atolls with a territorial area of over 3.5 million sq km. Kiribati as a whole has experienced several consecutive years of economic growth, which averaged 2.9% from 2011 to 2015. The forecast for 2017 remains at 2.9%, with growth driven largely by continuing investments in airports, roads, solid waste management, and sanitation financed by development partners.[17]

97. In 2012 Kiribati was ranked 121 out of 187 on the Human Development Index, which was equal to Indonesia in ranking. It is behind Fiji, Samoa and Tonga but ahead of Vanuatu, Solomon Islands and many South-East Asian Countries[18]

98. An estimated 21.8% of households live below the Basic Needs Poverty Line across the whole of Kiribati (with the capital South Tarawa averaging 24.2%)[19]. The nature of poverty is different in the outer islands compared to South Tarawa partly due to its isolation and partial subsistence lifestyle.

99. The 33 islands of Kiribati are grouped into three administrative clusters: Gilbert, Line and Phoenix. Kiritimati is in the Line Islands and has a population of 6,456 (2015 Census). Kiritimati

[16] National Statistics Office, Republic of Kiribati. 2015 Population and Housing Census
[17] ADB. Kiribati Economy. https://www.adb.org/countries/kiribati/economy
[18] DFAT, 2014. Kiribati Program Poverty Assessment. Department of Foreign Affairs, Australia.
[19] DFAT, 2014. Kiribati Program Poverty Assessment. Department of Foreign Affairs, Australia.

has had a steady population growth partly due to government policy of resettlement from the overcrowded country capital Tarawa. [20]

100. Kiritimati has been settled relatively recently from the latter half of the 20th century, therefore people living on the Island generally identify themselves as coming from other islands. There was evidence of early settlement on the island however it is documented that when European explorers came to the island in the 1800s there was no resident population.[21]

101. Population statistics for Kiritimati are shown in the table below.

Table IV.2 - Kiritimati Population Statistics (2005-2015 Census[22])

Year	Population	No of households	Males	Females	Population density: persons / sq km
2005	5115	702			
2010	5586	857			14
2015	6456	1017	3300	3156	17

102. Households are smaller in the outer islands than in the national capital, South Tarawa. There are fewer employment opportunities, less health issues related to poor sanitation and water and more access to land thus some subsistence production[23], although farming is limited by the poor soils and water availability. In the outer islands, including Kiritimati, there is a higher proportion of young people, with 36% under 15 years old and 29% 15-30 years old.[24]

103. The four main communities on the island are Tabwakea, population 3,001 at the 2015 census, Ronton (London), 1,895, Banana, 1,209 and Poland, 351. The government offices are mainly based in Ronton. The project site is on the northern edge of Tabwakea.

104. The Kiritimati population increased an average of 2.6% per year between the 2005 and 2015 censuses. The average household size was 6 in 2015, which was down from 6.7 in 2005 and 6.3 in 2015. Tarawa in comparison had a household size of 7.3 in 2010 and 7 in 2015.[25]

105. It is reported that women in Kiribati are economically, socially, and legally disadvantaged overall, and gender gaps exist in land rights and access, political participation, and labor participation rates.[26] When men are away harvesting copra or working at sea or abroad, the domestic burden for women increases. Women are generally not active in community politics and local decision making with young women the least likely to speak out. Kiribati women are underrepresented in formal government institutions such as local island councils and parliament.

106. In Kiritimati 60% of the population identify as being unemployed and on Kiribati as a whole 42% of the work force are women.[27] Due to high unemployment amongst women, particularly on the outer islands, GoK has identified the need to develop programs and quotas for women along with training scholarships.[28]

2. Health

[20] ADB 2006. Technical Assistance Report, Republic of Kiribati: Integrated Land and Population Development Program on Kiritimati Island,. Project No 39641.
[21] Republic of Kiribati. Island Report Series: 20 Kiritimati, 2012.
[22] National Statistics Office, Republic of Kiribati. 2015 Population and Housing Census
[23] National Statistics Office, Kiribati, 2006. Analytical Report on the 2006 Kiribati Household Income and Expenditure Survey (HIES)
[24] DFAT, 2014. Kiribati Program Poverty Assessment. Department of Foreign Affairs, Australia.
[25] Republic of Kiribati Island Report Series: 20 Kiritimati. Update 2012. Office of Te Beretitenti (President)
[26] Gender Profile Kiribati. Pacific Islands Forum Secretariat.
[27] National Statistics Office, Republic of Kiribati. 2015 Population and Housing Census
[28] Kiribati National Migration Policy 2015-2019, GoK, undated

107. Kiritimati has one 12 bed hospital in London, with a small operating theatre, and three health clinics, one at each of Tabwakea, Banana and Poland. There are three doctors who are also specialists, an anaesthetist, surgeon and obstetrician.

108. The reasons given in 2014 for visiting the hospital and clinics are in the table below.

Figure IV.12 - Reason for Visiting Hospitals or Clinics, Kiritimati 2014[29]

	No. of visits
Communicable diseases	
Diarrhoea	968
Dysentery	188
Acute Respiratory Illness	1706
Non-communicable disease	
Diabetes	135
Hypertension	97
Births[30]	
2014	219
2015	135

109. The health services on the island use the internet for consulting with supporting specialists from USA, receiving laboratory results, relaying results of investigations such as x-rays, communicating with Tarawa in relation to support and funding needs, organising medical transfer and ongoing professional development. It is reported that current internet reliability is hampering the provision of services with loss of service for up to three days per month being experienced.[31]

110. Improved internet would allow for increased efficiency of receiving results, obtaining second opinions, developing an e-health system with specialists and increased access to ongoing professional development. With the planned increase in population the health services communication needs continued improvement.

3. Education

111. In 2015, 1,936 students were attending school in Kiritimati. Of these, 10% were in senior secondary. Some scholarships are offered post-school training and this means leaving the island such as for Tarawa, Fiji or Samoa. There is a Maritime Training School in Tarawa as well as other training opportunities.

112. In Kiritimati, there are two elementary schools, one Catholic and one Kiribati Uniting Church (KUC), three government primary school, one government junior secondary and two senior secondary. Internet is mainly used by the teachers except for the secondary school where there are shared computers. There are plans to move 200 secondary school students to Kiritimati next year from the nearby island of Tabuaeran due to deterioration in building facilities.

113. Improved internet would assist the education system on Kiribati in providing professional training to staff, on-line literacy and numeracy support for students, access to specialised packages for students with special needs, easier access to research material for students and teachers, easier access to post school opportunities and other curriculum supports. The

[29] Secretariat of the South Pacific Commission, 2015. Improved Water Supply for Kiritimati, Basic EIA for Upgraded Water to London-Tennessee.
[30] Taken from the 2015 census question 'Women by Island and year of birth of last child'
[31] Pers Comm, Chief Medical Director, Dr Teiraira Bangao. The health services receive assistance from American organisation Pacific Island Medical Aid (PIMA).

current educational information technology infrastructure on the island would need to be improved to fully utilise the improved communication.[32]

4. Community Structures

114. Remnants of the traditional community system in Kiritimati can be seen with community meetings in the traditional meeting house, 'maneaba', regularly and the 'old men' meeting to decide on issues that affect the community.

115. The authority of churches has replaced much of the traditional structure in Kiritimati, except in Poland. In the 2015 census nearly 50% of the population identified as Catholic, 35% as protestant, or KUC, members, 10% as Church of the Latter Days Saints (LDS) and others including Bahai, Seventh Day Adventists, and others[33]. Women and men identified in equal numbers across the religions.

5. Economy and labour market activities

116. The per capita gross domestic product of Kiribati, estimated at $1,593 per capita in 2010, $1,838 in 2014 is among the lowest in the Pacific region[34]. Rate of growth in GDP per capita was 5.2% in 2012, 5.8% in 2013, 2.4% in 2014, and predicted by IMF to be 3.1% in 2015[35]. Opportunities for economic growth are limited with the economy narrowly based on copra, interest from overseas investments, remittances from I-Kiribati working abroad (especially as seafarers), license fees from foreign-owned fishing vessels and overseas development assistance.

117. The Kiritimati labour market relies heavily on government employment and the subsistence economy. Income earners were 20% of the population in 2015, with 52% identified as not being in the labour force, 23% as unemployed and 20% as not looking for work. [36]

118. The 2015 Census also identified that there were only five main employers on the island for a workforce of 4,486. The public service sector is the main employer. There is some employment on commercial fishing boats but this is erratic. Private businesses include a number of accommodation lodges and small shops.

119. The poorest households are those with no source of wage income. Unemployment on Kiritimati was high in 2006, 60% with 8% relying on subsistence and less than 4% considering themselves being self-employed. This indicates a slight improvement from 2010 to 2015. A large number of people rely on collecting copra for revenue. (It is not known if this figure includes as self-employed the large number of people involved in collecting copra for sale).

120. The average cash income in Kiritimati is higher than in Tarawa. Copra cutting, sales of fish and home produce are as important as wages in the household cash income[37]. Handicrafts were previously made and sold by women when the cruise ships came to Kiritimati however this has discontinued in recent years.

121. Kiritimati differs from Tarawa in that average income is higher than average expenditure. This difference is partly because Kiritimati is richer in subsistence resources so families need less cash for basic household needs. However, this is changing due to increased population and reduced employment opportunities.[38]

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[32] Kiritimati Education Co Ordinator, 4th Oct 2017.
[33] Census 2015
[34] GoK (undated). Kiribati Development Plan 2016-2019
[35] GoK (undated). Kiribati Development Plan 2016-2019
[36] Republic of Kiribati Island Report Series: 20 Kiritimati. Update 2012. Office of Te Beretitenti (President)
[37] National Statistics Office, Kiribati, 2006. Analytical Report on the 2006 Kiribati Household Income and Expenditure Survey (HIES) and Republic of Kiribati Island Report Series: 20 Kiritimati. Update 2012. Office of Te Beretitenti (President)
[38] Kiribati Country Case Study, Australian Aid Social Protection Series, March 2012,

122. There is an active tourism industry on Kiritimati especially with recreational bone fisherman mainly from Australia and the United States. No available data was found on how this has contributed to the local economy. Tourist numbers have fluctuated over the last 10 years. Tourist numbers in 2015 were 2,267 and 2016 3,972.[39]

123. Copra cutting is a significant source of income. In 2006 $234,462 was paid for copra through the Kiritimati Urban Council. The household income for Kiritimati for 2006 was $8,157.[40] 10% of Kiritimati workforce identified themselves as subsistence workers in the 2015 census.

124. Although the non-cash economy is a relatively large component of the economy in Kiritimati, this is gradually changing. With the improved internet and increasing population there will be increased reliance on the current bank on the island which is ANZ. There is only one ATM on the island and it is reportedly not always available for use due to the poor internet connection. Credit cards are not used on the island, businesses use AUD cash, and change is in short supply.

6. Existing Internet Service and Usage

125. Out of 5901 people over ten years old, 1078 are recorded as internet users (2015 Census). The locations in which these people use the internet are reported as: 304 at home, 206 in workplace, 471 at internet café, 18 on mobile phones and 49 other.

126. The 2015 Census reports that 926 households have no access to an internet connection, 84 Households have one internet connection, 16 households have two connections, and one has four internet connections.

127. The 2015 Census reported numbers using the internet and the location of internet use, shown in the table below. The low figure for mobile use is considered questionable based on observation in October 2017.

Table IV.3 - Population (10 years and over), who use Internet, and Internet Location 2015 (Census, Table 16)

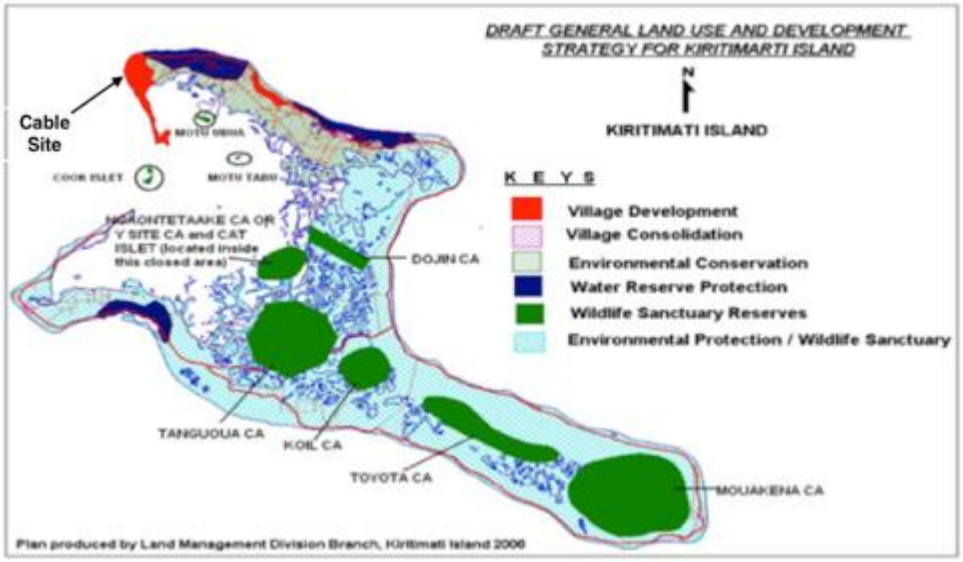
	Do you use internet?			Internet place					
	Total	Yes	No	Total	Home	Workplace	Internet cafe	Mobile	Other
Kiritimati	5,901	1,078	4,823	1,078	334	206	471	18	49
Total Kiribati	101,800	15,207	86,593	15,207	4,772	3,112	4,329	457	2,537

7. Land Use

128. The proposed project is consistent with the land use zoning at the site. The land at the site is zoned for Village Development under the *General Land Use and Development Strategy for Kiritimati Island*[41]. This zone extends from the northern entrance to the lagoon at Ronton to the north-west corner of the island, as shown on the map below.

[39] Kiritimati Tourist office data
[40] Republic of Kiribati Island Report Series: 20 Kiritimati. Update 2012. Office of Te Beretitenti (President)
[41] Land Division 2006

Figure IV.13 - Land Use Zoning



129. The cable site is located on the current northern edge of Tabwakea. There are six residential lots immediately adjacent on the south side of an access track, under lease from the Government. Three of these lots have been recently settled, with two residences on one lot, while the remaining three remain vacant. The infrastructure and living conditions here are basic. Three of the four households were interviewed as part of the community consultation for the project (the occupants of the fourth house were not in). The land to the north of the access road is currently vacant and remains government land, and is earmarked for future subdivision.

130. The government is progressively sub-dividing and leasing government-owned land. At the cable site, the settlement of Tabwakea is being expanded to the north. While the cable alignment is on the northern edge of the newly settled land, the land from there to the north is planned for subdivision. It is therefore critical that the land for the cable landing station, beach manhole and the cable corridor is set aside now. This has been discussed and agreed with the government Lands Division and MLPID in Kiritimati and MICTTD in Tarawa.

131. Land further to the south along the Main Road is the settlement of Tabwakea, and beyond that the settlement of Ronton (London) extending to the northern entrance to the lagoon. Ronton is the location for most of the government offices, government employee housing and the main business area. Along the coast to the south is the main port and jetty, fuel storage tanks beyond that and then the lagoon entrance.

132. Surrounding government land to the north and east has extensive areas of former coconut plantation. This area is accessed as a common resource by people to collect copra for sale to the government for export, providing one of the important industries for the island and self-employment income for people.

8. Infrastructure

133. Transport. Kiritimati is a remote coral atoll over 3,000 km east of the national capital, South Tarawa. Kiritimati has two commercial flights a week, one to each of Fiji and Hawaii. Flights to Tarawa are via Fiji which can take over 12 hours due to the stop over.

134. There is one coastal road around the island, which connects the settlements of Poland, Banana, Tabwakea and London. Kiritimati has the largest land area of any of the Kiribati islands of 363 sq km, and is the largest coral atoll in the world. The project site is accessed by an unformed track off the main road from London.

135. Water and Power. Water supply is mainly from the groundwater lens and roof tanks. There is a borefield at Decca at the north end of the island which is currently being further developed as par of the SPC KI Water Project. There are four diesel power stations around the island. The KI Power Sector Project is currently building solar diesel hybrid station between Ronton and Tabwakea, and installing power poles to the airport with the closure of three of the power stations.

136. Communications. There is a mobile telephone and internet system based on satellite service.

137. Waste. There are three waste disposal sites in Kiritimati. Two of these are for general wastes, one located at Tabwakea and the other at the north end of the island near Banana toward the airport. There is one site for hazardous wastes, located at the Bay of Wrecks on the eastern side of the island.

V. ANTICIPATED IMPACTS AND MITIGATION MEASURES

138. Potential impacts and mitigation measures are described here in terms of pre-construction/design stage impacts; construction impacts; and operations impacts, with each looking at impacts on physical, biological and socio-economic environments. Mitigation measures have been compiled in the Environmental and Social Management and Monitoring Plan matrix.

139. As a general mitigation measure, the project shall comply with:

- IFC / World Bank Group - EHSG http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines
- Environmental Code of Practice for Planning and Construction of Submarine Fibre Optic Cable Projects in the Small Tropical Islands of Melanesia, Micronesia and Polynesia (ECOP) (ADB, 2014)
- ADB SPS
- Laws and regulations of Kiribati including those relating to health, safety and labour protection.

A. Pre-Construction/Design Stage Impacts

140. **Project planning and procurement**. Impacts arise from the decisions and actions taken during the design / preconstruction stage. While the impacts may be experienced in the construction or operation stages, there are mitigation measures that should be implemented in the planning of the project. Refer also to the sections covering construction and operation stages.

141. Mitigation measures during design / preconstruction stage include planning the project to implement the mitigation measures specified for the construction and operation stages. This includes: updating the safeguards due diligence documents based on marine surveys and final cable alignment, this will include filling information gaps; ensure all approvals and permits in place; ensure environmental requirements are incorporated in contract documents; ensure contractor prepares a site-specific construction environmental and social management plan (SESMP) which will include occupational health and safety plans (OHS plans) and that these are reviewed and approved by the implementing agency – project management unit (PMU) and ADB; community consultation and project disclosure; establish grievance redress mechanism (GRM); plan the project so as to maximise local labour and business participation.

142. **Oceanographic survey**. The oceanographic survey for the cable route has already been completed. Therefore, no further impacts or mitigation measures are required to be identified for this component of the pre-construction works.

143. **Provision of land for the project**. It is critical that the land for the project be set aside and secured to be available for the land-side project works. Action is required for the government to set this land aside. The impact of this will be the permanent alienation of the land for the cable landing station (40 m x 40 m). There will be restriction on development on the cable corridor, however no restriction to public access to the cable corridor and beach manhole surface. This impact is minor and unavoidable and no mitigation is proposed.

144. Similarly, during the design / preconstruction stage, there are a number of actions required to plan and implement measures relating to the operation of the internet system itself. While the works of the project is specifically for the installation of the ocean cable and associated land works, and not the existing on-island internet system, there are a number of positive benefit opportunities and some negative risks arising from the availability of improved and potentially cheaper internet. These have been identified in the community consultations, in the social assessments, and actions to address these are generally already in planning.

145. **Climate change – carbon emissions**. Carbon emissions produced by the project are overall relatively minor. The largest emissions are likely to be in the operation of the ship for the oceanographic survey, which has already been done, and in the operation of the cable laying ship. The project will also produce carbon emissions in the implementation of the project in the manufacture and delivery of the cable and other equipment and in construction of land works. During operation, carbon emissions will be produced due to electricity consumed in the operation of the cable and equipment in the Cable Landing Station, and diesel for backup generators where required. Some reduction in carbon emissions may be achieved due to the availability of a stronger communications link allowing for meetings to held and documents sent over the internet and thus potential reduction in carbon emissions due to travel for government and business to and from Tarawa.

146. As there are few cable laying ships available and they are already set up for this specialised work, there are few if any mitigation measures that can be proposed for reducing the emissions associated with cable laying for the project.

147. **Climate change – natural hazard risk**. An increase in the risk of higher extreme storm wave and coastal erosion events may be predicted due to sea level rise in combination with storm waves from distant cyclones, high tides and during years with higher sea level variation. Similarly, vulnerability to a tsunami event is greater in combination with sea level rise and high tides and during years with higher sea level variation.

148. Other factors considered in climate change assessment include temperature rise, corrosion, flooding, landslide, damage by lightning and loss of power lines.[42]

149. Sea level in the Line Islands (of which Kiritimati is a part) is projected under medium emissions scenarios to have a mean rise of +20 cm by 2055 and +38 cm by 2090 (refer Section IV Description of the Environment – Climate). There is also a variation in sea level between years of about 23 cm.[43]

150. Coastal erosion is a significant hazard due to the low-lying coastline. Storms at times breach the coastline, causing damage to structures, vegetation, and the fresh groundwater lens due to salt water incursion. Local consultations confirmed that beach erosion is a regular event at the site with large rocks also moved during large wave events, and that the dune or ridge behind the beach at the site is subject to minor overtopping at times. Further to the south larger breaches were reported and in several locations the dune has been cut through by waves and these breaches have been repaired with rock wall, which local residents say has had to be replaced on occasions.

[42] ADB (2013). Guidelines for Climate Proofing Investment in the Energy Sector.
[43] Climate Change in the Pacific: Scientific Assessment and New Research. Volume 2: Country Reports. https://www.pacificclimatechangescience.org/wp-content/uploads/2013/09/Volume-2-country-reports.pdf

151. The area is not subject to cyclones due to its latitude close to the equator. Damaging storm waves are associated with distant tropical cyclones, including an event in March 2015 in which four people were killed when swept from the main jetty, and damage caused when waves washed into the MLPID office complex and the nearby fuel storage area. [44] [45] [46]

152. Tsunami risk is relatively low. Kiritimati recorded a 0.3 m tsunami in 1957 and 1960. Atolls such as Kiritimati are less vulnerable to tsunami than they would otherwise due to steep drop-offs in which ocean depths increase very rapidly with distance from the fringing reef, thus there may not be a pronounced shoaling effect. The 1960 event, produced by an earthquake in Chile, resulted in tsunami of 2 to 11 m in Hawaii. [47]

153. **Climate change and natural hazard risk - mitigation measures**. Climate change adaptation benefits will accrue from the improved communications by the project. This will allow for improved communication and warning systems, and improved ability for people on the island to investigate climate change and mitigation and adaption methods.

154. Adaption for storm surge is limited by the low lying coastal location and the lack of alternative suitable sites. The cable landing station is set back away from the coast and sensitive equipment is raised off the ground in an enclosed building. It is recommended that vulnerable equipment be raised by at least one metre to reduce vulnerability to coastal sea intrusion due to sea level rise combined with storm wave or tsunami coinciding with high during years of higher than average sea level.

155. It is recommended that the works on the beach and dune area be reinforced against storm wave damage, erosion of the dune and rocks being thrown by waves.

156. Adaption in the project design for high temperatures, high humidity and corrosive coastal atmosphere includes corrosion resistant materials as standard design.

B. Construction Stage Impacts

1. Impacts on the Physical Environment

a. Soil and Water

157. Key risks in relation to soil and water for the land-based works are pollution of the freshwater aquifer and erosion of the coastal barrier, as described below. Standard good practice mitigation measures are to be applied in relation to these aspects.

158. The risk of soil erosion and sediment pollution due to disturbance of soil during construction is low due to the flat site and porous soils, so that rainfall soaks into the soil quickly and there is little runoff. Nevertheless standard good practice measures shall be applied including minimising the area of vegetation clearing and land disturbance, and keeping trench excavation to the minimum practical width.

159. The risk associated with breaching the low dune ridge at the back of the beach, thus increasing the risk of storm wave incursion and coastal erosion is potentially high, if the construction work is not completed adequately or if there is excessive vegetation removal. Local residents report that storm waves slightly breach the ridge in this area. Other reports refer to this being a widespread problem on the island. Mitigation measures here are to ensure the work is designed and completed in accordance with good practice as would be expected,

[44] pers comm. OIC, Kiritimati Meteorology Service
[45] The Kiribati Meteorological Services' Report on Severe Weather Associated with TS Bavi and TC Pam. 2015
[46] pers comm. Kiritimati Port Superintendent
[47] SOPAC/GA, 2008. Tsunami Hazard & Risk Assessment Project Report 03 – Kiribati. SOPAC Miscellaneous Report 653. http://www.pacificdisaster.net/pdnadmin/data/original/KIR_2008_MR0653.pdf

minimise vegetation removal, ensure that the backfill in the cable trench is compacted, that the finished level at the crest of the ridge is higher than the adjacent areas and reinforced to protect against erosion.

160. The risk of soil and groundwater contamination due to spills of fuels and oils during construction is high due to the porous soil. The consequences of this would be significant as the freshwater lens at 2-3 m depth is used by local people for domestic purposes. The mitigation for this is that fuel and oil and chemicals are stored in a bunded tray or container to catch any spills, fuel and oil transfers are carried out over a drip tray and any spills are cleaned up immediately and contaminated material is disposed of to a waste facility licenced for this purpose in consultation with ECD. The island has a landfill for hazardous materials and this should be used subject to the relevant permits and consent of the operator.

161. Land-based construction resource depletion. Due to the shortage of land and construction materials such as gravel and sand, international projects are encouraged by the government to import these materials for the project. It is also reported that the quality of the local resource is poor as it is derived from coral.

162. There may be a disease risk associated with imported sand and gravel material. Where such materials are imported, a quarantine permit is required from Agriculture Division.

163. Excavation in and near the water's edge may mobilise sediment in the water. However, this is considered to have little or no impact as this zone is subject to wave action and has a high level of suspended sediment existing. No mitigation measures required.

164. The operation of the cable laying ship has potential impacts on water pollution due to leaks and spills of hazardous chemicals. As a mitigation measure the contract should require that the ship be equipped and operated as required by best practice international standards and requirements of ECOP will be followed.

b. Air Quality and Noise

165. Air quality and noise are addressed under Impacts on the Socioeconomic Environment.

c. Waste Management

166. Waste management is an issue in Kiritimati due to the limited space and the risk of contaminating the shallow groundwater lens. The government has run campaigns on improved waste management with involvement of community groups. Construction waste is also a common source of complaints on construction projects.

167. Waste during construction will include the range of wastes typical of construction projects, including cleared vegetation, excess materials, waste oil and paint, waste concrete, packaging (cardboard, wood, plastic, polystyrene), general office waste, wastewater and human waste.

168. In order to prevent the uncontrolled dumping and / or burning of waste the following mitigation measures are proposed. Waste shall be managed according to the waste management hierarchy of reduce waste generated by careful planning, reuse and recycle waste materials where possible, and finally safe disposal of residual waste material. The remote location and lack of recycling and waste management infrastructure and capacity limit the implementation of recycling.

169. Waste materials such as cleared vegetation, wood and clean metal offcuts that require disposal shall be made available to the local community provided it is safe to do so. Recyclable materials should preferably be removed for recycling where this is safe and practicable. Non-hazardous non-toxic waste that is not recycled shall be disposed of at an appropriate licenced facility after approval from the local authority.

170. Waste oil shall not be disposed of to land or waters. Small quantities of waste oil may be made available for local reuse. Larger quantities should be removed to a recycling facility. Oil and fuel spill kits will be provided on site during construction and operation. Any oil or fuel spills shall be cleaned up immediately by digging out the contaminated soil and disposing at the landfill.

171. Any equipment or batteries that are rejected during installation and commissioning shall be removed from the island.

172. Human waste from workers will be disposed of via appropriate toilet and wastewater facilities to protect public health and prevent water pollution.

173. General solid waste will be disposed of at a facility approved by the local government (not including batteries and electrical equipment as described above). Food waste will be disposed of so as to prevent access by vermin. There shall be no burning of waste on the site.

174. **Ship waste**. All waste from the ship will be kept on the ship and disposed of in accordance with international law. Ballast water and wastewater shall not be discharged in near shore waters nor on the island.

d. Marine

175. Installation of the cable will have no significant impact on the physical marine environment. The cable of 17 mm diameter will be laid on the sea bed. Mitigation measures include standard practice of laying the cable along undersea valleys avoiding sensitive deep sea features such as vents and sea mounts, laying the cable on sand areas between reef in the near shore area where possible and minimising the trenching into near shore rock where this is unavoidable. Sediment activated in the shore zone will have minimal impact as this zone is subjected to waves with existing high levels of suspended sediment.

176. Marine impacts are further discussed under Marine Ecology below.

2. Impacts on the Ecological Environment

a. Terrestrial Flora and Fauna

177. **Vegetation.** Small amounts of vegetation will need to be permanently removed for the beach manhole in an area of about 5m x 5m, and the cable landing station in an area of about 40m x 40m. The cable landing station has already been cleared (there was no indication that this was related to the project). Vegetation will be removed along the cable corridor for sufficient width to excavate the trench and lay conduit, and the vegetation may be allowed to grow back on completion of the work. Most of this is scattered low grass and shrubs and there are thickets of salt bush about 3 m high towards the Main Road, of which approximately 500 sq m will be cleared. There is no vegetation of conservation significance affected by the project and these vegetation types are common and widespread on the island. It is also noted that the area to the north of the access track is designated for subdivision into ¼ acre lots,[48] so by the time the project proceeds this area will already be developed and cleared.

178. Mitigation measures in relation to vegetation clearing include selection of the final cable easement to be just on the side of the existing access track to minimise the area of additional land take and standard good practice mitigation measures including minimising the amount of clearing and land disturbance to the minimum practical.

[48] Pers comm, OIC Lands Division, Kiritimati

179. **Fauna.** There will be no significant impact on wild animals by the project. The area to be permanently cleared is already cleared or of little habitat value. The endemic IUCN listed Bokikokiko bird was not found on the site in a rapid field assessment by ECD officers, and is considered unlikely to be due to the adjacent houses and the presence of domestic pigs and chickens. The habitat value of the salt bush thickets is degraded by the presence of domestic pigs and chickens, and the adjacent houses and associated cats. It is also noted that the area to the north of the access track is designated for subdivision into ¼ acre lots.[49] Nevertheless standard good practice mitigation measures will be applied including minimising the amount of clearing and land disturbance to the minimum practical.

180. Due to the possible but unlikely presence of the endemic IUCN listed Bokikokiko bird, ECD has recommended that a check be made for nests to confirm that there are no nests prior to clearing vegetation. This is proposed to be carried out by ECD officers[50] if saltbush or tree heliotrope is present at the time that the project proceeds (given ongoing subdivision of adjacent land and current use of the land, it would not be unexpected that this vegetation may be cleared separately to the project before the project proceeds).

b. Marine Ecology

181. **Potential Impacts.** The impacts derived from the inshore (coastal) and offshore (deep ocean) marine scope of works during the construction phase of the project are expected to by minor, localized to the immediate footprint of the works, and able to be managed through standard engineering good practice mitigation measures as outlined in the ECOP (ADB, 2014) for the planning and construction of submarine fibre optic cable projects in small tropical islands of Melanesia, Micronesia and Polynesia.

182. There are no threats identified to the area's marine and coastal biodiversity associated with the project. As such the potential impacts of the works on the marine environment are considered to be minor, temporary, irreversible, able to be managed through standard mitigation measures and overall of low significance.

183. Impacts to the marine environment and coastal waters derived from the projects scope of works associated with the proposed cable alignment are restricted to marine areas associated with the deep sea waters (branch line 375 km) and the shallow coastal ecosystems of Kiritimati Island at the termination site. Potential impacts to the marine ecosystem and resources are expected to occur during the projects construction phase only. No impacts resulting from the operation of the cable are expected.

184. The tables below list potential key impacts to the inshore marine habitat, its biological resources and community users; and offshore (deep ocean) key marine habitat and biological resources associated with the construction phase of the project.

Figure V.1 - Inshore marine environment – construction impacts

Inshore Marine Environment	Potential Impacts - Construction Phase
Hard Corals	Due to the exceptionally low percent live hard coral cover within the PIA physical impacts to the existing live colonies are expected to be very minor if any impact at all. Indirect impacts resulting from the construction works (increased sedimentation) to these colonies is not expected to have any short or long term negative impacts on hard corals as wave action and tidal movement in this area will disperse sediments quickly.

[49] Pers comm, OIC Lands Division
[50] Pers comm, OIC Environment and Conservation Division, Kiritimati

Inshore Marine Environment	Potential Impacts - Construction Phase
Soft Corals	No soft corals were located associated with the cable alignment or within the PIA. Therefore no impacts will occur.
Invertebrates	Due to the exceptionally low numbers of invertebrates recorded during the assessment coupled with the mobility of most resources it is expected that there will be very minor if any impacts to these resources resulting from the construction phase of this project. Burrowing and sessile benthic invertebrates (e.g. marine worms, giant clams) that reside directly in the small pathway were the cable will be laid will be impacted by the construction activity. All but the sessile individuals are expected to relocate when disturbed however mortality of some individuals is expected. This mortality is very minor and restricted to the trenching areas and as such will have very little impact on the resource stock population and ecosystem functions associated with this reef system.
Fin fish	The mobility of finfish will enable the individual animal to actively move away from potential harm (impact) and as such no impacts are expected as a result of the construction phase of the project.
Macroalgae	Macroalgae located in the direct path of the trenching will be physically impacted by the construction activities of the project. Low mortality rate are envisaged as the disturbed macroalgae can survive once disturbed. This is a normal process for these resources. Therefore minor impact to the macroalgae communities is expected from the construction phase of the project.
Sea grass	No sea grasses were located associated with the cable alignment or within the PIA. Therefore no impacts will occur.
Mangroves	No Mangroves were located associated with the cable alignment or within the PIA. Therefore no impacts will occur.
Turtles	No turtles (in the water or on land) were located during the marine assessment and as such no impacts will occur.
Inshore marine Species	No inshore marine endemic, rare, red listed or habitat restricted species were located during the assessment and as such there will be no impacts.
Marine Reproduction	No nursery or breeding grounds for key invertebrate or vertebrate marine species were associated with the PIA.
Marine Protected Areas	There are no MPA in close proximity to the cable PIA, and as such no impacts will occur.
Coastal Cetaceans	The Spinner Dolphin (*S. longirostris*) was associated with the offshore waters to the south of the proposed cable alignment. These are highly mobile mammals and as such no impacts are expected as a result of the construction period. The ECOP (ADB, 2014) need to be implemented when cetaceans are located.
Dive Tourism	Tourist Dive operators do not use reef systems within the cables PIA, as such there are no impacts to this industry expected from the cable construction and operational period.
Local Fishers	Local fishers utilise the reef and oceanic waters within the PIA for subsistence and artisanal purposes for a range of inveterate and vertebrate marine resource. During project construction all fishing activities need to be prohibited within a 250 m

Inshore Marine Environment	Potential Impacts - Construction Phase
	exclusion zone either side of the cable alignment. Public awareness and compliance is required.
FAD's	FADs are utilized to support the local artisanal fishing fleet for both daily subsistence and small scale commercial activities and are deployed along the offshore ref system associated with the western reef. No FADs are deployed opposite the PIA. During project construction all existing FAD's and planned new FAD's need to be prohibited within a 250 m exclusion zone either side of the cable alignment. Public awareness and compliance is required.
Aquarium "pet" fish trade	The commercial "Pet Fish" aquarium fishery periodically utilise the reef systems within the PIA. During project construction all "pet fish collection activities need to be prohibited within a 250 m exclusion zone either side of the cable alignment. Public awareness and compliance is required.
Marine Cable Exclusion zone	During the operational phase of the cable a site specific exclusion zone for all fishing activities should be maintained including 100 m either side of the cable alignment. Community awareness including physical on site land signs and shoreline exclusion markers should be considered.

Figure V.2 - Offshore marine environment – construction impacts

Offshore Marine Environment	Potential Impacts - Construction Phase
Hydrothermal Vents	Hydrothermal Vents and their associated benthic ecosystems are fragile in nature and should be actively avoiding during the deployment of the cable. The ECOP (ADB, 2014) recommends an avoidance distance of 1 km needs to be maintained. Avoidance will render impacts non-existent.
Sea mounts	Seamounts and associated unique benthic ecosystems are biodiversity hotspots in the open ocean and subsequently are a target for commercial fishing (pelagic and benthic resources). The ECOP (ADB, 2014) recommends an avoidance distance of 2 km should be maintained. Avoidance will render impacts non-existent.
Oceanic Cetaceans	A number of large marine mammals (e.g. whales) utilize the offshore waters where the cable will be laid and may come in contact with the cable deployment ship and/or cable. The ECOP (ADB, 2014) need to be implemented when cetaceans are located. Cetaceans are highly mobile mammals and as such no impacts are expected to result from the construction period.
Commercial Fisheries	The offshore commercial pursine and long line fishing fleets utilise the waters where the cable will be deployed. Notification to the fishing fleeting and all vessels in the vicinity of the cable vessel and its path during cable deployment is required. There are no impacts to the fishing vessels nor their activities from the deployment and operation of the telecommunication cable,

185. The impacts derived from the inshore (coastal) and offshore (deep ocean) marine scope of works during the construction phase of the project are expected to be very minor, no identifiable significant environmental impacts, site specific, completely irreversible and can be managed through standard mitigation measures. There are no threats to the areas inshore or offshore marine and coastal biodiversity. There are no expected cumulative effects on the marine organisms or any irreversible or irretrievable impacts expected from the scope of works.

186. **Mitigation Measures:** The Environmental Code of Practice (ECOP) (ADB, 2014) for the planning and construction of submarine fibre optic cable projects is to be used to provide the requirements for the deployment of the Kiritimati Island cable project. Specifically, ECOP 8: Protection of Coastal Areas, Marine Habitats and Marine Species should be used.

187. The ECOP (ADB, 2014) contains specific instruction to be employed to reduce and minimize potential impacts during the construction phase of the project. These need to be fully understood and implemented by the contractor/s. In addition, an avoidance strategy needs to be adopted for the deployment of the entire length of the cable to ensure encroachment on key environmental habitats (e.g. hydrothermal vents, coral reefs) is not undertaken. The successful implementation of the ECOP and the avoidance strategy will assist in mitigating potential short and long term adverse environmental impacts.

188. Key recommended mitigation measures during the construction phase of the project should include; i) the inshore cable deployment and trenching needs to be placed on the substrate within the natural reef channels and aligned perpendicular to the Beach Man Hole (beach manhole) landing site, ii) all trenching operations burying the cable, need to be undertaken quickly and with the least amount of degradation of the benthic substrate, iii) all trenching operations need to be backfilled with cement (the beach bedrock through to the intertidal reef flat) and beach material through to the beach manhole, iv) every effort needs to be undertaken to prevent physical damage to any living hard coral colony, v) the cable will need to be floated and aligned before positioned onto the substrate vi) due to the exceptionally low number of living hard coral there is no biological reason for an experienced marine ecologist to be present during the cable's inshore deployment - assistance from staff of the Kiritimati Island Division of Fisheries should be considered and vii) deep ocean cable placement needs to avoid key bathymetry features and benthic and pelagic biological habitats and species as outlined in ECOP.

189. The use of sonar as described in Annex I of the Marine Ecology Report and in ECOP will have little if any impact on the ability of dolphins to communicate and or feed during the cable deployment if the recommended mitigation measures are followed.

190. Due to the nature of the potential minor impacts no specific marine monitoring program is required, however due diligence in ensuing the recommended mitigation actions highlighted above and detailed in the project's ESMP are undertaken and managed effectively.

3. Impacts on the Socioeconomic Environment

191. During construction there are a number of potential social and economic impacts associated with soil, water, air quality, noise and waste management. These issues are addressed under Impacts on the Physical Environment.

192. There may be impacts on access, safety, and convenience associated with movement of trucks and vehicles, project works and materials storage during construction. Access restriction will be limited to the house closest to the water and for vehicle access only as all other sites have alternative access tracks and foot and motorbike access will still be possible. As a mitigation measure the Contractor and PMU will carry out consultation with local residents in order to minimise the impact of these works.

193. Occupational health and safety risks arise as in any construction project. All works will be required to comply with the worker safety laws of Kiribati, World Bank EHSG and and te health and safety requirements of the contractor, Southern Cross Cables.

a. Noise

194. Noise will occur during construction due to use of vehicles, plant and equipment, movement of materials and various construction activities. The consequences of this are low and short term. Nevertheless, standard good practice measures shall be applied to minimise disturbance to neighbouring residents. Noise is a common source of complaints on construction projects.

195. During Construction a range of standard noise mitigation measures will be applied with the aim to meet the Noise Level Guidelines at sensitive receptors (refer Operations Impacts section for noise objectives). Mitigation measures include the following. Workers are to be briefed in being sensitive to noise impacts on the neighbouring community including antisocial behaviour; Consult and inform neighbours and local community of construction activities in relation to noise generating activities. If valid complaints are received, modify methods if possible to reduce impact. Do not undertake activities outside of scheduled daytime hours. Noise from equipment will be mitigated by ensuring that all equipment is in reasonable condition and regularly maintained and fitted with exhaust silencers in accordance with manufacturers recommendations; and turning off or throttle down plant and machinery when not use.

b. Air quality

196. During construction short term and intermittent air quality impacts may arise due to dust generated by disturbance of soil, materials handling and other site activities and smoke due to equipment operation and burning of waste. The consequences of this are low and short term, as the soil is sandy and not highly prone to producing high levels of dust. Nevertheless, standard good practice measures shall be applied to minimise nuisance to neighbouring residents. Dust and fumes are a common source of complaints on construction projects.

197. During construction mitigation measures will be taken to minimise impacts by dust or smoke on neighbouring land uses or sensitive receptors. Dust will be minimised by minimising the area of vegetation clearing and ground disturbance, stabilising access ways, restricting vehicles to designated routes, revegetating or stabilising disturbed areas as soon as practical, covering dusty loads during transport, modifying work if neighbours affected especially during dry windy conditions, cover stockpiles and wet dusty areas where practical. Change work method or timing if dust blowing into residences. Smoke nuisance from equipment operation will be minimised by ensuring mechanical equipment is maintained and fitted with appropriate exhaust systems. There shall be no burning of waste on the site.

C. Operation Stage Impacts

1. Impacts on the Physical Environment

a. Soil and Water

198. During operation there is a risk of soil and water contamination due to spills or leaks of fuels and oils from the backup diesel generators and associated fuel handling and storage.

199. Mitigation measures for this include sealing and bunding of areas where spills and leaks could occur, including containing fuel and oil storage and handling areas, and equipment such as generators and fuel pumps; oil separation on drainage outlets and sumps and training of operators. Oil and fuel spill kits will be provided on site during construction and operation. Generators, transformers and fuel storage, handling and pumping area to have spill containment in the form of impervious base and bund walls and oil water separation on outlets. Bunding in accordance with latest version of Australian Standard *AS1940 The Storage and Handling of Flammable and Combustible Liquids*, or other internationally accepted standard. The containment volume required is the volume of the largest container, tank or drum, plus 10 per cent.

a. Waste Management

i. Impacts

200. Waste management has been identified as a key issue by ADB[51] and GoK. The project will generate wastes during operation and at decommissioning. This includes equipment and batteries requiring replacement and at the end of their service or at decommissioning when they will be removed.

201. In the case of batteries lead acid batteries contain significant quantities of lead, a toxic heavy metal, and acid, while other battery types contain toxic materials, which can similarly cause environmental contamination and potential health impacts. Disposal to land will contaminate soil and groundwater.

ii. Waste Management Mitigation Measures

202. In order to prevent the uncontrolled dumping and / or burning of waste the following mitigation measures are proposed. Waste shall be managed according to the waste management hierarchy of reduce waste generated, reuse waste materials where possible, recycle materials and finally safe disposal of residual waste material. The remote location and lack of infrastructure limit the implementation of recycling on the island.

203. Recyclable materials should preferably be removed for recycling where this is safe and practicable. Non-hazardous non-toxic waste that is not recycled shall be disposed of at an appropriate licenced facility after approval from the local authority.

204. Waste oil shall not be disposed of to land or waters. Small quantities of waste oil may be made available for local reuse. Larger quantities should be removed to a recycling facility. Oil and fuel spill kits will be provided on site during construction and operation.

205. Where equipment is replaced or in the event of damage or at decommissioning, old equipment should be taken away from the island for recycling or disposal. This could be by the Contractor in conjunction with the future supply of replacements. Other general solid waste will be disposed of at a facility approved by the local government and ECD.

206. Human waste will be disposed of via appropriate toilet and wastewater facilities to protect public health and prevent water pollution.

2. Impacts on the Biological Environment

207. There will be no significant ecological impacts as a result of the operation of the project. The cable on land will be buried. Should maintenance be required then the same mitigation measures would be applied as for construction. The cable in the sea would simply lie on the sea bed and would be expected to become partially or fully covered in sediment and plant and animal growth.

208. There would be no impact on the environment from electrical currents, electrical and magnetic fields or “radiation” (a concern raised in community consultation).

3. Impacts on the Socioeconomic Environment

a. Air Quality

209. During operation there will be minor impacts on local air quality from the intermittent operation of the backup diesel generators. During operation mitigation measures for air impacts will include ensuring that diesel generators are fitted with standard emissions controls

[51] ADB *Pacific Region Environmental Strategy 2005–2009*

as specified by the manufacturer and generators are serviced and maintained in accordance with manufacturers specifications.

b. Noise

210. During operation noise will be emitted due to the intermittent operation of the backup diesel generators. The noise impact on adjacent residences will depend on the distance to the residences, the selection of generators, times of operation and use of mitigation measures. Noise impacts will need to be reassessed at the time of generator selection and selection of the building materials and any noise shielding enclosure.

211. The adjacent land is in the process of being subdivided and leased out for residential development. By the time the project proceeds, in at least 2019, it is expected that there will be residents on adjacent sites to the cable landing station. The noise assessment is therefore required to take into account all potential surrounding house sites.

i. Noise objectives

212. **Community Noise**. With respect to noise and other pollution, ADB *Safeguard Policy Statement* states that ADB expects project performance to meet the World Bank Group's (IFC) *Environmental, Health, and Safety (EHS) Guidelines*. The EHS Guideline is that noise impacts should not exceed the EHS Noise Level Guidelines for a given sensitive receptor, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

213. The applicable EHS Noise Level Guidelines are as follows.

Table V.1: World Bank EHS Noise Level Guidelines[52]

	One Hour LAeq (dBA)	
Receptor	**Daytime 07:00 - 22:00**	**Nighttime 22:00 - 07:00**
Residential; institutional; educational*	55	45
Industrial; commercial	70	70
Noise impacts should not exceed the levels above, or result in a **maximum increase in background levels of 3 dB** at the nearest receptor location off-site For acceptable indoor noise levels for residential, institutional, and educational settings refer to WHO (1999)[53]		

World Bank EHS Noise Level: Background +3 dBA

Ambient Noise Environment	Indicative background noise dBA	Target "Background +3 dBA", EHS Guidelines
Quiet rural	30	**33**
Quiet urban	45	**48**

ii. Noise analysis

214. A preliminary conservative noise analysis is given here, which will need to be reviewed at the stage of generator selection.

215. The site is residential, so the noise limit as One Hour LAeq would be 55 dBA and night time 45 dBA. Also the site would be identified as "quiet urban" indicating a nominal background

[52] World Bank / IFC (2007). Environmental, Health, and Safety (EHS) Guidelines. General EHS Guidelines: Environmental. 30 April 2007.
[53] World Health Organisation (1999). Guidelines for Community Noise (http://www.who.int/docstore/peh/noise/guidelines2.html)

noise of 45 dBA and a noise limit of 48 dBA. For daytime the lower limit of 48 dBA applies. The limiting criterion is thus night time noise limit of 45 dBA.

216. The generators to be used have not yet been selected. For this analysis it is assumed that the selected generator will be have a noise attenuation enclosure and have noise levels specified by the manufacturer to be no greater than 75 dBA at 1m distance. Considering dissipation over distance alone[54] the noise levels will be as follows at distances from the source. Thus the daytime noise guideline level of 55 dBA will be achieved at approximately 10 to 11 m distance from the new generator while the nighttime guideline of 45 dBA will be achieved at about 32 m.

Table V.2: Noise Levels from New Enclosed Generators with Dissipation Over Distance*

Distance from New Generator (m)	Noise Level dBA	Note
1	75	Nominal (adjust as specified by manufacturer)
2	69	
4	63	
8	57	Day time guideline 55 dBA
16	51	
32	45	Night time guideline 45 dBA
64	39	

*reduction of 6 dBA for each doubling of distance

iii. Mitigation measures

217. At the detailed design stage, this analysis should be reassessed to ensure that the selected generator will meet the criteria. House sites may be closer than the distance required to achieve the night time guideline. Therefore selection of a quieter generator, or additional noise shielding may be required.

218. **Occupational Noise**. The World Bank Group's *Environmental, Health, and Safety (EHS) Guidelines* state that no employee should be exposed to noise level greater than 85 dB(A) for more than eight hours per day without hearing protection, for heavy industry where there is no demand for oral communication.

c. Cable infrastructure

219. Physical impacts of the operation of the cable infrastructure have a social aspect and are addressed above, including soil, water, noise, air and waste. These are discussed in the earlier section.

220. **Cable exclusion zone**. An exclusion zone 200 m wide (100 m each side of the cable) is proposed to be established in the coastal area to protect the cable. This has a potential social impact in the need to exclude most activities from the exclusion zone, including anchors, fish traps, FADs, or heavy fishing. This requirement was identified in consultations including with people in the vicinity of the cable site including fishers in groups and in individual households, aquarium fish industry, Marine and Fisheries Division, Port Authority, and wider community stakeholders. All people consulted supported the concept. Local people also offered suggestions as to how to ensure the protection of the cable. It was identified that there are no specific territories for fishing and other use of the reef and fishing areas and users are happy to move to areas outside the exclusion zone. It is concluded that there is no significant social impact as a result of the cable exclusion zone.

[54] Noise is decreased by dissipation in the atmosphere by 6 dBA for every doubling of distance. Further reduction occurs by absorption into the ground, physical barriers and to a minor degree vegetation while the landform can also reflect and concentrate noise.

221. **Health and safety.** There would be no health and safety impact from the cable in operation from electrical currents, electrical and magnetic fields or "radiation" (a concern raised in community consultation). Even if the cable is damaged or broken there will be no danger as the electrical current will be automatically cut if the cable is damaged.

d. Impacts Associated with Internet Use

222. Operation stage impacts of improved internet on the social and economic environment include both potential positive (beneficial) and potential negative impacts. Mitigation measures are proposed for negative impacts while enhancement or facilitating measures are proposed for helping to achieve the potential positive (beneficial) impacts.

223. The project will provide access to higher bandwidth capacity and lower unit cost international communications. The primary beneficiary of the project will be the telecommunication operators and internet service provider/s. This potentially provides overall positive social and economic benefits impacts through more effective and potentially cheaper internet. This has potential benefits for economic and social development, business, government, education, health and the non-government sector.

Realising the benefits of improved internet

224. The opportunity for, or positive risk of, the economic and social benefits to be realised, will be enhanced by initiating actions for the society to be prepared for this opportunity. It is therefore recommended that the GoK (MICTTD) work with government, business and community of Kiritimati to implement a local strategy to make the most of the opportunities.

225. Health. In community consultations stakeholders identified benefit opportunities of improved internet in health education, sex education and family planning. This would help to improve health issues related to poor diet, and reduce rates of unplanned pregnancies and STDs.

226. Health. Consultation with health professionals indicated improved internet would allow for increased efficiency of receiving results, obtaining second opinions, developing an e-health system with specialists and increased access to ongoing professional development. With the planned increase in population the health services communication needs continued improvement.

227. Education. Improved internet would assist the education system on Kiribati in providing professional training to staff, on-line literacy and numeracy support for students, access to specialised packages for students with special needs, easier access to research material for students and teachers, easier access to post school opportunities and other curriculum supports. The current educational information technology infrastructure on the island would need to be improved to fully utilise the improved communication. [55]

228. Access to computers. A constraint on achieving the benefits of internet use for the public and schools is lack of access to computers. There have been small internet cafes established but these have deteriorated over time. It is recommended that support be given to establishing / maintaining public access internet facilities in the main population centres and availability of computers in schools and health facilities.

229. Gender. Community consultation included specific meetings with women's groups at the project site and in the wider community. Gender benefits from the project includes assisting in reducing women's isolation as it allows for access for skill development, increased training and employment opportunities and increases peer support, keeping in touch with family members and being able to participate in community and government decision making.

[55] Kiritimati Education Co Ordinator, 4 October 2017.

Opportunities for health education, sex education and family planning would help to improve health, and reduce rates of unplanned pregnancies and STDs. Issues associated with inappropriate and harmful use of the internet however may particularly affect women. Enhancement and mitigation measures for all these aspects are provided in separate headings below.

230. Community consultations indicated other benefits including: Training, professional development and informal learning; Networking; Keeping in touch with family and friends in Tarawa and abroad.

Cost of Internet

231. In community consultations for the project, many individual stakeholders complained about the high cost of internet, and expressed concern about the future cost of the new service.

232. The opportunity for the cost of internet access to be reduced as a result of the project is subject to the ISP/s passing on the lower cost. As there is currently one dominant ISP on the island, there is no competition which would otherwise be expected to drive better service at lower cost. It will require a strong regulatory capacity to ensure the benefit of the submarine cable is translated to retail consumer benefit. Thus, the risk of the ISP not passing on the benefit will be mitigated by GoK regulating to ensure this.

233. The Communication Commission of Kiribati (www.cck.ki) is the telecommunications regulator in Kiribati. There is allocation for them in the EMC project (of which the Kiribatiti cable project is a part) for capacity building to be able to regulate the ISPs. This has been provided for in legislation in the Communication Act 2012 and recent amendment.[56]

234. Customers could pay more for services not only by a higher unit price but also a higher overall price due to the tendency to use many times more data than currently being used. Another issue is where customers exceed the allowance in their data plan and pay a much higher price for the excess. Therefore, regulation should include the unit cost, the overall cost and the structure of the data plans so that customers are not unknowingly receiving large charges for exceeding a cap.

235. This should be complemented by consumer awareness campaigns by GoK and the ISPs. The ISP/s are also recommended to implement policies to manage these aspects for the benefit of consumers, and develop plans and customer education to address these issues. It is recommended that GoK encourage or require this of the ISPs. The ADB and GoK should consider obtaining specialist advice on these aspects.

Inappropriate and Harmful Internet Use

236. Community consultations indicated concerns in the community about negative impacts of inappropriate and harmful use of the internet. This included pornography, bullying, time wasting, and distraction from education and family life. Mitigation measures include public awareness and potentially filtering of internet content. MICTTD advises that at October 2017 it had two radio programmes encouraging more awareness on the appropriate use of the internet, targeting mostly young users and children as well as parents, and plans for this to be an ongoing program[57]. As a mitigation measure against inappropriate and harmful use of the internet, it is recommended that public awareness programs be continued and extended into other avenues, such as schools, and civil society including women's and youth groups.

[56] Pers comm MICTTD
[57] pers comm, MICTTD

237. As a mitigation measure against inappropriate and harmful use of the internet, it is recommended that public awareness campaigns include understanding of ability to apply filters to internet use, particularly targeted at families, schools and women's groups. Internet filters can be used to block inappropriate and harmful use of internet. This can be done at the ISP level, at the organisation and family level and by the individual user. MICTTD advises that the government currently does not have any plans to filter content at the ISP level, however Government ministries already have policies to filter content for individual government Organisations.

238. It has been recommended that a task force be set up involving all the stakeholders for regular communication and consultation and regular press releases to provide updates to the general public. MICTTD advises that the Government has established an ICT taskforce for all Government stakeholders and use it to share updates among the Government.

VI. INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION

239. Information Disclosure, Consultation, and Participation are requirements of the ADB SPS.

A. Consultation and Participation Undertaken

240. Stakeholders consultations / meetings were held with affected people and other stakeholders as listed in the table below, with further detail and attendance records attached in appendices. Meetings were held with up to 90 people as groups and individuals. Meetings have also been held previously with the technical consultant visiting the island in April 2017 including site selection in consultation with government and other representatives on the island.

241. Consultation showed broad community support with no one objecting to the project, although some concerns were raised about specific issues. Addressing concerns and achieving benefits are also considered in the impacts section of this IEE.

242. Approximately half of the people consulted were women. Key meetings were held with affected persons, including fishers, both in a formal community meeting with Tabwakea Ward 3, the area adjacent to the cable site, and individual meetings and interviews with three of the four households immediately adjacent to the cable route. Two women-specific meetings were held, a formal meeting with Kiritimati Women's Association *Nei Baneawa*, and a meeting with women of Tabwakea Ward 3, the area adjacent to the cable site. A formal meeting was also held with community leaders including CSOs. All these included an interpreter and project brochures in I-Kiribati language were distributed at the meetings at the site location. Various other meetings were held with government agencies.

Table VI.1 – Key Consultation and Participation Activities, Sep-Oct 2017

Date	Meeting	No of people
27 Sep	Minister for LPID, MLPID Secretary and Deputy Secretary – Kick off meeting	3
27 Sep	Land Division OIC, MLPID Assistant Secretary (Site visit)	2
28 Sep	Government Agencies – formal presentation / workshop in conjunction with MLPID Senior Assistant Secretary also presenting / interpreting	9
28 Sep	Tourism officer	1
28 Sep	MLPID Development Planning Unit	1
29 Sep	Lands Division OIC	3
29 Sep	Environment and Conservation Division	8
2 Oct	Community leaders meeting including CSOs (Church leaders, Old Mens' Association *Marewen okon*, Women's Association *Nei Baneawa*, Youth Organisation, Health Service, Education, Chamber of Commerce, Kiritimati Urban Council) – formal presentation / workshop in conjunction with MLPID Senior Assistant Secretary also presenting / interpreting	10

Date	Meeting	No of people
3 Oct	Environment and Conservation Division OIC	3
3 Oct	Fisheries Division OIC	1
4 Oct	Education Coordinator	3
5 Oct	Fisheries Division, follow up with Marine Ecologist	1
5 Oct	Kiritimati Women's Association *Nei Baneawa* – formal presentation / workshop - in conjunction with MLPID Senior Assistant Secretary also presenting / interpreting	10
5 Oct	Affected persons - Ward 3 Tabwakea Community meeting, (the area adjacent to the cable site), including fishers – formal presentation / workshop at village meeting house, with MLPID Senior Assistant Secretary also presenting / interpreting, - provided project brochure in I-Kiribati language	11
5 Oct	Kiribati Broadcasting corporation (Radio)	2
5 Oct	ATHKL (ISP)	1
8 Oct	Affected persons - Women's Community Meeting Ward 3 Tabwakea with interpreter, provided project brochure in I-Kiribati language	6
8 Oct	Affected persons -Ward 3 Tabwakea Community follow up, with interpreter	5
8 Oct	Affected persons - Individual meetings and interviews at three of the four households immediately adjacent to the cable route, including fishers, with interpreter, provided project brochure in I-Kiribati language. All meetings included women - mother of the family.	5, 2, 6
9 Oct	Meteorology office	1
9 Oct	KI Water Project, KI Energy Sector Project	4
9 Oct	Medical Director	3
9 Oct	Kiritimati Urban Council Clerk	2
9 Oct	Aquarium fish business	2
9 Oct	Dive Business	2
10 Oct	Port Authority	1
13 Oct	Debriefing with Minister and Secretary MLPID	2
28 Sep-11 Oct	Various individual discussions with business, government and civil society representatives and other individuals (some planned, some opportunistic).	~30

243. Details of persons consulted, and identified benefits and concerns are attached as an appendix. Examples of benefits identified in consultations included the following. Easier communication, improved communication with Tarawa and government services, access to online courses for school leavers, easier business promotion, would allow for faster consultations with medical specialists working with Pacific Islands Medical Aid (PIMA). Advertising and promotions (radio seen as expensive), access to awareness programs, developing awareness campaigns, sex education training more accessible, keeping up to date with research, NGOs and Churches, access to training programs, ease of submitting applications on line, increase knowledge, research, accessing news updates, increased opportunity after school for school leavers to do on-line training, easier access to radio broadcasts and better communication with family and friends who are off island. Improved banking as currently ATM unreliable and cash is needed when coming from off island. Business security and tourism enhancement (tourists that were interviewed commented that the poor internet meant they limited their stay, or had friends who decided not to join them, as they had businesses they needed to stay in touch with). Court sessions were being conducted the week the consultants were there. The lawyers, who come from Tarawa for the two-week sessions, stated that improved internet would increase efficiency in preparing for cases.

244. Concerns raised in consultations included cost and quality of internet service, pornography, bullying, safety of the cable, not being prepared with lack of computers in schools, improvement to radio broadcasting. These concerns have been considered in the design of

the project (refer to the section Impacts Associated with Internet Use under Operation Stage Impacts).

B. Further Consultation and Participation

245. Further consultation and participation will continue through the design phase and into construction and operation. This includes keeping local communities and stakeholders informed of the project and establishing and implementing the grievance redress mechanism (GRM) to receive and address complaints and concerns. The project consultation and communications plan will be updated and implemented throughout project.

C. Information Disclosure

246. The project documents will be published on the ADB website. Environmental assessment documents will be made available to the public as part of the local approval process.

VII. GRIEVANCE REDRESS MECHANISM

A. Background

247. A GRM is required by ADB's SPS, Public Communications Policy as well as by good practice. The GRM is a system for receiving and resolving grievances including complaints and concerns from affected people and stakeholders about environmental and socioeconomic issues in relation to the project. Complaints are to be resolved promptly with a process that can readily be understood and accessed by all segments of affected people and is responsive to gender and cultural aspects.

248. Typical grievances that may occur in projects of this nature may include (but not limited to) during construction damage to or use of public or private property or communal resources, safety risks or incidents including traffic and machinery, blocking access, noise, dust, fumes, soil contamination, water pollution including groundwater contamination, litter, rubbish dumping, unauthorised land use, unauthorised tree cutting or vegetation removal, antisocial or criminal behaviour and harassment by contractors or their employees. Grievances during operation could be in relation to noise from backup generators or issues in relation to internet availability, performance or pricing.

249. Experience on other projects in Kiritimati. Staff in other infrastructure projects currently under implementation were consulted about their experience with GRM or equivalent on their projects, in order to learn lessons to build into or out of the GRM for this project. The Kiritimati Island Energy Sector Program PMU and the Kiritimati Island Water Project PMU both advised that they have had complaints come directly to the PMU, the PMU has then gone back to the Contractor and directly resolved the issue, then liaised with the complainant. Escalation processes in both cases have been for the complainant to Secretary of MLPID.

250. Informal consultation with a lawyer from Tarawa experienced in land disputes, met in Kiritimati, indicated that people can and do go to the police with unresolved complaints and / or directly to court. It was said that in Tarawa such legal cases are usually resolved in favour of the project. The government has an established general complaints unit in Kiritimati called the Customer Service Unit. Advice on this was not clear as to its effectiveness.

251. Complaints are also sometimes received by Kiritimati Urban Council (KUC), their local councillor, church leader, or other community leaders who can assist the complainant to approach the PMU or Contractor, or represent them directly.

252. Consultation at a high level with MLPID concluded that the processes being used in other current projects in Kiritimati are suitable. MLPID is the coordinating agency on the island and hosts the PMU for the other projects mentioned above, as well as having a Project Monitoring

Office within the Development Planning Unit, which is responsible for monitoring smaller scale government projects.

253. A GRM plan for the EMC project is set out in the IEE for that project. As this includes Tarawa, it is a reasonable basis for this project. The GRM proposed here is adapted based on local experience and advice from consultations.

B. Grievance Redress Mechanism Plan

254. The proposed GRM process is summarised below:

Table VII.1 – Grievance Redress Mechanism (GRM) Process Summary

	Process	Timing
1	Affected person or complainant, or community leader or other representative, takes grievance to PMU or Contractor.	
2	PMU and Contractor seek to address the issue and record in GRM Register.	Immediately / ASAP
3	If can't be addressed immediately, PMU and Contractor agree on a plan with the Affected person or their representative, and recorded in GRM Register.	1 week / ASAP
4	Agreed plan implemented ASAP and recorded in GRM Register. Where necessary this may involve MLPID / MICTTD and/or a community leader.	
	Escalation process if unresolved	
	If unresolved at project level, Affected person or their representative may take complaint to (in order of escalation):	
5	Environment and Conservation Division, MLPID, MICTTD, Kiritimati Urban Council.	
6	MLPID / MICTTD reports back to Affected person.	1 week
7	If still unresolved Affected person may go to police and/or take legal court action.	

255. The GRM will be established by the Project Management Unit. The PMU and the Contractor will inform and consult the community adjacent to the cable site about the GRM and how it will work via a community meeting held before construction commences. A sign at the site and notices on community notice boards will give the contact details for lodging complaints.

256. Grievances, complaints and concerns can be lodged with the PMU or the Contractor on site. A GRM Register will be kept on site in which complaints are recorded. The grievance will be assessed by the PMU to confirm that it is related to the project. If it is urgent or can be immediately resolved, action will be taken and this recorded in the GRM Register and the complainant informed. The aim will be for complaints to be acted on as soon as practicable, and at most within one week. Where this cannot occur, the complainant will be advised within one week of the complaint, what action is to be taken. If a complainant approaches the Contractor directly, the Contractor will receive the information and pass it onto the PMU without delay. The Contractor will take any immediate action necessary to resolve the issue if safe, practical and appropriate. Where there is urgency in terms of safety, damage to property or environment, then this will be acted on urgently.

257. The person/s with the grievance may also contact a local representative or community leader who may then assist them or contact the PMU or Contractor on their behalf.

258. Regular meetings between the Contractor and PMU will review the complaints register as part of regular meetings and reporting. A brief summary of complaints will be given in regular reports and any outstanding grievances identified. The PMU will review the GRM Register for complaints and confirm that they are resolved satisfactorily. Any outstanding complaints will be investigated. The PMU and Contractor will work together proactively to ensure grievances are satisfactorily resolved.

259. Escalation. Where complaints cannot be resolved by the GRM process, the complainant may take their complaint to the BNL, MLPID in Kiritimati, MICTTD in Tarawa, and/or will be able to take their complaint to normal legal processes. Complainants may also go to Environment and Conservation Division in relation to environment related complaints.
260. Training in awareness of the GRM will be provided to PMU and Contractor staff. There will be no fees or charges made in relation to lodging complaints or otherwise accessing the GRM. Community consultation will include awareness of the GRM process with local residents, and community leaders, and signage at the site will explain this with contact details.

261. Operation. During operation any persons with complaints about the cable site, or about issues with the operation of the internet will be able to complain to BNL, MLPID or MICTTD. An internet public awareness campaign will include this information.

VIII. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

262. This section describes implementation and institutional arrangements and provides an environmental and social management plan matrix summarising the actions required to achieve the environmental requirements.

A. Institutional Arrangements

263. The Executing Agency for the project will be Ministry of Finance and Economic Development (MFED). The Implementing Agency for the project will be BwebwerikiNet Limited (BNL). BNL is the state-owned cable operating entity in the process of being establishing by GoK.

264. BNL will be responsible for procurement and financial management activities and will directly contract Southern Cross Cables Limited for the internet service in Kiritimati Island. BNL will be responsible to provide wholesale internet capacity to local telecom players in an equitable and nondiscriminatory way and will be the wholesale provider of the submarine internet bandwidth in Kiribati. BNL will sign a project agreement with ADB.

265. The Implementing Agency will be responsible for ensuring the project is constructed and operated in accordance with conditions of ADB financing, and reflected in implementation contracts. This includes compliance with the mitigation measures in the IEE and safeguard measures of the ADB SPS, including the EHSG.

266. A Project Management Unit (PMU) may be set up within the Implementing Agency. The Implementing Agency will be responsible for day-to-day project delivery including the supervision of the cable-laying contractor. This may be delegated to the PMU.

267. It is expected that the PMU will have local coordination support in Kiritimati. Due to the low impact of the land-based works, and the remote location (weekly flights only), it is not considered feasible to have full time specialised environmental staff on the project.

268. Training should be provided to the Implementing Agency and PMU and the Contractor in ADB environmental, social and safety requirements and procedures for project implementation.

269. The location of the land-based infrastructure (beach manhole, cable landing station, cabling and associated works) has been identified during this planning phase of the project. The Implementing Agency will be responsible for confirming the detail of the final location, securing land access (lease or easement), obtaining all necessary national and local approvals and permits, procuring contractors and supervising the land-based works, public and stakeholder consultations and managing complaints and grievances. This work may be delegated to the PMU.

270. It is noted that MLPID has a role in coordination of government agencies in Kiritimati. MLPID currently hosts the Project Management Units for KI Energy Sector Program and the KI Water Project, both of which are much larger in terms of physical works than the land works for the ICT Cable project. MLPID also has a Project Monitoring Office within the Development Planning Unit, which is responsible for monitoring smaller scale government projects.

271. Other agencies with roles include Lands Division for providing secure lease or land in the road reserve for the land side of the project, and Environment Division for local environmental permitting and regulation. Complaints may be received by a variety of parties and a Grievance Redress Mechanism will be established for the project (refer to GRM section).

272. All relevant contracts for implementation including construction and operation shall include requirements for compliance with this IEE and Environmental and Social Management Plan, ADB SPS 2009, IFC EHSG and ECOP.

B. Roles and Responsibilities

273. The management roles and responsibilities of the project implementation organizations are shown below.

Table VIII.1 - Project Implementation Organizations Management Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
Executing Agency: Ministry of Finance & Economic Development (MFED)	□□□□ Guide the development of the project and institutional arrangements for the lifeti me of the cable □□□□ Facilitate the smooth flow of funds and overall management of the project including quality of financial management and submission of withdrawal applications and annual financial audit reports □□□□ Ensure budgetary and resource support to enable the implementing agencies to prepare and deliver the project □□□□ Facilitate negotiation, signing, and execution of the project financing agreements □□□□ Expedite implementation and minimize cost by: – ensuring necessary counterpart funds are available – review invoices and payments to contractors, consultants, and other service providers □□□□ Provide representative to the Tender Evaluation Committee (TEC)
Implementing Agency: BwebwerikiNet Limited	□□□ Responsible for providing wholesale internet capacity to local telecom players and expand their capabilities to ensure that access is equitable, non - discriminatory and at prices that reflect costs □□□ Ensure that PMU is fully staffed and functional during the entire period of implementation □□□ Recruit, administer and supervise project management and technical consultants to assist them complete the due diligence including works contracts □□□ Prepare the legal and technical details for the cable solution
Project Management Unit	□□□□ Responsible for the timely negotiation and signing of the Master Purchase Agreement, Landing Party Agreement, and Capacity Use Agreement between Southern Cross Cable Company and BwebwerikiNet Limited □□□□ Train new recruits on the business process and accounting standards □□□□ Lead project implementation activities aiming at timely of works □□□□ Provide day-to-day support for project preparation activities □□□□ Establish and maintain the project accounts □□□□ Focal point for communication with ADB on project-related matters □□□□ Ensure compliance with grant covenants, project agreements, ADB's guidelines, procedures, and policies □□□□ Coordinate with implementing agencies on O&M of the project facilities □□□□ Prepare and/or submit withdrawal applications to ADB □□□□ Submit periodic reports, including semi-annual safeguards monitoring reports, to ADB and executing agency □□□□ Monitor and evaluate project activities and outputs and report the findings to MOF and ADB by monthly progress reports □□□□ Review and verify documents submitted by contractors and consultants

Project Implementation Organizations	Management Roles and Responsibilities
	□□□□ Facilitate communication with the local stakeholders □□□□ Consult with the public and disclose project information with ADB □□□□ Coordinate with the Office of Auditor General to have the project account audited annually □□□□ Operate and maintain PMU office
ADB	□□□□□□ Monitor compliance with all agreements, covenants, and reporting requirements. □□□□□□ Process withdrawal applications, claims, advances, liquidations, and disbursements in a timely manner □□□□□□ Facilitate implementation and review progress on a regular basis □□□□□□ Periodically update and revise the PAM as and when necessary during each review mission and following any changes in program investment costs, scope, or implementation arrangements. □□□□□□ Review oversight of compliance with ADB's Safeguard Policy Statement (2009). □□□□□□ Validate progress reports and audit reports. Conduct off-site review of reports and other information provided from time to time; at its option, conduct on-site inspections to confirm such compliance.

274. The Contractor will be required to prepare a site-specific construction ESMP (SESMP) based on the outline ESMP included in this report and updated based on the detailed marine survey findings and cable alignment. The Contractor will implement the relevant provisions of the Environmental Management Plan, as part of the design and construction of the project. It is expected that the Contractor would employ environmental expertise and training as required to achieve this. The Contractor will prepare the Contractor's SESMP in conjunction with the detailed design and its construction methodology which will show how the IEE and ESMP will be implemented.

275. The Implementing Agency through the PMU is responsible for ensuring that the environmental requirements are achieved through monitoring and control of the Contractor. Because of the minor nature and impacts of the land works, the lack of land environmental issues, and the self-contained nature of the cable laying ship, it is not considered feasible to hire full-time specialised environmental staff for the PMU. Nevertheless the IA / PMU will need to obtain local permits, complete land transfer process, undertake consultations, establish GRM, ensure that environmental and social conditions are included on the Contract/s, review Contractor plans and reports on compliance, monitor cable laying particularly in near shore area and undertake project review. The IA / PMU may employ short-term assistance from time to time with these tasks. Site inspections for land works would potentially be able to be done by ECD officers who appear to have capability for this work. Community consultation and GRM support may also be able to be provided by MLPID.

C. Capacity Building

276. Training should be provided to the Implementing Agency and PMU and the Contractor in ADB environmental, social and safety requirements and procedures for project implementation. Training should include the skills required to obtain local permits, complete land transfer process, undertake consultations, establish GRM, ensure that environmental and social conditions are included on the Contract/s, review Contractor plans and reports on compliance, monitor cable laying particularly in near shore area and undertake project review.

D. ESMP Matrix

277. The environmental and social management plan matrix below compiles the mitigation measures and actions from this IEE and identifies responsibilities, timing and monitoring activities.

Table VIII.2 - Environmental and Social Management and Monitoring Plan (ESMP) Matrix

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
PRE-CONSTRUCTION / DESIGN STAGE						
Management of project by Implementing Agency (IA)	Implementing Agency (IA) BwebwerikiNet Limited (BNL) to establish Project Management Unit (PMU) or other means to assign management of the project.	BNL	ASAP following financing approval	PMU or other mechanism established	ASAP following financing approval	BNL
Project Disclosure	Disclose project documents in accord with ADB requirements including posting on ADB website.	ADB	Following Approval			
General	All work to be in accordance with the project IEE & ESMP, project Marine Ecological Assessment, IFC EHS Guidelines, *Construction of Submarine Fibre Optic Cable Projects in the Small Tropical Islands of Melanesia, Micronesia and Polynesia* (ECOP) (ADB, 2014) and relevant ADB financing conditions.	Contractor	Throughout project	Check Contract documents. Check Contractors Plans.	Review report	PMU
Oceanographic Survey	Survey completed 2017. If any further oceanographic survey information is obtained, then the IEE and ESMP will be updated	Contractor	Before Construction	Confirm that documentation	Before Construction	PMU
Land Access – Ensure proposed site is secured (as government land here is being subdivided and leased)	Assign formal lease or reservation of required land from Lands Division, for Cable Landing Station (cable landing station), Beach Manhole (beach manhole) and cable corridor. Ministry of Information, Communication, Transport and Tourism Development (MICTTD) to liaise with Lands Division.	PMU	ASAP, early in planning phase	Confirm formal lease or other allocation of required land.	ASAP	BNL
Approvals and Permits	Ensure approvals and permits from Environment and Conservation Division (ECD).	PMU	Following ADB approval ASAP	Check that approval in place	Before work on site commences	BNL
Approvals and Permits	Ensure approvals and permits from Lands Division.	PMU	Following ADB approval ASAP	Check that approval in place	Before work on site commences	BNL
Contract requirements	Ensure environmental, social and safety requirements are incorporated in contract documents.	PMU	Contract preparation	Check that included in Contract	Contract preparation	BNL
Contractor's Construction Environmental Plans - prepare	Contractors prepare Site Specific Construction Environmental and Social Management Plans (SESMP) to be approved by PMU.	Contractor	Before work on site commences,	Check that plan submitted and complies	Before work on site commences	PMU

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
	All work to be in accordance with IEE & ESMP, and Marine Ecological Assessment, IFC EHS Guidelines and ECOP and relevant ADB financing conditions.		as per contract	with ADB requirements.		
Contractor's Site Specific Environmental and Social Management Plans (SESMP) - approval	Ensure Contractor's SESMP reviewed and approved.	PMU	Before work on site commences, as per contract	Reviewed and approved	Before work on site commences	PMU
Grievance Redress Mechanism (GRM)	Establish GRM, for use throughout the life of Project, prior to commencement of civil works and informing residents near the cable site and wider community during follow up meetings before the work begins.	PMU	Before and during land construction works	Confirm that GRM mechanisms in place and included in consultation.	Before and during Construction	PMU
Community Consultation	Consult and inform Affected Persons and the wider community of the project and their rights including GRM and ensure project documents are available to local communities. Re Construction issues and Internet issues and opportunities At least one community consultation prior to commencement of civil works, during construction and after project completion to address any concerns about construction impacts.	PMU + Contractor	Before and during land construction works	Confirm that consultation mechanisms in place	Before and during Construction	PMU
Occupational Health and Safety (OHS) Plans	Contractors prepare Occupational Health and Safety Plans. Prepare plans for community and workers health and safety in accordance with IFC EHS Guidelines (or other internationally recognised best practice standards as agreed with PMU) and GoK requirements.	Contractor	Before work on site commences	Review and approve plans.	Before work on site commences	PMU
Local employment benefits	Plan the project so as to maximise local labour and business participation	Contractor	Before work on site commences	Review and approve plans.	Before work on site commences	PMU
Climate Change Adaptation / Natural Disaster. Risk of Coastal erosion / wave overtopping dune due to combination of Sea Level	Plan and design for Works on the beach and dune area to be reinforced against wave erosion. Equipment raised nominal 1m+ above ground.	Contractor	Before Construction	Confirm that PMU pre-construction actions taken	Before Construction	PMU

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
rise (+20cm by 2055[58], 38cm by 2090) + storm surge / tsunami + yearly variation in sea level + high tide.						
Climate change - increased rainfall, temperatures and ocean acidification, sea level rise predicted for Kiritimati and potentially salinization of soil and groundwater may increase corrosion of equipment.	Equipment will be designed and materials selected for high level of corrosion protection. (It is expected that this would be standard procedure for such work in this type of location).	Contractor	Design and construction	Review design and construction plans	Before Construction	PMU
Capacity for monitoring implementation – Ensure PMU accesses appropriate skills at key points. Short term consultant adviser for specialist review – National / Regional if available. PMU project Coordinator for generalist project review, consultation, GRM. Land based site inspection – request ECD officers to assist with regular inspections.	Arrange review of bid documents and Contractor's documentation including for cable vessel, route requirements and SESMP and OHS Plans, to ensure compliance with environmental and safety requirements. - Arrange review of Contractor's regular reports including record of cable laying. - Monitor land works and near shore cable laying for compliance. - Carry out consultation. - Manage GRM.	PMU	Before contract: Bid document review. Before construction: Contractor's plans review. Consultation. GRM. During Implementation: Monitor.	Confirm plans and appointments	Before contract review	BNL
Noise due to diesel generators	Review generator selection, location, noise shielding and proposed operation hours to ensure World Bank EHS Noise Level Guidelines are met at nearest residences: night time 45dBA, day 55dBA, or Background +3dBA, whichever is lower. Ensure additional measures if necessary.	Contractor	Design and Planning Phase.	Review report from Contractor.	Before generator selection confirmed	PMU

[58] Climate Change in the Pacific: Scientific Assessment and New Research. Volume 2: Country Reports. https://www.pacificclimatechangescience.org/wp-content/uploads/2013/09/Volume-2-country-reports.pdf

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
Noise - backup generators	Consult and inform affected persons including re noise in development and operation.	Contractor, PMU	Design	Confirmation that addressed in design	Design review	PMU
Access for residents along cable route during construction	Consult residents to minimise the impact of access restriction. Minimise time of access restriction. Maintain alternative access ways.	Contractor, PMU	Planning, construction	Confirm	During construction	PMU
MARINE-SPECIFIC	***(PRE-CONSTRUCTION STAGE)***					
General – Bid documents, Contract	Include in Contract that all work to be in accordance with IEE & ESMP, IFC EHS Guidelines and ECOP and relevant ADB financing conditions.	PMU	Before Contract award	Confirm that included in loan conditions and Contract	Before Contract award	BNL
General – Contractor's proposal. Contractor's SESMP and other Plans	All work to be in accordance with IEE & ESMP, IFC EHS Guidelines and ECOP and relevant ADB financing conditions.	Contractor	Before work commences and throughout project	Confirm that included in Contractor's plans. Monitoring reports.	Before work commences & throughout project	PMU
Oceanographic Survey	Not Applicable as oceanographic survey completed 2017	-	-	-	-	-
Cable Exclusion Area	Establish and declare Cable Exclusion Area, nominal 100m each side of cable alignment. Consider legislation or local by-laws to enact. Local consultation shows full support. Include in ongoing consultation and ensure Exclusion Area clearly marked and signed.	PMU	ASAP	Confirm that formally established	During planning	BNL
Planning for marine cable laying	Contractor plans to ensure compliance with IEE & ESMP, IFC EHS Guidelines and ECOP. Any clash or inability to comply to be identified early to IA/PMU for resolution.	Contractor	ASAP. Before commencement of cable laying.	Confirm that Contractor plans comply	Before Construction	PMU
Confirm cable route	Confirm route for marine cable in compliance with ECOP separation distances. Highlight where the route differs from that as described in Oceanographic Survey. Where potentially not complying with ECOP, this shall be justified and agreed in advance with PMU before commencement of cable laying.	Contractor	Planning phase. Before commencement of cable laying.	Confirm that Contractor plans comply	Before Construction	PMU

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
Hydrothermal Vents - Physical damage to vents in sea by cable laying. Smothering by disturbing area. Sea mounts - Physical damage to habitat and possible fishery usage.	Cable route in deep sea areas shall maintain clearances from hydrothermal vents and sea mounts in accordance with ECOP. If not practicable to achieve in specific locations, this shall be justified and agreed in advance with PMU before commencement of cable laying. In this case the greatest possible clearance shall be applied.	PMU Contractor Contractor	Contract Specifications Tender, Design and planning Implementation	Contract Documents Contractor's tender, design docs and plans. Records from cable laying.	Preparation of Contract Documents Periodic monitoring and reporting	PMU PMU PMU
Coastal & ocean habitats - pollutants from vessel and from vessel grounding.	In bid documentation, bidders to provide specifications of the fuel and lubricant management equipment and storage on vessels used during the survey and cable laying operations, and certify that the installations is in compliance with national regulations and-or MARPOL specifications for fuel management. Maintain a contingency plan to address spills	Contractor	Preparing bid documents.	Construction contract documentation	Contract review	PMU
Sensitive coastal / nearshore Ecological Resources - Disturbance of marine & terrestrial organisms and habitats.	Prepare routing report based on detailed design demonstrating avoidance of significant habitat areas. Define in contract specifications that the cable's placement must be confined narrow a path as possible. In contract specifications instruct cable laying team to avoid coral outcrops. Coral assemblages to be marked on design drawings.	Contractor	Preparing bid.	Construction contract documentation	Contract review	PMU
Conservation areas – none identified	None identified. If any CA identified, then 75 m separation from boundaries.	Contractor	planning	Contract documentation	Contract review	PMU
Species potentially at risk (whales, dolphins, turtles) - Ocean sonar survey affecting cetaceans. - Entanglement in cable by deep diving cetaceans	Contract specifications to include best practice for operating vessels in proximity to marine mammals as in the ECOP document.	PMU Contractor	Contract documentation bid	Review construction contract documentation	Contract review	PMU
Coastal Resource Users – subsistence & artisanal Fisheries - Damage to ecosystem integrity and fishery productivity through loss or damage to local fishing grounds.	Specify in contract specifications trenching/cable laying activities to be limited to a narrow corridor and any trenching to be followed by immediate burial.	PMU Contractor	Contract documentation bid	Review construction contract documentation	Contract review	PMU

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
Community Consultation for construction works	At least one community consultation prior to commencement of civil works, during construction and after project completion to address any concerns about construction impacts. Includes informing of Grievance Redress Mechanism.	PMU & Contractor	Before and during land construction works	Confirm that consultation mechanisms in place	Before and during Construction	PMU
Grievance Redress Mechanism (GRM)	Establish GRM, for use throughout the life of Project, prior to commencement of civil works and making this known to residents during follow up meetings before the work begins.	PMU	Before and during land construction works	Confirm that consultation mechanisms in place	Before and during Construction	BNL
CONSTRUCTION STAGE						
Consultation	Consult and inform affected persons and local community prior to and during construction.	PMU	prior to and during all construction stage	Confirm that consultation mechanisms in place	Before and during Construction	PMU
Approvals	Ensure all permits and approvals in place before starting construction or any preliminary site works.	PMU	prior to construction commencing .	Confirm that approvals in place	Before Construction	PMU
Contractors Site Specific Environmental & Social Management Plans (SESMP)	Ensure Contractors Environmental Plans have been approved by PMU prior to commencing work on site	PMU + Contractor	prior to construction commencing	Confirm that in place	Before Construction	PMU
Soil erosion and sediment pollution- low risk	Minimise area of vegetation clearing and land disturbance, keep trench excavation to the minimum practical width.	Contractor	During construction	Inspection and Review in consultation with ECD.	During construction	PMU
Erosion / wave incursion of dune ridge at the back of the beach due to construction. – high risk.	Minimise vegetation removal, ensure that the backfill in the cable trench is compacted, that the finished level at the crest of the ridge is higher than the adjacent areas and reinforced to protect against erosion.	Contractor	During construction	Inspection and Review in consultation with ECD.	During construction	PMU
Soil and groundwater contamination due to spills of fuels and oils during construction	Fuel and oil and chemicals to be stored in a bunded tray or container to catch any spills; fuel and oil transfers to be carried out over a drip tray and any spills cleaned up immediately. Contaminated material to be disposed of to a licenced waste facility in consultation with ECD. The island has a landfill for hazardous materials and this should be used subject to the relevant permits and consent of the operator.	Contractor	During construction	Inspection and Review in consultation with ECD.	During construction	PMU

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
Land-based construction resource depletion (sand and gravel)	Sand and gravel should be imported for concrete etc. Quarantine permit is required from Agriculture Division.	Contractor	Before construction	Inspection and Review.	Before construction	PMU
Waste from ship – impact on island facilities.	Solid waste and wastewater from the ship should not be disposed of at Kiritimati as the capacity is very limited.	Contractor	During construction	Inspection and Review.	During construction	PMU
Construction waste impacts.	Contractor to include Waste Plan, in Contractor's Site Specific Construction Environment Management Plan. Site to be maintained in a clean and orderly condition. No uncontrolled dumping and / or burning of waste. Waste to be managed according to the waste management hierarchy of reduce waste generated, reuse waste materials where possible, recycle materials and safe disposal of residual waste material. Waste materials such as cleared vegetation, wood and clean metal offcuts that require disposal shall be made available to the local community if safe. Recyclable materials to be removed for recycling where safe and practicable. Non-hazardous non-toxic waste that is not recycled shall be disposed of at an appropriate licenced facility after approval from the local authority.	Contractor	During construction	Inspection and Review.	During construction	PMU
Waste - oil	Waste oil shall not be disposed of to land or waters. Consult ECD. Small quantities of waste oil may be made available for local reuse. Larger quantities to be removed to a recycling facility. Oil and fuel spill kits to be on site during construction and operation.	Contractor	During construction	Inspection and Review.	During construction	PMU
Waste – failed equipment rejected during installation	Any batteries and electrical equipment that are rejected during installation and commissioning shall be removed from the island.	Contractor	During construction	Inspection and Review.	During construction	PMU
Waste - sanitation	Human waste will be disposed of via appropriate toilet and wastewater facilities to protect public health and prevent water pollution. During construction toilet and washing facilities will be provided for workers. Toilets will be fitted with lids to exclude insects.	Contractor	During construction	Inspection and Review.	During construction	PMU
Waste – general solid	General solid waste will be disposed of at a facility approved by the local government and ECD (not	Contractor	During construction	Inspection and Review.	During construction	PMU

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
	including, batteries and electrical equipment). Food waste will be disposed of so as to prevent access by vermin. There shall be no burning of waste on the site					
Terrestrial flora and fauna. Potential presence of endemic, IUCN listed Bokikokiko bird.	Minimise clearing and land disturbance. Check for Bokikokiko bird nests in saltbush or tree heliotrope to be cleared – request ECD to assist. This should be carried out sufficiently in advance of construction to allow birds to finish nesting before clearing.	Contractor	Before construction	Review in consultation with ECD	Before construction	PMU
Cable route; Hydrothermal vents; Sea mounts; Coastal and deep ocean habitats; Pollution Control at sea	Implement as planned and detailed above under "Marine Specific Pre-Construction / Design Stage". Confirm that cable route implemented as planned, including avoidance requirements for Hydrothermal vents, Sea mounts, Coastal and deep ocean habitats.	Contractor	During Construction	Contractors reports, cable laying record, photos (with date and GPS stamp).	During construction	PMU
Marine issues – identified in Marine Ecology Assessment	Implement Safeguards from Marine Ecology Assessment: i) inshore cable deployment and trenching to be placed on the substrate within the natural reef channels and aligned perpendicular to the Beach Man Hole (beach manhole) landing site, ii) all trenching operations burying the cable, to be undertaken quickly and with the least amount of degradation of the benthic substrate, iii) all trenching operations to be backfilled with cement (the beach bedrock through to the intertidal reef flat) and beach material through to the beach manhole, iv) prevent physical damage to any living hard coral colony, v) cable to be floated and aligned before positioned onto the substrate vi) due to the low number of living hard coral there is no biological reason for an experienced marine ecologist to be present during the cable's inshore deployment - assistance from staff of the Division of Fisheries should be considered and vii) deep ocean cable placement to avoid key bathymetry features and benthic and pelagic biological habitats and species as outlined in the ECOP.	Contractor	During Construction	Contractors monitoring reports, photos (with date and GPS stamp).	During construction	PMU
Species potentially at risk (whales, dolphins, turtles)	Comply with ECOP guidelines on minimally intrusive oceanographic survey method.	Contractor	During Construction	Ensure cable layer	During construction	PMU

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
- Ocean sonar survey affecting cetaceans. - Entanglement in cable by deep diving cetaceans	Control cable tension so that laid cable conforms to undulations of seabed as per cable laying specification.			understands cetacean sensitivities – training record. Cable laying record.		
Socioeconomic – local community relations – low risk	Workers shall not enter local residents' land or use land even temporarily outside of designated area without permission.	Contractor	During construction	Inspection and Review. Review complaints.	During construction	PMU
Occupational Health and Safety OHS	Safety training, site briefing, personal protective equipment, safety inspections, incident records. Contractors to provide a first aid post and safety equipment for workers.	Contractor	During Construction	Contractors reports, cable laying record, Compliance checklists & reports, photos (with date and GPS stamp).	During construction	PMU
Socioeconomic - Public health and safety – medium risk	Public information and signage will be provided, access to works area restricted, a spotter will be provided for safety during equipment movement.	Contractor	During construction	Inspection and Review.	During construction	PMU
Socioeconomic - Spread of sexually transmitted infections (STI) including HIV / AIDS. Health problems. – medium risk	Village/community protocols and health awareness to be discussed as part of project induction. Signage and security to be located at the site to prohibit access to unauthorised people, especially children. Workers to respect village and landowner boundaries. An STI awareness and prevention programme to be implemented for workers and local communities (liaise with Health Division).	Contractor and PMU In consultation with Health Division	Construction stage	Inspection and Review. Measures in place. Awareness and prevention programme implemented	Construction stage	PMU
Socioeconomic - Damage to unexpected heritage finds – low risk.	During clearing of land or earthworks, if any culturally significant artefacts are exposed, clearing will cease immediately and the Environment & Conservation Division will be contacted to review the situation.	Contractor	During all construction stage	Measures in place	Monthly inspection	PMU
Air quality – smoke and dust – low risk	Minimise dust generation. Change work method or timing if dust blowing into residences. Maintain equipment to prevent excessive emissions. No burning of waste. Consult residences in case of risk of dust generation.	Contractor	During construction	Inspection and Review.	During construction	PMU

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
Noise nuisance at residences during construction.	Workers induction to include noise sensitivity and antisocial behaviour; Consult and inform residents. Respond to complaints. Modify methods to reduce impact. Work only in scheduled daytime hours.	Contractor	During construction	Inspection and Review.	During construction	PMU
Noise – diesel generators installation	Confirm that diesel generators installed and acoustic enclosure and shielding are in accordance with that planned – See Planning above.	PMU	Before and after installation of diesel generators	Inspection and verification	Before and after installation of diesel generators	PMU
OPERATION						
Consultation	Consult and inform affected persons including re noise in operation	PMU	On commissioning and ongoing as required	Consultation records. GRM records.	On commissioning	PMU
Soil and water contamination	Maintain sealing and bunding of spill containment areas, including fuel and oil storage and handling areas, and equipment such as generators and fuel pumps; oil separation on drainage outlets and sumps. Bunding in accordance with latest version of Australian Standard *AS1940 The Storage and Handling of Flammable and Combustible Liquids.* The containment volume required is the volume of the largest container, tank or drum, plus 10 per cent. Oil and fuel spill kits will be provided on site. Provide training to operators in the above.	Owner	Ongoing	Inspect to ensure bunding in place, maintained and operated correctly. Check training register.	Include in general inspections	BNL
Waste – batteries and electrical equipment	At the end of their service life or in the event of damage batteries and electrical equipment will be removed from the island, which could be by the Contractor in conjunction with the supply of replacements.	Owner	At end of service life, on replacement or if disaster damage	Contracts and receipts	Inspect records as and when required.	BNL
Air quality	Ensure diesel generators have standard emissions controls remaining fitted and generators serviced, maintained and operated in accordance with manufacturers specifications. Provide training to operators in the above.	Owner	Ongoing	Inspect facility and to ensure emissions controls in place, and generators serviced,	Include in general inspections	BNL

		MITIGATION		MONITORING		
Project Aspect / Impact	**Mitigation & Enhancement Measures & Actions**	**Responsibility to Implement**	**Timing to Implement**	**Parameter / Action**	**Timing / Output**	**Responsibility to Monitor**
				maintained and operated correctly. Inspect maintenance records. Check training register.		
Noise due to diesel generators	Ensure all diesel generators remain fitted with exhaust mufflers and acoustic enclosures shielding, and generators serviced, maintained and operated in accordance with manufacturers specifications. Provide training to operators in the above.	Owner	Ongoing	Ongoing	Include in general inspections	BNL
Noise due to diesel generators – OHS	No employee to be exposed to noise level greater than 85 dB(A) for more than eight hours per day without hearing protection, where there is no demand for oral communication (EHS Guidelines). Provide high quality hearing protection PPE and enforce its use. Provide training in above.	Owner	Ongoing	Check training register. Consult workers to ensure their understanding of hearing protection requirements.	Include in general inspections	BNL

ANNEXES

Consultation Report and Attendance Sheets

ECOP: Environmental Code of Practice, for Planning and Construction of Submarine Fibre Optic Cable Projects in the Small Tropical Islands of Melanesia, Micronesia and Polynesia (ADB, 2014)

SEPARATE VOLUME

Marine Ecological Assessment

Consultation Report

For Safeguards Due Diligence

Project No: 47114-001

Document status: Draft

Date: October 2017

TA-8540 REG: Pacific Information and Communication Technology Investment Planning and Capacity Development Facility

Improving Internet Connectivity in Micronesia Project -

Kiritimati Spur

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Community Consultation Brochure (I-Kiribati & English)

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EXECUTIVE SUMMARY

Community consultation has been carried out for the Kiritimati Spur Project under the Asian Development Bank (ADB) funded Pacific Information and Communication Technology Investment Planning and Capacity Development Facility.

Consultations have been held with residents of adjacent land and other residents of the adjacent village of Tabwakea Ward 3, and local fishers using the water and reef area across which the cable crosses. Specific consultations have been held with women adjacent to the site and with the Women's Association for the wider island community. Each household with a frontage to the cable route was visited and interviewed including basic socioeconomic information. Consultations have been carried out in regard to the opportunity for better and cheaper internet with the wider community in Kiritimati through community leaders, the Women's Association and a range of individuals.

The consultations indicated broad community support, with no objections raised to the project. Specific concerns were raised for which answers have been provided and mitigation measures will be included in the project where relevant.

Where the cable crosses the adjacent reef there will need to be an exclusion zone to protect the cable from damage. Consultation has been carried out with local fishers. No objection has been raised to the establishment of an exclusion zone nominally 200 m wide at the cable for anchors, fish traps, fish attracting devices (FADs) and fishing.

IX. INTRODUCTION

278. This is a report on consultation carried out for the Improving Internet Connectivity in Micronesia Project - Kiritimati Spur under the Asian Development Bank (ADB) funded Pacific Information and Communication Technology Investment Planning and Capacity Development Facility. It has been prepared to support the Initial Environmental Examination (IEE) prepared in accordance with ADB Safeguard Policy Statement (SPS) 2009.

279. This Consultation Report should be read in conjunction with associated reports including the IEE and Environmental and Social Management Plan (ESMP), Land Due Diligence Report and Summary Poverty Reduction and Social Strategy (SPRSS). The earlier Concept Paper for the project included an Initial Poverty and Social Analysis (IPSA).

280. ADB requirements for consultation are to:

- provide information about the project to affected persons and organisations and other stakeholders
- be gender inclusive
- tailored to disadvantaged and vulnerable groups
- obtain input to decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues
- determine whether there is broad community support for the project
- identify any concerns and mitigation measures required.

X. APPROACH TO CONSULTATION

281. The consultation had several main aspects. The first aspect of the consultation is in relation to persons potentially affected by the physical cable infrastructure from the ocean, through the near shore environment, onto the land and to the cable landing station. The second aspect is on relation to the effect of the project in allowing for better and cheaper internet and other communications and therefore relates to the wider community on the island. Separate meetings were also held for women in each case. A further aspect was consultation with key informants such as government agencies, civil society and businesses.

282. Guidance in locally appropriate consultation approach, and other support and assistance, was given by senior staff of Ministry of Line and Phoenix Island Development (MLPID), which is the coordinating agency on the island.

A. People potentially affected by the physical cable infrastructure

283. Consultation with people potentially affected by the physical cable infrastructure was conducted by holding formal meeting with residents of Ward 3 Tabwakea, which is the area next to the cable corridor at the northern end of the village of Tabwakea, a follow up meeting with the same group, a separate meeting with women from the same community, and visits to each individual household fronting the cable corridor. The meetings included local fishers.

284. An interpreter was used at all these meetings. A presentation was given at the formal meeting with photos of aspects of the project shown. A project brochure was prepared in I-Kiribati language and provided. Basic household information was also collected at the separate household meetings. Questions and answers were discussed as well as suggestions given by residents.

B. Wider community in relation to improved internet

285. The approach to consultation with the wider community on the island took into account guidance from senior staff of MLPID. The proposed approach to consultations was discussed in order to meet ADB requirements, while recognising local practice and experience and the "island way". It was recommended by MLPID that the preferred approach to wider general community consultation is to hold a meeting with community leaders and then for the leaders to take this back to their communities. The leaders would then bring any further feedback to the project via MLPID as the lead coordinating agency on the island. Church leaders were seen as important in this process, as it said that everyone belongs to a church community of which there are eight main denominations on the island.

286. A formal presentation and participative workshop was held with community leaders. The meeting broke into smaller groups to discuss benefits and concerns which were fed back to the larger group along with questions and answers.

C. Government and other key informants

287. A further aspect was consultation with key informants such as government officers, civil society, businesses and individuals. This included initial meetings with MLPID Minister and senior staff, a formal presentation with government agencies, and individual meetings with others.

XI. CONSULTATION AND PARTICIPATION ACTIVITIES

288. Stakeholders consultations / meetings were held with affected people and other stakeholders as listed in the table below, with further detail and attendance records attached in appendices. Meetings were held with up to 90 people as groups and individuals. Meetings have also been held previously with the technical consultant visiting the island in April 2017 including site selection in consultation with government and other representatives on the island.

289. Approximately half of the people consulted were women. Key meetings were held with affected persons, including fishers, both in a formal community meeting with Tabwakea Ward 3, the area adjacent to the cable site, and individual meetings and interviews with three of the four households immediately adjacent to the cable route. Two women-specific meetings were held, a formal meeting with Kiritimati Women's Association *Nei Baneawa*, and a meeting with women of Tabwakea Ward 3, the area adjacent to the cable site. A formal meeting was also held with community leaders including CSOs. All these included an interpreter and project brochures in I-Kiribati language were distributed at the meetings at the site location. Various other meetings were held with government agencies.

Table 3 – Key Consultation and Participation Activities, Sep-Oct 2017

Date	Meeting	No of people
27 Sep	Minister for LPID, MLPID Secretary and Deputy Secretary – Kick off meeting	3
27 Sep	Land Division OIC, MLPID Assistant Secretary (Site visit)	2
28 Sep	Government Agencies – formal presentation / workshop in conjunction with MLPID Senior Assistant Secretary also presenting / interpreting	9
28 Sep	Tourism officer	1
28 Sep	MLPID Development Planning Unit	1
29 Sep	Lands Division OIC	3
29 Sep	Environment and Conservation Division	8

Date	Meeting	No of people
2 Oct	Community leaders meeting including CSOs (Church leaders, Old Mens' Association *Marewen okon*, Womens' Association *Nei Baneawa*, Youth Organisation, Health Service, Education, Chamber of Commerce, Kiritimati Urban Council) – formal presentation / workshop in conjunction with MLPID Senior Assistant Secretary also presenting / interpreting	10
3 Oct	Environment and Conservation Division OIC	3
3 Oct	Fisheries Division OIC	1
4 Oct	Education Coordinator	3
5 Oct	Fisheries Division, follow up with Marine Ecologist	1
5 Oct	Kiritimati Women's Association *Nei Baneawa* – formal presentation / workshop - in conjunction with MLPID Senior Assistant Secretary also presenting / interpreting	10
5 Oct	Affected persons - Ward 3 Tabwakea Community meeting, (the area adjacent to the cable site), including fishers – formal presentation / workshop at village meeting house, with MLPID Senior Assistant Secretary also presenting / interpreting, - provided project brochure in I-Kiribati language	11
5 Oct	Kiribati Broadcasting corporation (Radio)	2
5 Oct	ATHKL (ISP)	1
8 Oct	Affected persons - Women's Community Meeting Ward 3 Tabwakea with interpreter, provided project brochure in I-Kiribati language	6
8 Oct	Affected persons -Ward 3 Tabwakea Community follow up, with interpreter	5
8 Oct	Affected persons - Individual meetings and interviews at three of the four households immediately adjacent to the cable route, including fishers, with interpreter, provided project brochure in I-Kiribati language. All meetings included women - mother of the family.	5, 2, 6
9 Oct	Meteorology office	1
9 Oct	KI Water Project, KI Energy Sector Project	4
9 Oct	Medical Director	3
9 Oct	Kiritimati Urban Council Clerk	2
9 Oct	Aquarium fish business	2
9 Oct	Dive Business	2
10 Oct	Port Authority	1
13 Oct	Debriefing with Minister and Secretary MLPID	2
28 Sep-11 Oct	Various individual discussions with business, government and civil society representatives and other individuals (some planned, some opportunistic).	~30

XII. CONSULTATION OUTCOMES

290. Consultation showed broad community support with no one objecting to the project, although some concerns were raised about specific issues. Addressing concerns and achieving benefits are also considered in the impacts section of this IEE.

291. Persons consulted, and identified benefits and concerns are listed in table below. Examples of benefits identified in consultations included the following. Easier communication, improved communication with Tarawa and government services, access to online courses for school leavers, easier business promotion, would allow for faster consultations with medical specialists working with Pacific Islands Medical Aid (PIMA). Advertising and promotions (radio seen as expensive), access to awareness programs, developing awareness campaigns, sex education training more accessible, keeping up to date with research, NGOs and Churches, access to training programs, ease of submitting applications on line, increase knowledge, research, accessing news updates, increased opportunity after school for school leavers to do

on-line trianing, easier access to radio broadcasts and better communication with family and friends who are off island. Improved banking as currently ATM unreliable and cash is needed when coming from off island. Business security and tourism enhancement (tourists that were interviewed commented that the poor internet meant they limited their stay, or had friends who decided not to join them, as they had businesses they needed to stay in touch with). Court sessions were being conducted the week the consultants were there. The Lawyers, who come from Tarawa for the two weeks sessions, stated that improved internet would increase efficiency in preparing for cases.

292. Concerns raised in consultations included cost and quality of internet service, pornography, bullying, safety of the cable, not being prepared with lack of computers in schools, improvement to radio broadcasting.

Table 4 - Consultation Identified Benefits, Concerns and Comments

Dates	People Consulted	No. of Partici-pants	Concerns	Benefits and Comments
27 Sep 2017	MLPID Minister Senior Officers	3	Timing of the project.	Very supportive as poor internet is hampering government business.
27 Sep	Land Division OIC	2	Is it internet only or mobile as well?	Very supportive as main Lands Division is in Tarawa and current internet results in limited access to titles, Acts and necessary technology for run the department.
28 Sep	Governme nt Agencies	9	Nil concerns Advice to conduct consultations the Island Way via community leaders.	Very supportive due to isolation from seat of government Tarawa. Poor communication means there is a lot of inefficiency across all departments.
29 Sep	Environme nt Conservati on Division, Wildlife section.	8	Possibility of one endemic IUCN listed species of land bird at site. Other information on plants and animals.	Supportive of improved Internet. Dept. runs several awareness programs and improved internet would assist in the running of such programs.
2 Oct	Communit y leaders meeting	10	Concern that the internet speed will not be faster. Concern that it will not be cheaper. Concern about children being able to access inappropriate content. Recent example where Junior Secondary school children were sharing around phone in break with dirty movies. Concern that teenage pregnancies will increase. Having affairs on line. Concerned about impact on coral On land does it come through future leases? Effect on fisherman in that area. Being able to anchor, will cable be protected? Radiation on people and on the coral?	Easier communication On line courses for school leavers Business promotion Ads cheaper and easier (Vs. Radio Kiritimati) Awareness programs Sex education training more accessible Research NGOs and Churches to share daily bread and gods message across country and internationally Training programs Applications on line Cheaper Get more knowledge- search more easily. News updates easier. Updates with family and friends. Skype.

Dates	People Consulted	No. of Partici-pants	Concerns	Benefits and Comments
			How is the internet cable to be linked to people's houses?	
3 Oct	Environment Division	3	Bokikokiko bird endemic IUCN listed.	Information on environmental issues, loca requirements. Discourage use of local sanc and gravel.
3 Oct	Fisheries	3	Vandalism of cable.	Need for awareness for fishers. Supports exclusion zone - consider Fisheries Minister or Council bylaw. Anyone can fish anywhere, no permits. Gave other contacts.
4 Oct	Education Division	3	Being prepared in the schools with computers so they can make full use of the internet for teaching.	
5 Oct	Women's Group	10	Impact to ocean if cable damaged. Any chance of being electrocuted? What is protective casing made of as copra cutters may take it to make their poles? Concern about husband watching inappropriate videos.	Womens' group felt it would assist in a lot of areas including training, post school opportunities for their children. Keeping in touch with their children as many leave Kiritimati to study, or to gain employment on commercial shipping vessels, and increase job opportunities.
5 Oct	Ward 3 Tabwakea Community meeting	11	.Questions were asked around how deep the cable would be buried, how strong would the cable be if there was a storm. If there is exclusion zone on reef will there be signs? Will it help with radio broadcasting as there is difficulty with reception on the island?	The men felt the main benefit for them was it would boost radio reception. When they are copra cutting they like to listen to the radio, mainly parliament, and often there is no reception.
5 Oct	Broadcasting corporation	3	Why isn't cable coming into London directly?	Acknowledges that current arrangement is causing difficulty and that the locals currently rely on the internet to receive broadcasts. Improved internet means improved broadcasting.
5 Oct	Telecommunication ATHL	2	Nil Concerns	ATHL currently has a monopoly on the island. They are aware of the weakness of the signal and are currently arranging an extra disc. This is seen as an interim measure until the cable is in place. The local representative did not discuss the issue of cost.
8 Oct	Ward 3 Women's Community Meeting	6	Nil Concerns in regards to cable itself. Concerns re children and men having access to inappropriate material on the internet.	The women stated they supported the cable as they rely on it to keep in touch with their children who are studying overseas. Currently the weak signal means they have difficulty with communication.
9 Oct	Medical Director	3	Nil concerns	Currently hospital has an extra satellite disc and has an agreement with an Australian company Speedcast. They loose connection regularly and for days at a time. The cable would result in a reliable connection which would assist with faster diagnosis and consultation with their counterparts in the US thru PIMA, Pacific Islands Medical Aid. Tele-health consultations would be possible and there would be less of a delay in specialists advising on xrays, blood results and treatment options.

Dates	People Consulted	No. of Partici-pants	Concerns	Benefits and Comments
				Ongoing Professional training would also be more accessible. There are 3 doctors on the Island and several registered nurses. There is a 12 bed hospital with a maternity section and 3 clinics on the Island at Poland, Banana and Tabwakea. Improved communication has been a priority for some time.
9 Oct	Council Clerk	2	Nil Concerns	The project site is in Ward 3 of Tabwekea. The Clerk advised re system of communication as there is a Ward Warden and Councillor who could be part of any grievance mechanism or information sharing.
9 Oct	Aquarium Fish business	2	Nil concerns	Internet needed for liaising with agents in Hawaii and negotiating freight quotas on weekly flight. Currently there are 10 pet fish business' on Kiritimati and organising the transport is problematic due to poor communication with the airlines. It is having significant impact on the pet fish trade.
9 Oct	Dive Business	2	Nil concerns	Internet is essential to help increase business as currently having difficulty with bookings.
13 Oct	Debriefing with Minister	4	Nil concerns	Need to secure land for project was emphasised by consultant at meeting. GRM process discussed.
28 Sep -11 Oct	Individual discussions with business, government and civil society representatives.	~35	Nil concerns	It would allow for better radio reception and contact with families. All stated that improved internet could only benefit the Island. There were comments about cost as the current costs made it very difficult for many business' and individuals. There was also comments about there being a monopoly on Kiritimati re internet provision and would this change. Banking facilities is also affected as ATM relies on the internet and it is a cash economy on Kiritimati. Several discussions with Tourists stated that they were business owners, or had fellow fishing friends, who had businesses they still needed to run and the difficulty with the Internet meant they shortened their stay or did not come. Government staff all stated that improved internet would allow for better communicatior with Tarawa and international support agencies, better access to necessary data and documents, reduced travel to Tarawa as meetings could be held via skype (current cost is $2000 return economy).

293. A record of questions and answers from consultations is given below.

Table 5 - Questions and Answers from Consultations

Question	Answer
Social concerns about children having access to 'dirty movies', as had been observed recently at a local school on their mobile phones. It leading to increase in teenage pregnancy and resulting in affairs on line.	The consultant explained that there are filters that could be put on to block access to such sites. It is up to the families, office administrators or government to make the decision around filters. The consultant also stated that there is a public awareness campaign planned and this should cover

	advice about filters and the increased risks relating to social media.
When is the timing of the Project?	Planned to start in two to three years. The cable would be laid all at one time during the roll out from Australia to USA.
Concern that the cable would not result in a reduction in cost for the user.	The reduction in cost is up to the government regulators due to lack of competition. It is also hoped that with the new cable would open up competition to more service providers.
Concern that there will be radiation from the cable which will affect people at the site, coral and the land.	There is no concern about radiation.
Concerns about the impact on fisherman not being able to anchor. Will it be protected.	It is part of the consultation process is to determine if there are any fishers who use that area. The Marine Ecologist will assess the path for the cable. There will be some protection on the cable however an exclusion zone will be marked. All stakeholders had no objection with an exclusion zone if it was clearly marked.
Concern about future leases along the corridor of the cable to the road.	This was discussed this with the Lands Division. Consultation is to be held with concerned residents who lived next to the cable corridor. The participants discussed amongst themselves and said there may be a solution where the land is set aside to not allow for building in the future and this could be discussed with the lands department.
Question of how is it linked from the Cable Landing Station (CLS) to people's homes.	The CLS will link into the existing internet system on the island. Leading up to the construction and final stages there will be a public awareness campaign to full inform everyone.
Concern about electrification if cable damaged.	No danger.
Is the cable just for internet or for mobile phones?	The cable is for all telecommunications including internet and mobile phones.
Will the transmission be strong enough to reach Fanning Island as it has a growing tourist industry? It would be good if it could be considered as another cable maybe.	No. Speak to MLFID if wish to advocate.
How big is the CLS?	Site for CLS is 40 m x 40 m.
What is the metal of the casing made of? Farmers / copra cutters may take the cable casing to make poles for reaching coconuts.	The casing would be short metal tubing segments which would be difficult to use for a long pole.
The participants also felt that if the men were told they could be electrocuted then they would stay away.	There is little risk of this. However it may be a good idea to deter people.
Can the cable be identified by a sign for local fisherman.	The consultant stated that this would be a recommendation put in his report

XIII. CONCLUSIONS

The consultations indicated that the project would receive the broad community support, as there was no objection. There was general acknowledgement that the current satellite system was too slow, unreliable and expensive. One overriding concern was to do with cost. It will require a strong regulatory capacity to ensure the benefit of the submarine cable is translated to lower cost for consumers. Also, ongoing consultation and information sharing needs to take place including when final alignments are being planned and during construction. The consultations also highlighted the need for public awareness in regards to use of the internet specially to do with use of filters and managing cost.

Table 6 – People Met in Consultations

Gender	Name	Role
	Ministry Meeting MLPID	
M	Hon. Mikarite Temari	Minister for Line and Phoenix Island Development
M	Ioataake Timeon	Secretary MLPID

Gender	Name	Role
M	Bwereti Tewarekati	Deputy Secretary MLPID
F	Tiinia Raj	Senior Assistant Secretary MLPID
F	Ann Burenti	Assistant Secretary MLPID
	Government Meeting	
F	Tiinia Raj	Senior Assistant Secretary MLPID
F	Ratita Bebe	OIC ECD MELAD
M	Tararau Kirata	OIC Fisheries MFMRD
M	Kirikori Baoro	OIC Kiribati Port Authority
M	Tokola Oben	IT-MLPID
F	Mireta Kaitama	Branch Manager ATHKL
M	Karebwa Tebano	KI Water Project Communication Officer
M	Leea Tanta	HMMD Heavy Machinery & Mech'l Div'n
M	Kabura	HMMD
	KI Community Leaders Meeting	
M	Bakareraua Tominiko	Seventh Day Adventist (SDA) Pastor
M	Iokaara Temreningo	Old Men's Association *Marewen okon*
M	Tomataake Moea	Church of Christ Tabwekea
F	Tebamoti Aberou	Chamber of Commerce
F	Nanamu Bobai	Womens group *Nei Baneawa*
F	Teraiman Kanianrong	Kiritimati Urban Council
F	Tearatu Maneaua	Island Youth Assoc.
M	Tabutona Reeve	Catholic Priest
M	Naitiwiwa Tistinki	Church of JC of Latter Day Saints (LDS)
F	Tiinia Raj	Senior Assistant Secretary MLPID
	KI Women's Group - *Nei Baneawa*	
F	Tiinia Raj	MLPID
F	Korinta Anterea	SDA Chairperson
F	Ruta Bauro	London Catholic Women's Group
F	Buaki Korinaba	Banana Catholic Women's Group
F	Rokontai Ngaebi	Tabwakea LDS
F	Veremine Tura	Kiritimat Uniting Church (KUC) Ronton
F	Queenie Karotu	KUC Tabwakea
F	Bairebu Tamweru	Tabwakea Itoiningaine
F	Nnarau Bobai	Banana KUC
M	Aobure Teatata	Wildlife-Environment
F	Aana-Teetan Beranti	Wildlife-Environment
	Ward 3 Tabwekea Community Meeting	
F	Tiinia Raj	MLPID
F	Moatau Teinging	Resident
M	Ioakim Tiarati	Resident, Fisher
M	Lakobo Teiki	Resident, Fisher
M	Tanawai Ruotake	Resident, Fisher
M	Tengung Borains	Resident, Fisher
M	Napoleon Reo	Resident, Fisher
M	Tinoa Baraoi	Resident, Fisher
M	Karetita Kaotiuea	Resident, Fisher
M	Teebero Ibeati	Resident, Fisher
M	Utimawa Ibeati	Resident, Fisher
F	Rutlinkeiti Utunaw	Resident
	Ward 3 Women's Community Group	
F	Kiuti Teinging	Resident
F	Mwari Teinging	Resident

Gender	Name	Role
F	Tenebo Tinoa	Resident
F	Tichane Iakabo	Resident
F	Tabwana Matakai	Resident
	Individual household meetings on cable route	
M	Mr Kkeuea	Resident on Cable Route, Fisher
F	Ms Takaiki	Resident on Cable Route,
F	Mrs Eritabeta	Resident on Cable Route,
M	Mr Teebero	Resident on Cable Route, Fisher
F	Ms Taritaa	Resident on Cable Route
	Other Government and Individuals	
M	Rodney Edwards	Project Monitoring Officer, MLPID
F	Ratita Bebe	OIC, Environment Division
F	Aana Teetan Beranti	Environment Division
M	Aobune Teatata	Environment Division
M	Kantabuki Karnatie	Environment Division
M	Teina Timwaie	Environment Division
M	Brauro Kamber	Environment Division
M	Katarreti Taabu	Environment Division
M	Ataieta Ioane	Environment Division
M	Puta Tofinga	Environment Division
M	Taratau Kirata	Mineral Division, Tarawa
M	Teoti Teikauea	OIC, Lands Division
F	Teatei Taake	Island Education Coordinator
F	Eta	GIS Lands Division
F	Henrietta Teakin	KUC Pastoress
F	Bineta K Rvaia	Medical Technologist
F	Rosemary Tekoava	Chief Laboratory Service.
F	Vasitit Tebamare	KiriCAN Kiribati Climate Action Network
M	Wayne Reiher	ICT Division MICTT Tarawa
M	Dr Teiraira Bangao	Kiritimati Medical Director
F	Teraiman Kananoug	Kiritimati Urban Council
M	Bwaueri Atimwaveta	Meteorology Office Observer
F	Marewea Auatabu	KI Water Project Community Liaison
F	Wiriki Tooma	KI Energy Project Community Liaison
M	Cpt. Kirikeri Baoro	Port Superintendent
M	James Vogel	Tourist -fly fisherman
M	Greg Jerkins	Tourist -fly fisherman
M	George Beck	Project Manager, KI Water Project
F	Katanute Tuver	OIC Meteorology Office
M	Christian Duretete	Information and Communication Technologies
M	Tiuto Biribo	Tourist Officer
M	Reweith Beniata	Office of the Peoples Lawyer
	Private businesses	
M	Ioritana Kronk	Business owner, Rickronk Trading
M	Ritesh Raj	ATHKL (Internet Service Provider)
M	Aretima Aaron	Manager Sunset Lodge
M	Ritemba Moantau	Chairman Sunset Lodge
M	Frank Taunga Smith	Chair of Pet Fish Assoc.
M	Tiiman Kaitere	Manager, Tekabaiai Lodge, Diving Business
F	Manager	TT Trading Company
F	Staff member	Ikari Lodge
M	Babera Marewenimakin	Broadcasting and Publication Authority (BPA)-Engineering Manager
M	Katangaua Bautira	BPA- Kiritimati Branch Manager

ATTACHMENTS –

Photographs of consultations

Community Consultation Presentation at Tabwakea Ward 3 (Adjacent to Cable Site)

Community Consultation Meeting Attendance Records – Tabwakea Ward 3 (Adjacent to Cable Site)

Attendance Record – Tabwakea Ward 3 Community – WOMEN'S Meeting (Adjacent to Cable Site)

Community Consultation Brochure (I-Kiribati & English)

Consultation Basic Household Interview

ATTACHMENT - Photographs of Consultation Meetings

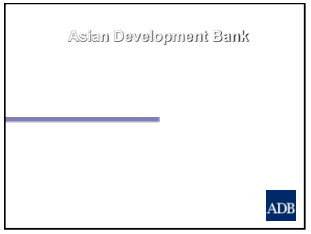
Ward 3 Tabwakea Residents' Meeting and Ward 3 Tabwakea Women's Meeting

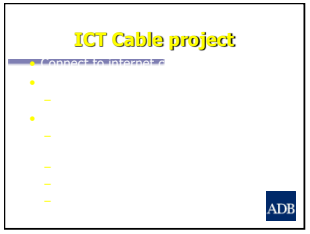

Women's Association Meeting and Community Leaders' Meeting

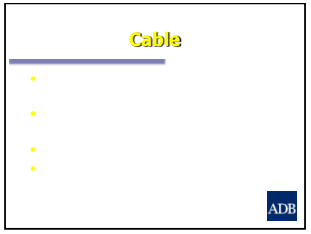

Meetings with Households Adjacent to Cable Site

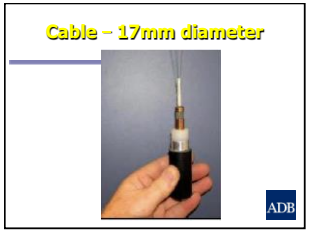

Cable Site Inspection with Adjacent Resident and Lands Officer

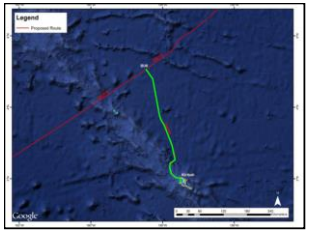
ATTACHMENT – Community Consultation Presentation at Tabwakea Ward 3 (Adjacent to Cable Site)

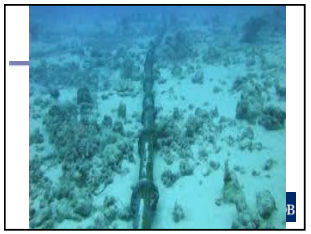












ADB

ADB

Community Input

- Ensure views are heard
-
-
-
-
-

ADB

MUST PROTECT THE CABLE

-
-
-
-
-

ADB

Your Input
Benefits & concerns

-
-
-

ADB

Further Consultation

- Consultation Workshop
-
-
-
-

ADB

Your Input

-

ADB

ADB

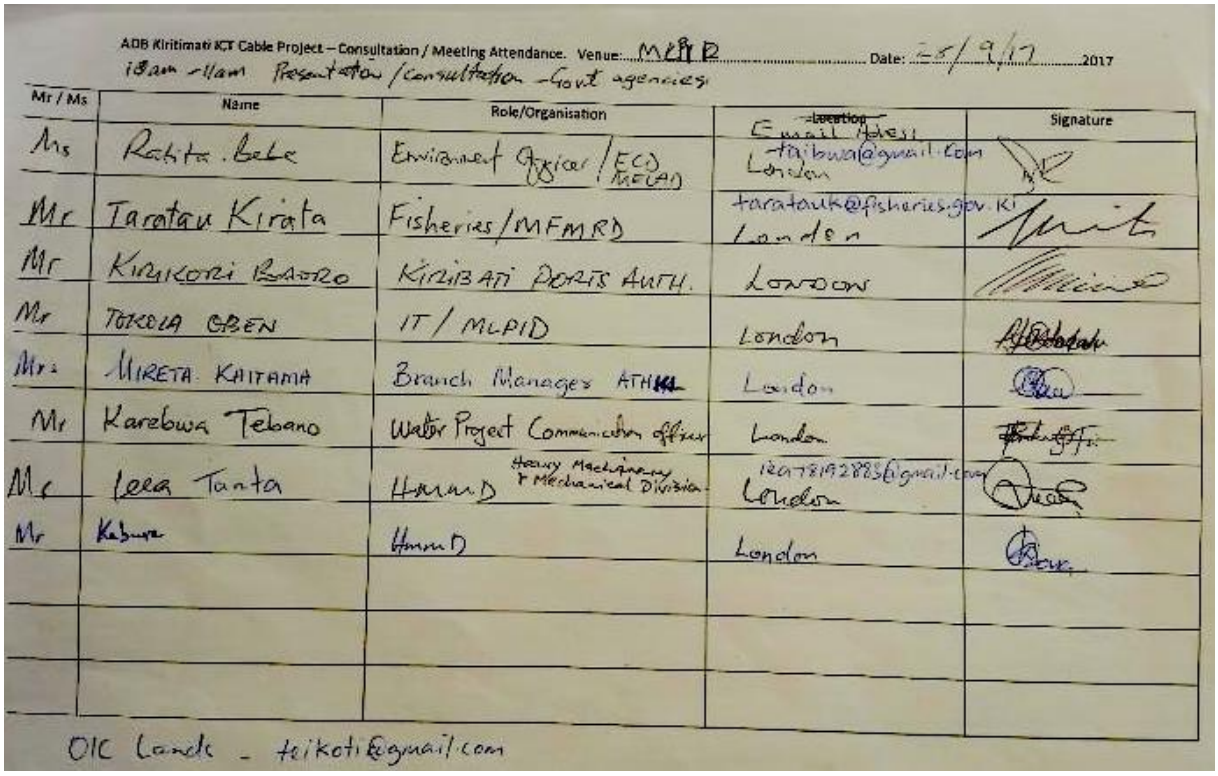
Thank You

http://www.adb.org/documents/safeguard-policy-statement

ADB

ATTACHMENT - Consultation Meetings Attendance Records

Government Agencies Consultation Meeting

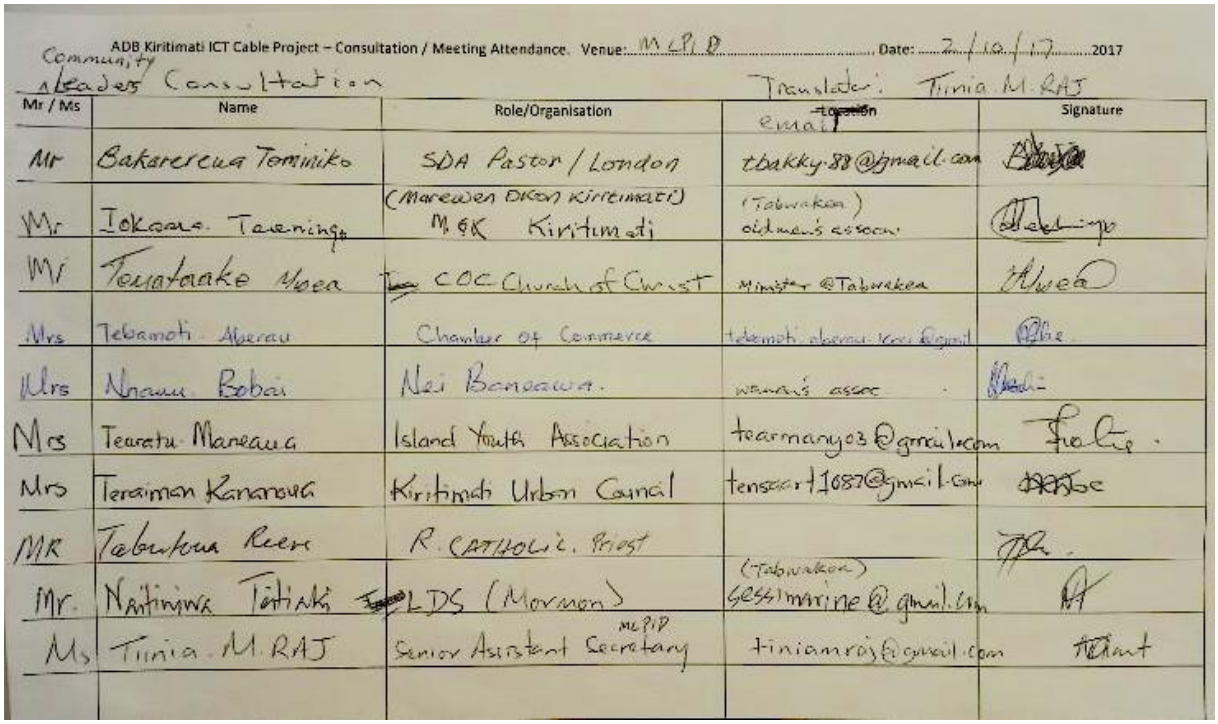


ADB Kiritimati ICT Cable Project – Consultation / Meeting Attendance. Venue: MCIP Date: 5/9/17 2017
10am - 11am Presentation / Consultation - Govt agencies

Mr / Ms	Name	Role/Organisation	~~Location~~ Email Adress	Signature
Ms	Rakita. Bebe	Environment Officer / EC) MELAD	tajibwa@gmail.com London	
Mr	Taratau Kirata	Fisheries / MFMRD	taratauk@fisheries.gov.ki London	
Mr	Kimikori Baaro	Kiribati Ports Auth.	London	
Mr	Tokoia Oben	IT / MLPID	London	
Mr	Mireta. Kaitama	Branch Manager ATH	London	
Mr	Karebwa Tebano	Water Project Communication officer	London	
Mr	Leea Tanta	Hmmd Heavy Machinery & Mechanical Division	leatanta28@gmail.com London	
Mr	Kabura	Hmmd	London	

OIC Lands - teikoti@gmail.com

Community Leaders Consultation Meeting



ADB Kiritimati ICT Cable Project – Consultation / Meeting Attendance. Venue: MCIP Date: 2/10/17 2017
Community leaders Consultation
Translator: Tinia M. RAJ

Mr / Ms	Name	Role/Organisation	~~Location~~ Email	Signature
Mr	Bakarercua Tominiko	SDA Pastor / London	tbakky88@gmail.com	
Mr	Iokaara. Taeringa	(Marewen Dkon Kiritimati) MEK Kiritimati	(Tabwakea) oldmen's assoc	
Mr	Teuatoake Moea	COC Church of Christ	Minister @Tabwakea	
Mrs	Tebamoti Aberau	Chamber of Commerce	tebamoti.aberau.kcci@gmail	
Mrs	Nnaau Babai	Nei Banoawa.	women's assoc	
Mrs	Teuatu Maneaua	Island Youth Association	teatmanyo3@gmail.com	
Mrs	Teraiman Kanaroua	Kiritimati Urban Council	tenseart1087@gmail.com	
MR	Taburoua Reero	R. CATHOLIC. Priest		
Mr.	Natiniwa Tetiaki	LDS (Mormon)	(Tabwakea) Gessimarine@gmail.com	
Ms	Tinia. M. RAJ	MLPID Senior Assistant Secretary	tinianraj@gmail.com	

Tabwakea Ward 3 Residents Community Consultation Meeting (adjacent to Cable Site)

ADB Kiritimati ICT Cable Project – Consultation / Meeting Attendance. Venue: Village House Date: 5 Oct 2017 5.30pm
Ward 3 Tabwakea Residents at site for cable.

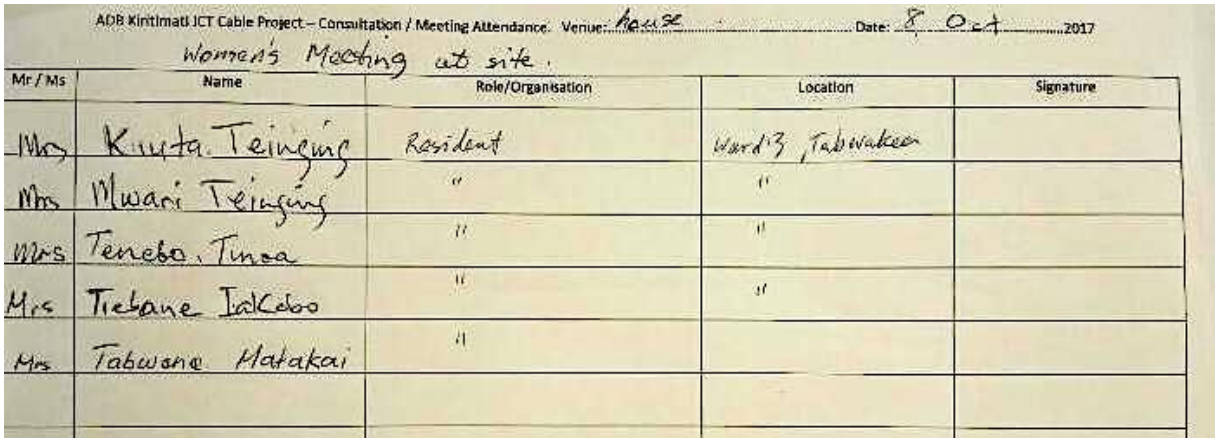
Mr / Ms	Name	Role/Organisation	Location	Signature
Ms	Moatau Teinging	Resident	Ward 3 Tabwakea	[signature]
Mr	Ioakim Tiarati	"	"	[signature]
Mr	Iakobo Teili.	"	"	[signature]
Mr	Tanawai Ruotake	"	"	[signature]
Mr	Teinging Boraua	"	"	[signature]
Mr	NAPOLEON. Reo	"	"	[signature]
Mr	TINGA. BARAOI	"	"	[signature]
Mr	Karetita. Kaotiuea	"	"	[signature]
Mr	Tebeero Ibeati	"	lives on cable route.	[signature]
Mr	Uamawa. Ibeaiti	"	Ward 3 Tabwakea	Francis.
Ms	Rutunteiti. Utimawa	"	"	[signature]

Kiritimati Women's Association (Nei Baneawa) Consultation Meeting

ADB Kiritimati ICT Cable Project – Consultation / Meeting Attendance. Venue: Wildlife Conservation Office Date: Th 5 October 2017
Womens Group (Nei Baneawa)

Mr / Ms	Name	Role/Organisation	~~Location~~ email / phone	Signature
Ms	KORINTA ANTEREA	Seventh Day Adventist AMCI Chairperson Women's Ministry	kanterea66@gmail.c	[signature]
Ms	Ruta Bauro	London Catholic Women's Group. Teitoiningaina		Ruta
Ms	Buaki. Korinabe.	Catholic Women's Group Banana Itoiningaina		[signature]
Ms	Rokonta Ngaebi	Tabwakea 2nd L.D.S.		[signature]
Ms	Veremine Tima	KUC Ronton (RAK)		[signature]
Ms	Queenie Karotu	KUC Tabwakea (RAK)		[signature]
Ms	Bairebu. Tamweru	Catholic Women Group Tabwakea Itoiningaina		[signature]
Ms	Nnamu. Bobai	KUC Banana (RAK)		[signature]
Mr	Arobwe Teatata	Wildlife - Environment		[signature]
Ms	Aana - Teetan Beraiti	Wildlife - Environment		[signature]

Tabwakea Ward 3 Community Consultation – WOMEN'S Meeting (adjacent to Cable Site)



ADB Kiritimati ICT Cable Project – Consultation / Meeting Attendance. Venue: house Date: 8 Oct 2017

Women's Meeting at site.

Mr / Ms	Name	Role/Organisation	Location	Signature
Mrs	Kiuta Teinging	Resident	Ward 3, Tabwakea	
Mrs	Mwaai Teinging	"	"	
Mrs	Teneba. Tinoa	"	"	
Mrs	Tiebane Iakeba	"	"	
Mrs	Tabwane Matakai	"		

ATTACHMENT - Community Consultation Brochure

Community Consultation
Reitaki ma te botannaomata

MLPID MICTTD ADB

Kiritimati ICT Internet Cable Project
Uaean te ICT intanete I Kiritimati

Uaean te intanete are e biri i taari are e waerake tabona I Tabwakea meang

- Uaean te intanete are e biri riaon te kawai abakina 40m × 40m.
- te uaea ae e tiki rinano iaon te aba mai iaon te bike nakon tabo ake e kona ni kabutaki iai.
- Te uaea iaon te takai.

⇒ Kamanoan raoi te uaea

✓ Kainanoan ana boutoka te botannaomata

✓ I Taari: 200m te raroa man te tabo anne

❖ E tabuaki te rooro, te kauu ika, te kamane ika ao te akawa n te tabo anne

✓ Te uaea are iaon te aba

❖ Akea te keniken ao te kateitei iaona.

➢ Birimakan ao boraoin te intanete

✓ Nakoraoin ana makuri te tautaeka
✓ Botaki n reirei, ao kuakua
✓ Karikirake
✓ Makuri
✓ Te maiuraoi
✓ Bebeten te reitaki

⇒ Baika a kainanoaki

❖ Kamatataia te botanaomata
❖ Totokoan kabonganan te intanete n anga aika aki nakoraoi
❖ Kamatoan te tia ni boo iaona

○ E na karika

♦ karekean te aki rau n nano
♦ kainanoan riki te kamatata nakon te botanaomata
♦ rotakin te intanete n tain wakinan te makuri iaona.

MLPID Ministry of Line and Phoenix Island Development
MICTTD Ministry of Information, Communication, Transport & Tourism Development
ADB Asian Development Bank

Community Consultation

Kiritimati ICT Internet Cable

MLPID
MICTTD
ADB

Marine Cable Landing at Tabwakea (North Side)

- Cable Station on Main Road 40m x 40m site.
- Underground cable from beach along access track.

⇒ **MUST PROTECT THE CABLE**

✓ **Needs Community support**

✓ In sea: 200m protection zone

❖ **No anchors, FADs, traps, fishing**

✓ On Land – cable line

❖ **No digging – No building**

➢ Faster and Cheaper Internet

✓ Government services
✓ Education, health
✓ Business
✓ Jobs
✓ Living Standards
✓ Social Benefits

⇒ Need

❖ Public awareness
❖ Protect against bad use of internet
❖ Regulate for cheaper price

○ Will be

♦ **Complaints process**
♦ More community consultation
♦ During Construction, + Internet

MLPID Ministry of Line and Phoenix Island Development
MICTTD Ministry of Information, Communication, Transport & Tourism Development
ADB Asian Development Bank

ATTACHMENT - Consultation basic household interview

Village Head of Household Interview - Tabwakea cable site

House is on road next to cable road ?..... Yes / No

Name:..Mr / Ms ……..…….…. Date: ……October 2017

Are you the Head of Household?....Yes / No How many live in your household ……

Number of People in Household	Children before school age	Children Primary	Children Secondary	Adults Older than 18	Adults Older than 60	Use internet?
Male						
Use Internet?						
Female						
Use Internet?						

1. What do you use internet for? Work? ……..…..…….. / Study?…..…… / Recreation? …..…….. Do you use: Mobile phone? …….. Computer? ……at home?…….at work?.....
2. Anyone with disability/illness/
3. Occupations / how do you earn money? Paid Job/s Men Women
    a. Money: Copra Men Womn Sell fish M W Other M W
4. Non-money / subsistence: fishing, M W vegetable growing, M W other
5. Assets: Buildings House no of rooms Material
    a. Outbuildings: Kitchen Toilet Sheds Other
    b. Equipment Car Bicycle/s Other
6. Water supply: tank Well, Water pump hand / electric/ petrol
    a. Water brought in / how? How far?
7. Toilet – flush pit Septic tank
    a. (observe location of pit/septic compared to nearest water well)
8. Where do you fish? Do women fish?
9. Do you use anchors, FAD, trap, or bottom fish in this area?
10. Plan to have exclusion (no-go) area 100 m each side of the cable across the reef and offshore:
    a. Q: Do you object? Yes / No If yes, what is the concern? And solution?
11. During construction there will be digging a trench from the sea to the main road, a building on the main road and a 3 m x 2 m concrete pit built behind the beach. There may be some short-term temporary inconvenience due to construction work and some dust, noise. The work may commence in 2 to 3 years and take possibly 1 or 2 months.
12. There will be a complaints process and more community consultation before and during construction.
    ⇒ Q: Do you have any concerns or objection to the cable project?
    ⇒ Q: Do you think there is broad community acceptance for the project?