Public Disclosure Authorized

Public Disclosure Authorized

SFG2864

EAST MICRONESIA CABLE PROJECT

**(World Bank Project Number P130592,
Asian Development Bank Grant Number D004-FM)**

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT

**Report prepared by
Argo Environmental Ltd**

January 2017

argo environmental
ENVIRONMENTAL CONSULTANTS

Executive Summary

The Governments of the Federated States of Micronesia, Kiribati and Nauru have proposed their joint participation in a regional fibre optic cable system to link the FSM island state of Kosrae, and the island nations of Kiribati and Nauru, to the existing Hannon-Armstrong (HANTRU)-1 cable which currently connects the FSM state of Pohnpei to Guam. The proposed multi-national cable system is known as the East Micronesia Cable (EMC). To fund their respetive participation in the EMC Project, the Governments of FSM and Kiribati are each seeking grant funding from the World Bank (WB), and the Nauru Government is seeking grant funding from the Asian Development Bank (ADB).

This Environmental and Social Impact Assessment (ESIA) for the EMC Project addresses the potential impacts relating to the installation and operation of the EMC by each of the three participating EMC parties. An Environmental & Social Management Plan (ESMP) is also provided which defines work area boundaries, work restrictions and time limits, to be included in the construction contract specifications which the contractor will need to comply with. Compliance will be monitored by a Safeguards Advisor who will be part of the project implementation unit in each country.

The EMC Project will require limited land-based infrastructure, will have minimal mainly marine-based impacts which are limited in scale and extent and can be fully mitigated, will require no involuntary land acquisition, and will use existing infrastructure for landing stations and for conveying land based cable or where new infrastructure is required will use existing government easements and leases. The sub-marine cable will affect a corridor no more than 3-4 m wide on the sea floor in the open ocean and nearshore zone.

The final design of the cable route will be decided during project implementation. For project preparation this ESIA has assessed the likely / probable cable routes and terrestrial infrastructure locations. The cable route will be designed to avoid sensitive habitats such as corals and Conservation Areas with placement guided by divers who will place the cable according to instructions from a marine ecologist. These measures will assist with mitigating potential impacts on the marine environment. Several viable options have been identified for sites to be used for each beach manhole (BMH) site and as cable corridors to each Cable Landing Station (CLS). Most sites are Government owned or leased and none require involuntary land acquisition or resettlement.

Given the small-scale impact of the work, and the fact that nearly all of the work is on board a vessel at sea, no negative social impacts are expected. Sensitive sites such as sea mounts and vents will be avoided to protect the cable and avoid potential environmental impacts.

The construction of the BMH facility on land will require a local sub-contractor. In Kosrae, a key potential impact relates to the disturbance to road users and adjacent land uses from the trenching of the cable within the Government owned road reserve; to address this reinstatement of the disturbed areas will be required as specified in the ESMP. In Kiribati and Nauru no impacts are envisaged given the infrastructure is already in place to convey the terrestrial cable.

TABLE OF CONTENTS

1. INTRODUCTION 1

1.1 PROPONENT & PURPOSE OF ESIA 1
1.2 PROJECT RATIONALE 1
1.3 PROJECT STATUS & DOCUMENTATION 1
1.4 ESIA METHODOLOGY 2

2. POLICY, LEGAL & ADMINISTRATIVE FRAMEWORK 3

2.1 KOSRAE 3
2.1.1 Resource Management 3
2.1.2 Land & Tenure 3
2.1.3 Legal Framework 4
2.2 KIRIBATI 5
2.2.1 Resource Management 5
2.2.2 Land & Tenure 6
2.2.3 Legal Framework 7
2.3 NAURU 8
2.3.1 Resource Management 8
2.3.2 Land & Tenure 9
2.4 INTERNATIONAL AND REGIONAL TREATIES, CONVENTIONS & AGREEMENTS 10
2.5 WORLD BANK & ADB POLICY FRAMEWORK 11
2.5.1 Introduction 11
2.5.2 Kosrae & Kiribati 11
2.5.3 Nauru 12

3. PROJECT DESCRIPTION 14

3.1 PROJECT COMPONENTS 14
3.2 PROJECT LOCATION 16
3.2.1 Submarine Component 16
3.2.2 Shore end of Cable 17

4. BASELINE DATA 20

5. ANALYSIS OF ALTERNATIVES 21

5.1 ALTERNATIVE TECHNOLOGIES 21
5.2 CABLE ALIGNMENT & LANDING STATION OPTIONS 21
5.2.1 Introduction 21
5.2.2 Kosrae 21
5.2.3 Kiribati 22
5.2.4 Nauru 22
5.3 ALTERNATIVE INSTALLATION METHODOLOGIES 22
5.3.1 Subsea & Intertidal Cable Installation 22
5.3.2 Terrestrial Cable Installation 23

6. ANTICIPATED IMPACTS & MITIGATION MEASURES 25

6.1 INTRODUCTION 25
6.2 GENERAL ENVIRONMENT 25
6.2.1 Deep Ocean Waters 25
6.2.2 Intertidal Coastal Areas 26
6.2.3 Terrestrial Areas 27

6.3 POVERTY & GENDER IMPACT 27
6.4 LAND ACQUISITION & RESETTLEMENT 28
6.5 RISK ASSESSMENT & IMPACT IDENTIFICATION METHODOLOGY 29
6.6 OUTCOME OF RISK ASSESSMENT & IMPACT IDENTIFICATION 31
6.7 OTHER POTENTIAL IMPACTS & BENEFITS 31
6.7.1 Cumulative Impacts *31*
6.7.2 Irreversible & Irretrievable Impacts *31*
6.7.3 Transboundary Impacts *31*
6.7.4 Environmental & Social Enhancements / Benefits *31*

7. INFORMATION DISCLOSURE, CONSULTATION & PARTICIPATION 35

7.1 INTRODUCTION 35
7.2 KOSRAE 35
7.3 KIRIBATI 35
7.4 NAURU 36
7.5 DISCLOSURE 36
7.6 ONGOING CONSULTATION & PARTICIPATION 36

8. ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN 37

8.1 INTRODUCTION 37
8.2 PERFORMANCE INDICATORS 37
8.3 IMPLEMENTATION ARRANGEMENTS 38
8.3.1 Overview *38*
8.3.2 ESMP Implementation Arrangements *38*
8.4 INSTITUTIONAL CAPACITY ASSESSMENT 39
8.5 MITIGATION & MONITORING COSTS 40
8.5.1 Environmental *40*
8.5.2 Social Development Programs & Resettlement Costs *40*
8.5.3 Total Costs *40*
8.6 REPORTING & MONITORING REQUIREMENTS 40
8.6.1 Environmental Code of Practice *41*

9. GRIEVANCE REDRESS MECHANISM 41

9.1 INTRODUCTION 41
9.2 PROPOSED GRIEVANCE REDRESS MECHANISM 41

10. CONCLUSIONS & RECOMMENDATIONS 44

APPENDICES 45

APPENDIX 1 BASELINE DATA REPORT

APPENDIX 2 INTERNATIONAL CONVENTIONS AND TREATIES

APPENDIX 3 LAND DUE DILIGENCE REPORT

APPENDIX 4 POTENTIAL CABLE ALIGNMENTS & BMH SITES

APPENDIX 5 CONSULTATION SUMMARIES

APPENDIX 6 LIST OF ATTENDEES

APPENDIX 7 ENVIRONMENTAL MITIGATION (ESMIT) AND MONITORING (ESMOT) TABLES

APPENDIX 8 EVALUATION OF COMPLIANCE WITH WB SAFEGUARD POLICIES & ADB SAFEGUARD POLICY STATEMENT (SPS) ENVIRONMENTAL REQUIREMENTS

1. Introduction

1.1 Proponent & Purpose of ESIA

The Government of the Federated States of Micronesia (GoFSM) is seeking assistance with funding from the World Bank (WB) for a regional fibre optic cable to link the FSM State of Kosrae, and the island nations of Kiribati, and Nauru, to the existing Hannon-Armstrong (HANTRU)-1 cable (Figure 1) which currently connects the FSM States of Pohnpei to Guam. Concurrently, the Kiribati Government is seeking financing from the WB to finance Kiribati's participation, and the Nauru Government is seeking financing from the Asian Development Bank (ADB) for its participation. This Project has been named the East Micronesia Cable (EMC) Project.

The Implementing Agencies for the participating countries in the EMC Project are: FSM Department of Transportation, Communication & Infrastructure (DTCI); the Ministry of Information, Communication, Transport & Tourism Development (MICTTD) in Kiribati; and the Information & Communications Technology (ICT) Department in Nauru.

One of the main challenges facing the region is the need to overcome its remoteness and dispersed geography by developing infrastructure to connect people domestically and internationally. The EMC Project is intended to provide essential backbone infrastructure to promote and support social and economic development across all sectors in each country and within the region. The long-term viability of the region hinges on domestic and international economic integration.

The new fiber optic cable procured under the EMC project will connect the Pohnpei Spur to Kosrae and on to Nauru terminating in Kiribati. The length of the new cable will be approximately 2,000 km. A significant portion of the cable is well beyond the territorial seas of the participating countries.

This ESIA was prepared to identify all potential environmental and social impacts that may arise as a result of implementation of the project and to mitigate any impacts, with a focus on coastal zones and near-shore marine areas which form the majority of the project influence area (PIA). Terrestrial infrastructure is relatively limited in extent and utilises existing facilities (e.g., in ground ducting, telecoms buildings and premises for landing stations, etc) or is confined to public road reserves on existing easements.

1.2 Project Rationale

The proposed project will support investment in a submarine fibre optic cable that would connect Kosrae, Kiribati and Nauru with Pohnpei to Guam and from there to the rest of the world via the global Internet. At present, Kosrae, Kiribati and Nauru rely entirely on satellite for Internet connectivity. The high cost, and the variable and limited availability of international bandwidth are major constraints to their ability to participate in the global Information Age and the concomitant opportunities for economic and social development that arise when cheap and accessible high speed Internet services are made available.

The proposed project will contribute to improved public services (including online government services such as health, education and financial services), will support the tourism sector, and will facilitate better trade and communication among north Pacific island economies.

1.3 Project Status & Documentation

At the time of preparation of this document, a project concept has been completed. At the outset of the EMC Project, it has been agreed by ADB and World Bank to adopt a 'common

approach' to complete a combined ESIA and ESMP that meets in-country laws as well as their respective safeguards policies.

Given that the focus of this assessment is on coastal zones and nearshore marine areas, various marine surveys have been undertaken and are attached as a detailed report in Appendix 1. The outcome of the land due diligence assessment is provided in Appendix 3.

Detailed design, including a detailed marine survey and identification of the final cable route and location of infrastructure, and land acquisition will occur during project implementation. These activities will be guided by the ESMP. The ESMP will be updated if any new sites or routes are identified through the detailed design phase.

1.4 ESIA Methodology

An initial evaluation of potential cable alignments was undertaken based on in-country consultations with officials from the respective Governments. Then, further scoping activity was undertaken to evaluate these locations based primarily on eliminating the requirement for private or custom owned land acquisition and minimizing coastal zone environmental impacts. This initial scoping exercise identified a number of beach manhole sites and landing stations that facilitated the completion of the evaluation for this ESIA.

In addition, the assessment included a review of relevant secondary information sources, site visits, key stakeholder interviews, and public consultations to determine existing environment conditions in the PIA corridor, at BMH sites and along landside routes where cables are to be located. This was followed by an analysis of the potential impacts that the installation and operation of the fibre optic cable could have on the corridor's natural and socio-cultural environment. Data collected included the following:

- Potential land acquisition requirements;
- Sensitive environmental receptors within the PIAs, including Conservation Areas, Fish Attraction Devices (FADs) and special tourism sites, such as dive sites;
- Marine ecology of the coastal zone and nearshore waters likely affected by the cable project, including benthic and coral reefs conditions along the PIA corridor;
- Poverty and gender conditions in relation to the proposed work;
- Social impacts of faster and more reliable Internet connections; and
- Cultural heritage and archaeological sites within the PIA corridor.

The evaluation of the marine and terrestrial ecological resources in the three countries was undertaken in late October and early November 2016. Assessment methodology, specific site locations and detailed findings are presented in Appendix 1.

This information was then used to assess potential environmental impacts and identify potential mitigation options during cable deployment. The ESMP forms part of the ESIA (Section 8).

2. Policy, Legal & Administrative Framework

2.1 Kosrae

2.1.1 Resource Management

There are a considerable number of government and semi-government agencies involved with marine resource management at national and state levels in the FSM. Each State operates independently in fisheries matters within State territorial waters.

The FSM Government's Marine Resources Division (NMRD) of the Department of Resources and Development is responsible for providing the government (national and state) with technical information, advisory services and support for development and management activities in marine resources including fisheries, aquaculture and coastal resource management. It is additionally responsible for non-living marine resources within the 200 mile EEZ. A major function is to liaise with foreign and international agencies concerning marine resources.

The Micronesian Maritime Authority (MMA) was established to regulate the use of and to manage and conserve the resources within the 200 mile EEZ. One of the MMA's key functions is to adopt and promulgate regulations for the conservation, management, and exploitation of all living resources in the EEZ.

In Kosrae, the Marine Resources Division (KMRD) of the Department of Conservation and Development is the state agency responsible for the management and development of marine resources. The Kosrae Island Management Resources Authority (KIRMA) is the state agency responsible for assessments relating to land usage, permitting for developmental programs, identification of Conservation Areas, enforcement, development of environmental regulations, and development and implementation of environmental management plans. An EIA is required to be prepared (Section 19.104 of the State Code) if a development or activity affects "the environmental quality of fishery waters".

The Kosrae Conservation and Safety Organization (KCSO) is a non-governmental organization whose purpose is "*to further projects relating to awareness and protection of the natural environment and to public health and safety; to conduct community programs and related programs applicable to these projects within Kosrae …*"

The Kosrae National Biodiversity Strategy and Action Plan (NBSAP) outlines the state of the nation's biological resources and the current biological and human-related threats that affect their continued existence.

2.1.2 Land & Tenure

The State Government controls a major part of the land in Kosrae, namely government owned lands, mangrove areas, nearshore areas, and lagoon areas. Primarily, government lands are of the interior, above the 'Japanese line'[1]; and foreshore areas. Kosraeans can own land but not outsiders (foreigners). The land is owned in "Fee Simple" with a certificate of title issued when the registration process is complete for individual landowners. However, if the land is inherited by multiple heirs or if customary family land is held in common, then a Tenancy in Common title is issued.

Accessing land through usufruct or access rights (customary practice) was common for hunting or gathering purposes. Nowadays, this is more common in the upland and government owned

[1]A line which sets aside the upper elevation of Kosrae Island; land above the line is designated as Government and land below the line is where private-own designations begin.

areas. Accessing land and use rights for productive lands, particularly in settled areas, is done through leasing agreements.

As a protectorate measure, foreign ownership of land is through leasing titles only. Kosrae state law allows locals and foreigners alike to lease for up to a 55-year term renewable for an additional 55 years. Although this provides secure access and use for the lease period, issues such as land ownership disputes, lack of certainty, poor surveying capabilities, absence of records, and uncertain parameters for customary usage often hinder foreign investment. As in other Pacific island land tenure systems, land transactions are often made under customary practice, which is frequently undocumented. This makes accurate determination of ownership rights and pricing of land difficult to determine.

The Kosrae Constitution is the primary rule of law in the State of Kosrae. In its preamble, it declares Kosraeans are one, as people, in their language, in their traditions, and in their family and communal life. The Preamble acknowledges the bounty and beauty of Kosrae pledging to preserve those natural riches. Thus the legal foundation for the State's environmental protection and conservation, both human and physical,is laid.

The Kosrae State Code Title 11, Land and Environment, sets out the requirements regarding the acquisition and use of land. Under Titel 11, the Governor can transfer title or interest in public land on behalf of the State of the Government but only with the Legislature's resolution. The Governor also has the authority to designate suitable areas of the public land for homesteading to eligible persons.

In managing land and land use, the Kosrae State Code provides for land use planning, surveying practice, homesteading and establishment of the Land Court. The Land Court determines and registers land titles. Further, the deed of trust allows for the transfer of an estate in real property or freehold or leasehold interest in real property to secure an obligation. This practice allows land transactions for monetary or customary obligations.

2.1.3 Legal Framework

As described in Section 2.1.1, there is significant legal provision in existing law for managing and conserving the environment of Kosrae. Table 2.1 lists state and national laws relevant to the Kosrae portion of the Project.

The Development Review Commission (DRC) is a five-member body that reviews development proposals and is mandated to "*protect the environment … balancing development with those of environmental quality … ensuring that economic and social development is environmentally sustainable*". The DRC has the authority to enter, enforce, and issue injunctions, mandamus, or other remedies requiring compliance through the Attorney General. Further, the DRC has the authority to protect the environment and antiquities.

The State can acquire an interest in private land for public purpose. The Constitution and Article XI, Land and Environment, provide for fair compensation should there be a need for land acquisition for the purpose of resettlement. The process must be done in good faith with reasonable effort to avoid substantial hardship to the interested parties[2].

An EIA may be required particularly if any development or activity affects the environmental quality of fishery waters, which is determined following consultation with the Director of the Marine Resources. If an EIA is required then the Director has the right to submit comments before a decision is made by any State Government Authority such as the DRC

[2] Palik vs Kosrae, 5 FSM Intrm. 147. 152-154 (Kos. C. Ct. Tr. 1991).

Based on the initial consultation regarding the Project an application will need to be submitted to determine whether an EIA is required for the installation and use of the cable and associated facilities, for State approval.

Table 2.1: Relevant national & state legislation for Kosrae

NATIONAL LEGAL FRAMEWORK	
FSM Constitution	The supreme law and it establishes the national, state, and municipal governance.
Federated States of Micronesia Environmental Protection Act 1984	Provides for the protection of the environment, culture, historic and natural aspects of Micronesian heritage.
Marine and Freshwater Quality Standards Regulations 1986	Identifies the uses for which waters of FSM shall be maintained and protected (water quality).
Trust Territory Solid Waste Regulations 1979	Establishes the minimum standards for the design, construction, installation, operation and maintenance of solid storage, collection, and disposal systems.
FSM Earthmoving Regulations 1988	Earthmoving activities permits are issued by the Secretary of Human Resources.
FSM EPA Environmental Impact Assessment Regulations 1989	Requires the National Government and its agencies to submit Environmental Impact Statement (EIS) to the Secretary of Human Resources prior to any "major" action significantly affecting the quality of the human environment.
FSMC, Title 26 Historical Sites, and Antiquities	Policy to protect and preserve the diverse cultural heritage of the people of Micronesia.
STATE LEGISLATION	
Constitution of the State of Kosrae	Primary rule of law in the State of Kosrae
Kosrae State Code, Title 17, Chapter 4	Establishes the Kosrae EPA
Kosrae Code Section 11.201	Land use and subsidiary regulations
Kosrae Code, Section 14.1302	Foreign fishing agreement
Kosrae Code, Section 11.1601	Endangered species
Kosrae Code, Section 13.514	Water quality
Kosrae Code, 13.523	Unauthorised procuring of marine life
Kosrae Code, Section 13.524	Endangering a species
Kosrae Code, Section 11.1401	Protection of antiquities and traditional culture
Kosrae Code, Section 13.506	Littering

2.2 Kiribati

2.2.1 Resource Management

Marine resources are very important to the people of Kiribati, as it is their main protein source. Subsistence and small-scale fishing operations are carried out throughout the islands with fishing activities focused both within lagoons for reef fish and shellfish and nearshore for tunas and other pelagic species.

The Maritime Zones (Demarcation) Act (1983) establishes Kiribati jurisdiction over an exclusive economic zone including description of areas within these limits relating to

international and archipelagic waters and the territorial sea. Kiribati is not however, a party to the United Nations Convention on the Law of the Sea which established the international basis for supporting the claim over 200 miles of exclusive economic zone.

The Foreshore and Land Reclamation Ordinance Act 1969, as amended in 2005, proclaims State ownership of the foreshore and sea bed, subject to public rights and navigation. This means that the legislation does not seek to override customary rights in marine areas.

The Laws of Kiribati Act 1989 acknowledges customary law in that it may be applied to:

- The ownership by custom of rights 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; and
- The ownership by custom of water, or rights in, over or to water.

The Ministry of Fisheries and Marine Resources Development (MFMRD) is the Kiribati Government Agency responsible for developing and managing the nation's fisheries as well as other marine resources (marine aggregates, deep-sea minerals). The Ministry has two main technical divisions, the Fisheries Division and the Mineral Resources Division.

The development and management of the marine resources within Kiribati falls under the jurisdiction of the Fisheries Division of the MFMRD. The Fisheries Division works under two pieces of fisheries-related legislation: The Fisheries Ordinance (CAP 33) and the Fisheries (Pacific Island States' Treaty with the United States of America) Act 1988. The Fisheries Ordinance has been amended by the Fisheries (Amendment) Act 1992; the Fisheries (Amendment) Act 1995 and the Fisheries (Amendment) Act 1997. In addition, the Republic of Kiribati has a National Development Strategy that also addresses marine resources.

Kiribati has a number of statutory provisions that address environmental management issues. The key ones are the Environment Act 1999 and 2007 Amendment; the Draft Environmental (General) Regulation, 2009; the Schedule of Environmentally Significant Activities, i.e. a list of actions/projects that would likely trigger environmental effects needing assessment.

The 1999 Act established the Environment and Conservation Division (ECD) within the Ministry of Environment, Land and Agricultural Development (MELAD) as the mandated Division for environmental protection, resource conservation and sustainable development.

Kiribati has also established a system of marine protected areas (MPAs) that aim to conserve marine biological diversity and serve as ecologically representative networks of protected areas at sea. Currently there are twelve MPAs primarily set up for stock enhancement of marine species that have been identified and confirmed to be declining in numbers, yet important for Kiribati's livelihood and economic wellbeing.

There is no current legislation in Kiribati to protect national heritage except for vague references in the Mineral Development Licensing Ordinance (1978) (in relation to the reporting of finds by prospectors and the authority of the Minister in respect of the preservation of finds) and the Local Government Act (1984) (the role of Local Councils in the preservation, control and removal of any antique artefacts).

2.2.2 Land & Tenure

The Kiribati land tenure system is encapsulated in six legislations, namely the Native Land Ordinance of 1956, the Gilbert and Phoenix Islands Lands Code, the Landowners Taxation Ordinance, the Neglected Lands Ordinance, the Non-Native Land (Restriction on Alienation) Ordinance of 1974, and the Native Land (Amendment No.2) Ordinance.

It is important to note that almost all land in Kiribati belongs to the I-Kiribati, except for the Phoenix and Line Islands, small portions of reclaimed land owned by the Government, and lands belonging to the Catholic and Protestant churches. I-Kiribati land rights and interests are inherited and can also be gifted (Gilbert and Phoenix Islands Lands Code 1956). Also, any environmental management and resource conservation effort requires the cooperation of the landowners.

Land ownership is fundamental to the I-Kiribati socio-cultural way of life. Land is owned by families, whom the head has the right to distribute land to its members. In effect, land is a source of power and prestige among local people. Land is central to community's socio-political environment, particularly among the older generation.

Family members have equal rights to family lands, to use (build) and access (collect produce). Traditionally, land ownership infers ownership of groundwater, provides fishing rights, harvesting rights, and a social security.

Government, businesses, non-government organisations, and churches lease large areas of family land. In addition, there are substantial areas of South Tarawa occupied by internal migrant settlers from other parts of Kiribati.

The government owns some land, namely state land. This is confined to Temwaiku Bight, which is 200ha of reclaimed land. It also leases lands in Betio, Bairiki and Bikenibeu from private landowners.

The Kiribati land tenure system upholds the rights of landowners, as stipulated in the Native Land Act; landowners 'controls the use of his property. Accordingly, the Land Planning Act provides for land use planning in the 'public interest.' It is significant to note that even on Government leaseholds on South Tarawa, the landowner retains the right to veto applications for sublease on his land. The landowner can either consent or refuse to sign on the planning application form.

Due to the depleted land supply and the tenure situation, a large segment of the urban population either constructs houses illegally or enters formal or informal agreements with landowners to occupy the land. In Betio, Bairiki, and Bikenibeu, some homes and squatter settlements are found amongst shops and offices.

About two thirds of the 5,584 households in South Tarawa live on land that is owned by their families. One in ten household's live on land that is neither owned nor leased. These households are built on informal or other arrangements with the landowners. These types of arrangements have no legal or contract basis. However, many land disputes are due to poor informal agreements.

2.2.3 Legal Framework

As described in Section 2.1.1, there is significant legal provision available within the existing legislation for managing and conserving the environment of Kiribati. Table 2.2 presents reference to legislation considered relevant to this project.

The Constitution, the Native Land Ordinances of 1977 and the State Acquisition of Lands Ordinance of 1979 provide for compensation arrangements in case of involuntary resettlement. This is only applied if those who are resettled have not breached any law. The large number of people who occupy land as squatters, or with informal arrangement are not covered.

Table 2.2: Relevant National & State legislation for Kiribati

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 also 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.

Although not identified as a prescribed requirment (Schedule of Environment Act 1999), in consultation with MELAD it was indicated that an EIA would likely be required before an "environmental licence" can be provided. This would be determined following provision of a development application for review.

2.3 Nauru

2.3.1 Resource Management

The key environmental management, environmental health and resource management and conservation legislation in Nauru is detailed in Table 2.3.

The Nauru Fisheries and Marine Resources Authority Act establishes the Nauru Fisheries and Marine Resources Authority (NFMRA) as the authority responsible for regulating and developing Nauru's fisheries and marine resources.

The Authority is responsible for the management of offshore fisheries, coastal fisheries and aquaculture; as well as owning the Nauru Fisheries Corporation (NFC) that acts as the commercial arm of the Authority. The key fisheries laws are the Nauru Fisheries and Marine Resources Authority Act of 1997, which regulates the fishing industry, both inshore and within the 200-Mile Exclusive Economic Zone (EEZ), and the Fisheries Act of 1997.

Although there is currently no specific EIA legislation in Nauru the Department of Commerce Industry & Environment is in the process of developing environment policy with assistance from Secretariat of the Pacific Regional Environment Programme (SPREP) and the Justice Department to develop appropriate legislation to provide a much clearer EIA process.

2.3.2 Land & Tenure

Government and corporate entities do not own land in Nauru. They must enter into leasing agreements with the rightful land owner. Further, non-Nauruans cannot own land in Nauru. In most Pacific island countries including Nauru, a large majority (80%-100%) of the land is customary land. The customary land is owned collectively or jointly by indigenous families.

"*(2) Any person who transfers … the freehold of any land in Nauru to any person other than a Nauruan person shall be guilty of an offense; (3) Any person who, without the consent in writing of the President, transfers, sells or leases, or grants any estate or interest in any land in Nauruans…is guilty of an offense*" s3 Lands Act 1976.

The majority of lands held by individuals are unsevered separate shares of portions of land held originally by families or individuals. Ownership of customary land can be both male and female. Nauru is one of the countries that has homogeneity in the customs of indigenous people. Unlike other countries, Nauru has customary land but not customary chiefs. Instead, a Land Committee is appointed by Cabinet.

Utilising customary land as a security for a loan is neither authorised nor prohibited by legislation, but the practice has developed. For example, the outright transfer of individually owned land to Nauruan money lenders is practiced.

The Government can only lease land. Under the Lands Act 1976 compulsory acquisition by the Government is possible, but rarely used.

All land transfers, sales or leases, or grants of any land estate or interest therein, of any land in Nauru must be consented by the President. The Constitution (s26) and the Lands Act 1976 provides for Nauruans' rights to land. The Lands Act provides for compensation in cases of involuntary resettlement with compensation fees prescribed under the schedules of the Act.

Table 2.3: Relevant legislation for Nauru

Constitution of Nauru 1968	Provides the basis for Nauru's government and legal authority.
Lands Act 1976	Repealed Lands Ordinance (1921-1968), and made provision for the leasing of land for the purpose of phosphate industry. For leasing land for other public purposes, it covers the removal of trees, crops, soil, and sand, and payment of compensation respectively.

Land (Declaration of Ownership) Ordinance 1962	Provision for compensation to Nauruans landowners who were not compensated for phosphate mined from the German Wireless Station land area.
Land Committee Act 1956	Established the Nauru Land Committee to determine questions on ownership and rights in respect of land where issues involve Nauruans and Pacific Islanders.
Customs and Adopted Laws Act 1971	Provisions relating to the institutions, customs, and usages of Nauruans, and adopted laws.
Sea Boundaries Act 1997	This demarcates Nauru's sea boundaries and maritime zones and declares the rights of the Republic of Nauru in these zones.
Wild Bird Protection Act 1937	Prohibition on taking of magpies, snipe, quail, Nauru canneries, and noddies.
Agricultural Quarantine Act 1999	Provides for the protection of plants, animals and public health. Also the protection, development, and utilization of the natural resources and the environment by preventing introduction and spread of diseases and pests.
Fisheries Act 1997	Established the Nauru Fisheries and Marine Resources Authority to manage, develop, conserve and protect the fisheries and marine resources of Nauru.
Nauru Antiquities Ordinance 1935	Provides for the protection of the Nauru antiquities, relics, curios and article of ethnological and anthropological interest and scientific value.
Telecommunication Act 2002	Provides for establishment, maintenance, operation and retaliation of telecommunication services in, to and from Nauru.
Public Health Ordinance 1925-1967 / Health (Eatinghouse) Regulations 1974	Provisions for safety of the public health of Nauru.
Criminal Procedure Act 1972	This is relevant to any criminal prosecutions which may be undertaken in relation to offenses against any environmental law.
Criminal Justice Act 1999	Provisions for appropriate penalties to be applied for persons committing littering and other offenses which affect the environment.
Nauru Rehabilitation Corporation Act 1997	This affords specific provisions for the rehabilitation works in Nauru.
Port Authority Act 2006	Establishes the Port Authority with vested powers that covers the marine environments.
Litter Prohibition Act 1983	Provides for abatement of litter.
Animals Regulation 2000	Extends the provisions of the Animal Act to include most other animals.

Although there is currently no EIA legislation in place it is likely that the Nauruan Government will request an EIA to be provided.

2.4 International and Regional Treaties, Conventions & Agreements

The three countries are signatories to a range of International Conventions and Treaties of relevance to this Project (see Appendix 2).

2.5 World Bank & ADB Policy Framework

2.5.1 Introduction

The Project spreads across three different countries where different in-country and development partner policies and laws apply. Each country therefore has its own project appraisal requirements with its own categorisation. However, for simplicity and for cohesion with the overall project requirements, a single environmental assessment document has been prepared.

Set out below is an analysis of the WB and ADB operational policies that have been triggered by the Project and apply to this environmental assessment.

2.5.2 Kosrae & Kiribati

A review of relevant WB operational policies is provided below and an evaluation of compliance in Table 8A in Appendix 8.

Operational Policy 4.01 – Environmental Assessment

The WB requires an Environmental Assessment (EA) of Category A and B Projects proposed for WB financing to ensure they are environmentally sound and sustainable, thereby improving decision-making. Operational Policy (OP) 4.01 requires (i) detailed qualitative and quantitative analysis to determine project impacts, (ii) determination of tangible measures to prevent, minimise, mitigate or compensate for those adverse impacts, (iii) public consultation and disclosure as part of the EA process and (iv) requires and Environmental Management Plan (EMP) to address set mitigation along with monitoring and institutional measures to be taken during design, implementation, operation and maintenance phases of the project.

This policy is triggered for the Kosrae and Kiribati projects. Both projects are Category B, as the impacts are readily mitigatable and reversible. This ESIA and ESMP satisfy the EA requirements of OP4.01.

Operational Policy 4.04 – Natural Habitats

OP 4.04 requires the conservation of natural habitats and specifically prohibits the support of projects that involve significant conversion or degradation of critical habitats, as defined by the policy. The policy further requires the EA to identify impacts on biodiversity and species and to determine endemism, endangered species and to determine project impacts on these species and to propose acceptable mitigation and monitoring measures.

This OP is triggered as natural habitats may be disturbed temporarily during cable laying in the intertidal zone. No protected areas are located within the PIA for either Kosrae or Kiribati. The ESIA has been informed by ecological surveys of subtidal and intertidal reef and foreshore in Kosrae and Tarawa. Although there are areas of sensitive habitat (i.e., corals and seagrass beds), mitigation measures will be adopted to avoid and minimise disturbance. Significant seabed habitats, such as hydro-thermal vents and seamounts, will be surveyed during the detailed design phase and avoided. There are no natural habitats in the footprint of the terrestrial infrastructure.

Operational Policy 4.10 – Indigenous Peoples

OP 4.10 requires engagement in a process of free, prior and informed consultation with Indigenous Peoples (IP's), as described by the policy in situations where IP's are present in, or have collective attachment to, the project area and for the preparation of an Indigenous Peoples Plan (IPP) and /or Indigenous Peoples Planning Framework (IPPF).

An assessment completed by the World Bank into the application of OP4.10 in Pacific Islands Countries concluded that the Kosrae and Kiribati projects do not trigger this policy.

Operational Policy 4.11 – Physical Cultural Resources

OP 4.11 seeks to avoid the disturbance and/or destruction of Physical Cultural Resources (PCR) as defined by this policy by the projects activities. PCR includes places of worship, buried artefacts, cemeteries, and archaeological assets, etc. The policy further requires, (i) EA to undertake an exhaustive desk review and/or site investigation to pre-identify and locate PCR's in the PIA, (ii) EA/EMP to propose management measures and (iii) to include "chance find" clauses in civil works contracts during construction and maintenance stages.

No PCR were identified during the baseline surveys. Due to the small infrastructure footprint, there is a low likelihood of PCR being discovered during construction. A chance find procedure has been included in the ESIA and the policy is triggered as a precautionary measure in case a PCR is discovered.

Operational Policy 4.12 – Involuntary Resettlement

This policy addresses direct economic and social impacts from the projects activities that will cause (a) involuntary taking of land resulting in loss of income sources or of livelihoods and (b) involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons. This policy requires siting of project infrastructure to be chosen as to avoid these impacts altogether or to minimise them to the extent possible. Where these cannot be avoided, the policy requires the preparation of either or both of these instruments: (i) resettlement policy framework, (ii) Resettlement Action Plan. The policy also requires meaningful consultations with potentially affected people. The policy prohibits community donations of lands for location-specific infrastructure.

All land acquisition will be voluntary at the three landings for this Project. The location of the cable is flexible and can be changed to accommodate voluntary land acquisition. The land due diligence study (see Appendix 3) indicates that there are several suitable Government-owned or leased sites available for the location of infrastructure, none of which will cause any involuntary resettlement. If private or custom-owned land is required, this will be acquired voluntarily, using lease or easement arrangements. Therefore this policy is not triggered.

2.5.3 Nauru

Table 8B in Appendix 8 sets out an evaluation of the Nauru-related elements of this ESIA against ADB Safeguard Policy Statement (SPS) Requirements – Environmental and Involuntary Resettlement (ADB 2009[3]).

The objectives of the SPS are to ensure the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process.

The requirements apply to all ADB-financed and/or ADB-administered sovereign and non-sovereign projects, and their components regardless of the source of financing, including investment projects funded by a loan; and/or a grant; and/or other means, such as equity and/or guarantees (hereafter broadly referred to as projects). In broad terms Environmental safeguards are triggered if a project is likely to have potential environmental risks and impacts.

[3] Asian Development Bank "Safeguard Policy Statement" June 2009

This evaluation confirms that the ESIA addresses all matters identified in the Environmental Safeguards Requirements set out in the ADB SPS.

This ESIA demonstrates that the Project will not involve involuntary resettlement and therefore the ADB requirements for Involuntary Resettlement are not addressed separately.

3. Project Description

3.1 Project Components

The EMC Project involves installing a submarine fibre optic cable from Pohnpei to Kosrae (approximately 550 Km) and to Kiribati (approximately 1,250 Km) with either an intermediate landing or a spur to Nauru (approximately 250 Km). The newly constructed portion of the EMC system will total over 2,000 km, much of it in deep ocean water. Subject to final determination after techncial review, a possible configuration for the EMC system is pictured in Figure 3.1.

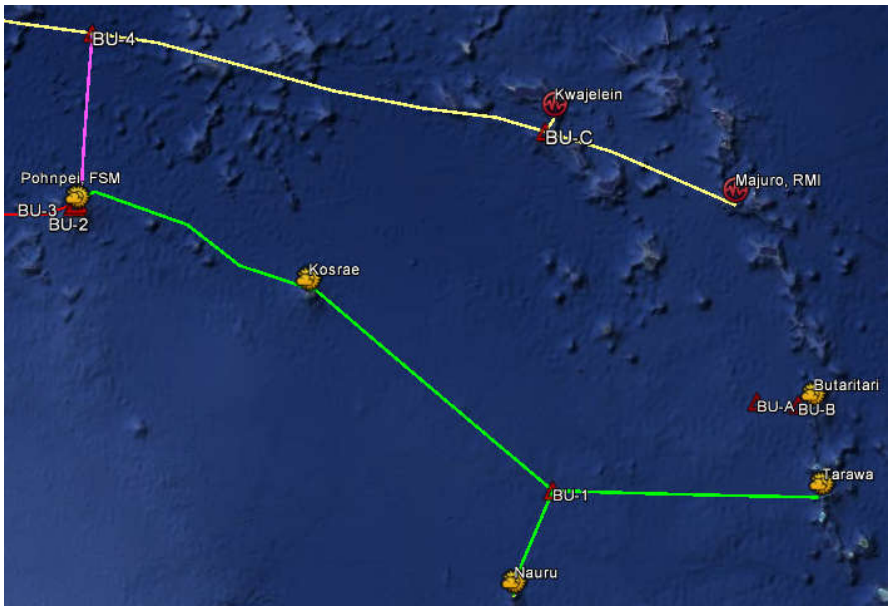

Figure 3.1: Proposed EMC subsea cable route

The key components of the EMC subsea and terrestrial infrastructure include:

- Fibre optic cable and repeaters (approximately every 200 km) laid on or beneath the sea floor using a trenching machine.
- At the shoreward ends of the cable across the intertidal zone, between the subtidal zone and a 'beach manhole (BMH) structure', the cable will be covered with lightweight protection consisting of standard articulated piping bolted to the substrate.
- A Beach Manhole (BMH) landing facility which will likely comprise a small concrete manhole approximately 2m x 2m x 2m (Figure 3.2).
- Use of existing in ground ducting (as is the case in Kiribati), existing fibre optic cable already installed adjacent to the road (Nauru), or corridor within road easement currently used for existing telecommunications infrastructure (as is the case in Kosrae) along the main road to the Cable Landing Station (CLS).
- A secure DC power feed facility (including back up diesel generator and battery supply, earth mat, control systems, etc) at Kiribati to power the cable repeaters to be located as close as possible to the CLS to minimise the risk of human contact with the buried or conduited power supply cable.

The CLS's are proposed to be located as follows:

- Kosrae - the FSM Telecommunications Corporation earth station premises in Tofol.

- Kiribati - either the existing provider ATH Kiribati facility or the new Ocean Links facility to be constructed adjacent to the PBS aerial both in Bairiki (to be confirmed).
- Nauru - Information & Communications Technology (ICT) Department building in Yaren.

Project implementation arrangements are described in Section 8.3.

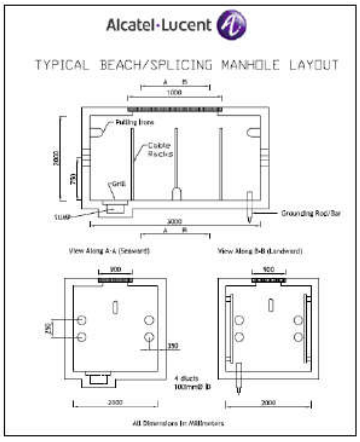

Figure 3.2: Typical layout of a beach manhole landing facility

The subsea cable, consisting of double armoured cable to 200 m depth and single armoured cable to 1,000 m depth (Figure 3.3), will range in diameter from 4 - 7.5 cm.

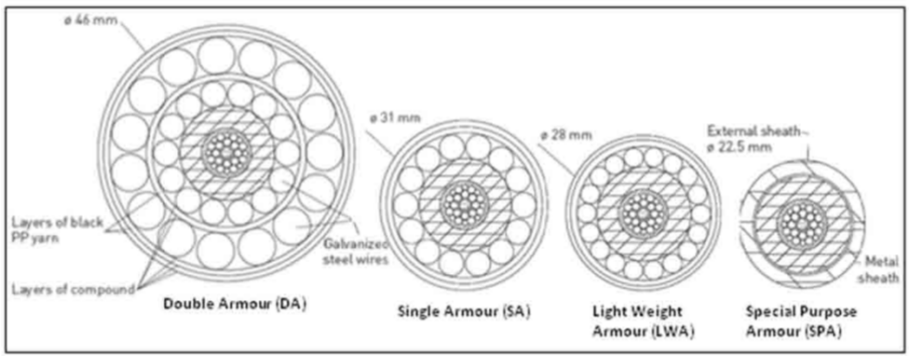

Figure 3.3: Fibre optic cable options

The subsea cable will be buried in a trench dug by a towed submarine plough, requiring a corridor no more than 0.75m wide (see Section 5 for further detail). It is also the preferred method for the cable laying Project in north western Micronesia connecting undersea cable to Palau and the FSM States of Yap and Chuuk[4].

The trench, which will be approximately 25 cm wide by 0.5-0.75m deep, is opened and then closed once the towed plough lays the cable into the trench (Figure 3.4).

[4]FSM Government 2016. Environmental & Social Impact Assessment. Palau FSM Connectivity Project. Environmental & Social Safeguards: Yap & Chuuk Cable System Components. Grant No. D004-FM. Project No. P130592. March 2016 (amended).

Figure 3.4. An example of submarine cable ploughs at sea and being towed from shore to deeper water by a cable laying ship

In the intertidal, the cable will be either trenched using an excavator (approximately 1m wide by 0.5m deep) or the armoured cable will be attached directly to the reef surface. This will be up to the discretion of the appointed contractor but either method is expected to have similar minimal environmental impacts.

Where there isn't existing capacity to deliver the land-side fibre cable from the BMH to the CLS the cable could be installed using several methods including trenching (which may require removal of vegetation where present) using a small excavator or thrusting, whereby cable conduit is pushed underground in advance of pulling the cable (see Figure 3.5). This technique is often used where there is sensitive infrastructure is present at the surface (i.e., road crossings, driveways, buildings, sensitive vegetation, etc).

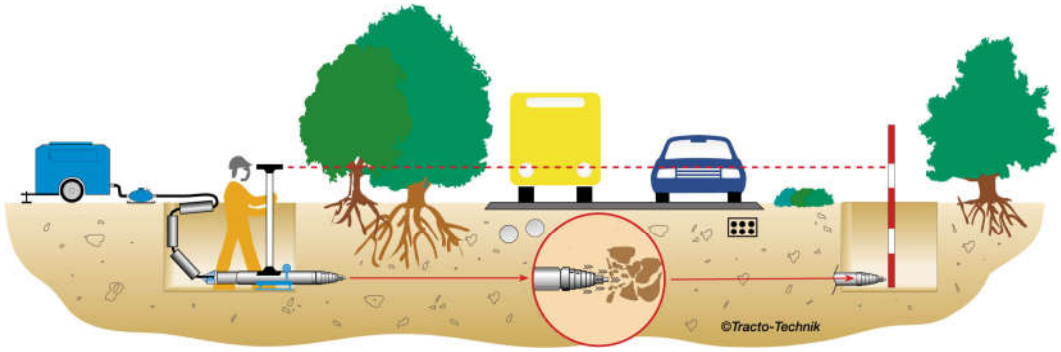

Figure 3.5: Schematic showing typical conduit thrusting approach.

No hazardous wastes and little or no non-hazardous wastes are expected to be generated. Where non-hazardous wastes are generated these will be disposed of at approved facilities.

3.2 Project Location

3.2.1 Submarine Component

Subject to further technical review for the final route and configuration, the submarine component of the project will involve cable placement on the sea floor in the open ocean connecting Pohnpei to Kosrae then Kiribati, with a spur providing a connection to Nauru. Three "shore end" installations will be required; the potential locations are described in detail below. The shore end installations will connect the open ocean segment to the terrestrial infrastructure traversing the fringing reef at each location. The exact location of the cable routes will be determined following a detailed bathymetric marine survey to be conducted during the detailed design phase. Hence, the cable alignments described in the following sections are indicative and are subject to refinement.

The marine survey will characterize the proposed cable route and allow avoidance of hazards and/or environmentally significant zones. Surveys include water depth and seabed topography, sediment type and thickness, and potential natural or human-made hazards. A marine route survey for a cable installation commonly assesses a seabed corridor from 1 to 10 km wide with repeat passes where necessary. The marine survey will determine the final cable route which will avoid sensitive submarine features such as sea mounts, hydrothermal vents, coral assemblages, seagrass beds, fishing reserves and other important environments. There is sufficient flexibility in alignment design such that individual coral heads in near shore environments, for example can be avoided.

The marine survey will also inform the detailed design of the submerged infrastructure – the cable and repeaters. This will determine the cable types and quantities, and clarify the nature of its deployment on the seafloor – surface laying, or trenching and burial – and the need for supplementary cable protection.

3.2.2 Shore end of Cable

A number of alternative BMH and CLS sites were investigated as follows:

- **Kosrae -** Kosrae Airport at Okat (BMH1); Phoenix Hotel site (BMH2); the 'bench' site (BMH3); the Yacht Club in Lelu Harbour (BMH4); Tofol (BMH5); Sanskrit Elementary School (BMH6); The 7 Day store in Melem (BMH7); and Otwe Harbour (BMH8). The CLS is proposed to be located at the Telecom earth station premises in Tofol.
- **Kiribati -** Bonriki International Airport (BMH1); King George V High School (BMH2); the Public Broadcasting Service (PBS) Radio tower site adjacent to Nanikai Village at the eastern end of the causeway (BMH3); and a site located at the eastern end of Bairiki Village at the western end of the causeway (BMH4). The CLS is proposed to be located either at the ATH Kiribati facility or the new Ocean Links facility to be constructed adjacent to the PBS aerial, both located in Bairiki.
- **Nauru -**– Government Buildings (BMH1) and Gabab Boat Ramp (BMH2). The CLS is proposed to be located at the ICT building in Yaren.

Figures 3.6-3.8 presents the potential BMH and CLS sites. Appendix 4 presents more detailed potential alignments. Further evaluation of the shore-side locations and landing stations options is provided in Section 5.2.

Based on the analysis provided in Section 5.2 the following BMH sites are preferred:

- **Kosrae -** Kosrae Airport at Okat (BMH1); Sanskrit Elementary School (BMH6).
- **Kiribati -** the Public Broadcasting Service (PBS) Radio tower site adjacent to Nanikai Village at the eastern end of the causeway (BMH3); and a site located at the eastern end of Bairiki Village at the western end of the causeway (BMH4).
- **Nauru -**– Government Building (BMH1) site.

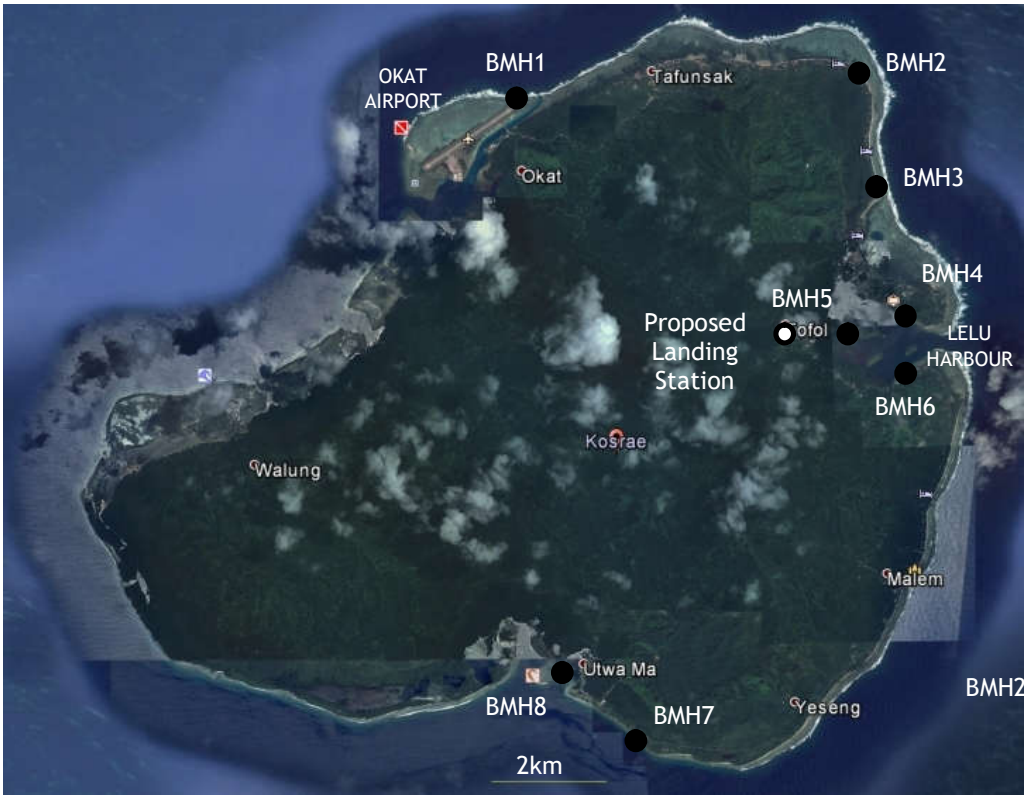

Figure 3.6: Approximate locations of potential BMH and Landing station sites in Kosrae

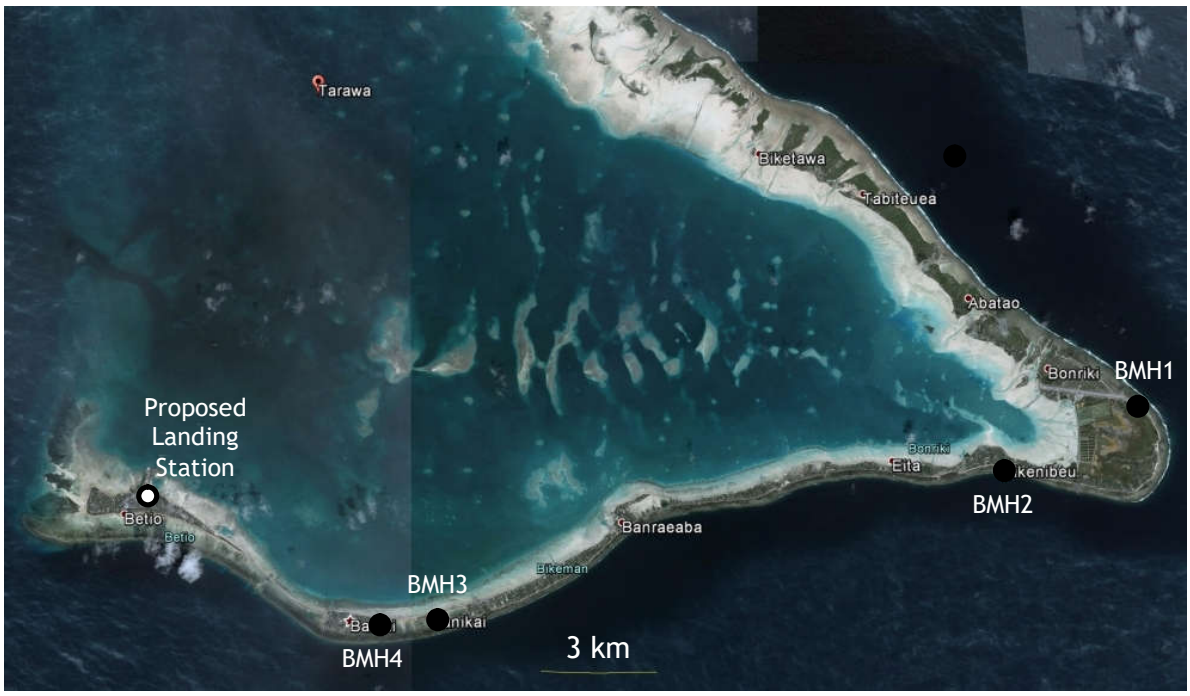

Figure 3.7: Approximate locations of potential BMH and CLS sites in Kiribati

Figure 3.8: Approximate locations of proposed BMH and CLS sites in Nauru

4. Baseline Data

The baseline data report (Appendix 1) presents baseline data describing the physical, biological and socio-economic elements of the environment, which can be used to benchmark future monitoring. As described in Section 3.2.2, a number of sites were evaluated; all of the data from the evaluation of these sites is included, including that of the preferred sites.

The Project Influence area (the PIA) considered for assessment of baseline conditions consists of the cable route as it enters the nearshore coastal environment, the beach manhole (BMH) sites and the terrestrial cable route to the CLS site. The PIA is defined through consideration of the project footprint including all ancillary project components and potential impacts on environmental, economic and social resources.

Table 4.1 outlines the guidelines that have been followed in determining the PIA for this Project which is based on best practices from previous similar studies and by adopting a precautionary approach.

All data was obtained by desktop study and field surveys conducted in late October / early November 2016.

Table 4.1: Project influence areas delineations and conditions

Environment	PIA
Offshore (>3nm from coastline)	The accuracy of the placement of the cable on the sea floor reduces with depth and the increased influence of ocean currents. A 500m corridor either side of the cable has been adopted as a precautionary limit for the PIA.
Inshore & Coastal Waters (<3nm from coastline)	As the accuracy of cable placement increases, the PIA reduces. Taking a precautionary approach, a 100m corridor either side of the cable (200m total) has been used for the foreshore PIA.
Intertidal zone	10m wide (5m on either side of the cable) area on the shore approach of the cable through the intertidal zone
Beach Manhole Stations	20m radius from the center point of new terrestrial structure within existing government easements for public works.
Terrestrial cable route	A 20m corridor has been assessed for any terrestrial trenching activities.
Important Species Habitat	To give specific regard to migratory cetaceans, a 1km belt either side of the cable (2km in total) has been identified in water depth less than 200m.

5. Analysis of Alternatives

5.1 Alternative Technologies

Both fibre optic cable and satellite connections were considered during the pre-approval period in feasibility studies. Satellite connections are currently used in all three countries and have provided a partial solution but do not provide a long term solution to connectivity needs due to limitations in available bandwidth, maintenance and deployment issues, and ongoing cost.

Fibre optic cable connectivity will provide much broader bandwidth and sustainable, long term service. If feasible, satellite contracts can be redeployed for backup redundancy but should not remain the sole or primary connection to international bandwidth. Alternative cable configurations were also considered with other potential landing and transit parties. After comparative options were reviewed, a proposed route and configuration with landings in Kosrae, Kiribati and Nauru was deemed optimal by each of the three EMC parties. It was therefore agreed by the EMC parties that the EMC would be pursued.

5.2 Cable Alignment & Landing Station Options

5.2.1 Introduction

The alignment options for each country are described in Section 3.2. The options were screened according to the following criteria in order of importance:

1. Least amount of encroachment on private or customary land;
2. Least amount of interference with marine protected areas;
3. Least effect on sensitive coastal and nearshore marine features;
4. Lowest risk of impacts on BMH site due to coastal erosion processes;
5. Proximity of the BMH site to the proposed/likely landing site;
6. Deep water access close to potential BMH site; and
7. Least effect on tourism/fishing/boating/shipping activities.

A matrix analysis has been performed rating each alternative against these criteria using a scale of 1 to 5 being least to most desirable. Table 5.1 presents the outcome of this analysis.

5.2.2 Kosrae

The evaluation of the eight options indicates the most favourable locations for BMH sites are Kosrae Airport at Okat and Sanskrit Elementary School on the southern side of Lelu Harbour (Score 28). As described in Table 5.1, the key points regarding these locations are as follows:

- Kosrae Airport is located on State land, has a short intertidal reef section adjacent to the potential BMH site which is located outside the operational runway area, and has existing coastal erosion protection. The only negatives are that the site is located at considerable distance from the potential CLS at Tofol. Cable trenching activities would be required from the likely CLS in Tofol back to the Airport facility. In addition, there are plans to extend the runway to the north east. The cable however, could be installed in such a way as it is not disturbed by construction activities.
- Sanskrit Elementary School is located on State land adjacent to the deep water in Lelu harbour potentially allowing the cable laying vessel closer access to the BMH site, and it

is located in close proximity to Tofol. The only negative aspects are the potential interference with existing shipping (although Lelu Harbour is not heavily utilised), and the potential cable alignment would be located in relatively close proximity to a proposed Conservation Area.

Given the uncertainty around of the subsea cable route from Pohnpei, these two options (i.e., Kosrae Airport in the north-east, Lelu Harbour in the east) allow flexibility for the cable laying contractor to make a final decision regarding the most favourable BMH site based on other installation considerations.

The preference is that CLS be located at the existing Telecommunications Building earth station premises in Tofol as it is the current centre of telecommunications operations in Kosrae.

5.2.3 Kiribati

The evaluation of the four options indicates the most favourable location for a BMH site is the Public Broadcasting Radio tower site adjacent to Nanikai Village at the eastern end of the causeway (Score 32).

As described in Table 5.2, the site is located on Government leased land, it has existing coastal erosion protection in place, and is located in closer proximity (approximately 1.1 km) to the potential CLS at ATH Kiribati in Bairiki than the Bonriki International Airport site for example.

However, if Ocean Links confirm they are to construct their facility on land adjacent to the PBS aerial, BMH3 may be more preferable with a CLS located in their facility (assuming Ocean Links were agreeable) due to the fact that there is only a short distance to the BMH for the required power supply.

5.2.4 Nauru

The evaluation of the four options indicates the most favourable location for a BMH site is the Government Building site (Score 32). As described in Table 5.2, the Gabab site had a similar score but is considered less favourable due to the fact that; the land is not government leased; the narrow access channel is used regularly by local vessels; and there is a view (identified through community consultation) that the channel is dangerous under certain sea conditions.

The proposed CLS is the existing ICT Building in Yaren as it is the current centre of telecommunications operations in Nauru.

5.3 Alternative Installation Methodologies

5.3.1 Subsea & Intertidal Cable Installation

Cable placement can be undertaken in one of the following three ways:

1) Placement on the seafloor

2) Burial of the cable, or

3) A combination of the two.

Burial is done using a trenching machine (Figure 3.4) which is either via a mechanical plough or a high pressure water jet. For either method the cable is laid into the trench and covered in one movement as the device is pulled along.

A second method used in the deep open ocean is to simply set the cable on the seafloor, sometimes with additional weights. In shallow sensitive areas, the cable is often floated into place and sunk with divers assisting with specific placement.

These options were assessed in relation to the sensitive habitats potentially affected, most importantly coral formations. Hydro-jet trenching in the nearshore zone has been ruled out as it can create considerable sediment plumes. The combination of plough-trenching and cable placement using divers was selected for this project as it creates minimal bottom disturbance minimising sediment plumes.

However, the final decision will be made by the cable contractor and will be informed by the ESMP. Any deviation from the recommended method and from the ESMP will require environmental evaluation to establish possible additional impacts and necessary mitigation actions.

5.3.2 Terrestrial Cable Installation

In Kosrae, consideration was given for the terrestrial cable to be suspended on the existing power poles adjacent to the road or buried adjacent to the road alongside the existing telecommunications infrastructure. It was the clear preference from Government officials that the cable is buried.

In Kiribati, apart from the short section from the BMH site to the roadside, no cable trenching or thrusting is required to connect the BMH to the CLS as there is conduit in the existing road for cable installation.

In Nauru, apart from a short section of trench required to get to the roadside, no additional trenching of the terrestrial cable is required as the cable has already been installed.

Table 5.1. Screening of Alternative Fibre Optic Cable alignments

NATION	LOCATION	SCREENING CRITERIA							TOTAL	KEY NOTES
		1.	2.	3.	4.	5.	6.	7.		
Kosrae	1. Kosrae Airport at Okat	5	4	4	5	2	4	4	28	State land, short intertidal reef, coastal erosion protection, considerable distance to CLS
	2. Phoenix Hotel site	1	5	3	2	3	4	4	22	Private land, longer intertidal reef, potential coastal erosion issues
	3. 'Bench' site	1	5	3	1	3	4	4	21	Private land, longer intertidal reef, potential coastal erosion issues
	4. Yacht Club in Lelu Harbour	3	3	5	4	3	3	3	24	State land, moderate distance to CLS.
	5. Tofol	5	1	1	2	5	3	3	20	State land, sensitive mangroves, proposed CA
	6. Sanskrit Elementary School	5	3	5	5	4	3	3	28	State land, close to proposed CA, deep water harbour, potential shipping issues
	7. 7 Day store in Melem	1	5	5	4	2	4	3	24	Private land, potential coastal erosion issue, close proximity to reputed dive sites
	8. Otwe Harbour	5	5	3	4	1	3	4	25	State land, considerable distance to landing station, coastal erosion protection.
Kiribati	1. Bonriki International Airport	5	5	5	5	1	5	4	29	Government land, coastal erosion protection, considerable distance to CLS.
	2. King George V High School	5	5	4	2	2	5	4	27	Government land, possible coastal erosion issue
	3. Public Broadcasting Radio tower	5	4	4	5	4	5	5	32	Government land, coastal erosion protection, closer to potential CLS
	4. Western end of the causeway	5	5	3	3	5	5	5	31	Government land, possible coastal erosion issues, closer to potential CLS
Nauru	1. Government Buildings	5	5	3	5	5	5	4	32	Government land, coastal erosion protection
	2. Gabab Boat Ramp	1	5	5	5	4	5	2	27	Private land, coastal erosion protection, heavily used access channel through reef.

6. Anticipated Impacts & Mitigation Measures

6.1 Introduction

The EMC Project has the potential to create a variety of impacts which can be either positive, negative or negligible or neutral depending on the receptors involved. The impact of the Project on the physical, ecological and social environment has been assessed using methodology described in this chapter.

The impact assessment process initially involves identification of the Project's activities and potential environmental and social impacts resulting from each activity during project phases. Project activities include preconstruction activities, cable installation and operation, and ongoing maintenance.

Within this ESIA, an impact is defined as "any change to the physical, biological or social environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services".

6.2 General Environment

6.2.1 Deep Ocean Waters

The environmental issues associated with submarine cable deployment and maintenance have been identified in relevant literature[5]. Disturbances and impacts caused by cable laying and maintenance should be viewed in the context of the frequency and extent of these activities. The one-off disturbance associated with cable placement is restricted mainly to a strip of seabed less than 5–8 m wide and unless a cable fault develops, the seabed will not be disturbed again within the system's design life (approximately 25 years).

By comparison, commercial bottom trawl and dredge fishing operations are repetitive and more extensive and a single bottom trawl can be tens of metres wide, sweep substantial areas of seabed in a single operation and is likely to be repeated at the same site within a year. A single impact, such as a cable placement or burial, is preferred to continuous, multiple or recurring impacts.

The United Nations Convention on the Law of the Sea (UNCLOS) advocates the freedom to lay, maintain and repair cables outside territorial seas, but these are not necessarily inconsistent with the need to protect deep-ocean habitats and ecosystems, described as follows:

- Cable deployment in the deep ocean, i.e. laying of a 17–20 mm diameter tube on the surface of the ocean floor, has a minor if not negligible one-off impact; and
- Cable repairs can result in substrate disturbance. However, cable failures in deep water are relatively rare and are mainly caused by major natural events.

In addition, the submarine cable industry, together with environmental regulators, attempt to reduce or avoid any impact on vulnerable deep-water ecosystems by:

- Utilizing modern seabed mapping and navigation systems that allow identification of benthic habitats in unprecedented detail and accuracy. Together with modern cable-laying techniques, it is now possible to deploy cables to avoid ecologically and biologically sensitive areas; and

[5]See e.g. Carter, L., Burnett, D., Drew, S., Marle, G., Hagadom, L., Bartlett-McNeil, D., and N. Irvine., 2009. Submarine cables and the oceans – Connecting the World. UNEP-WCMW Biodiversity Series No. 31 – ICPC/UNEP-WCMC.

- Avoiding the deployment of cables on or through habitats such as seamounts, submarine canyons and hydrothermal vents, which are also unsuitable as cable routes due to the risk of natural hazards. For example, canyons are often swept by powerful currents that may abrade or break cables; and seamounts can be volcanically active and subject to landslides and hydrothermal venting.

Modern deep-water fibre-optic cables are composed of several pairs of hair-like glass fibres, a copper power conductor and steel wire strength member, which are all sheathed in high-density polyethylene.

Where extra protection is required (as for areas of rocky seabed or strong wave and current action) additional steel wire armour is included. Of these materials, cable-grade polyethylene is essentially inert in the ocean. Processes such as oxidation, hydrolysis (chemical breakdown in water) and mineralization are extremely slow; the total conversion of polyethylene to carbon dioxide and water would take centuries.

The effects of ultraviolet light (UV-B) (the main cause of degradation in most plastics) are minimized through the use of light-stabilized materials, burial into the seabed and the natural reduction in light penetration through the upper ocean, where the photic zone rarely extends beyond 150 m depth. Any mechanical breakdown of a cable's plastic sheathing to fine-grained particles on the energetic continental shelf, a potential hazard for marine life, is minimized by armouring and burial.

In addition, the diesel powered vessels used to survey the seabed and lay cable (as described in Section 3.1) will emit greenhouse gases. As the relative contribution of these ocean going vessels to overall greenhouse gas emission is so small it is considered "*de minimis*".

Offshore anchoring for fishing in each of the three countries is also limited due to significant water depths.

Hence, the overall potential environmental impacts arising from the Project in the deep ocean are limited. The key environmental interactions are in the near shore areas where cable requires burial to avoid potential entanglement with fishing activities and other human activities.

6.2.2 Intertidal Coastal Areas

A range of potential impacts could arise at all of the BMH sites in each of the three countries. The key potential impacts to both the intertidal reef and soft bottom communities include:

- Direct loss of habitat along the cable route.
- Physical effects of sedimentation on benthic communities as a result suspension of fine materials and off-site deposition.
- Reduction in water clarity due to increases in water-borne suspended solids concentrations and potential impacts on fish communities.
- Temporary restrictions to local villagers to fishing areas during the installation period only.

Overall the potential impacts are not expected to be significant due to:

- The area disturbed represents a very small proportion of the total intertidal habitat present.
- Ability of the marine benthic community to recolonise over time.

- The short duration of installation activities.

6.2.3 Terrestrial Areas

Kosrae

The proposed CLS at the national Telecommunications Corporation premises is located in the township of Tofol, and is located approximately 13.7 km & 3.2 km from Kosrae Airport and Sanskrit Elementary School respectively.

The terrestrial cable route for both locations is along the road corridor in the easement where the existing telecommunications infrastructure (copper cable) is installed. Evaluation of the potential route indicates it is comprised of a combination of vegetation that encroaches on the road corridor, intersecting roads, drive way crossings, etc. There appear to be no activities of a particular sensitive nature (e.g., hospital access road) along the route access to which would be unnecessarily impeded.

Overall, the potential impacts of cable installation are not expected to be significant due to the fact:

- the vegetation present is typically comprised of a range of common species and there is nothing of particular conservation concern present.
- The installation period is of short duration so disruption to traffic etc will be temporary.
- The use of methods (i.e., cable thrusting under sensitive areas) will mitigate any potential impacts.

The proposed CLS itself has no ecological resources of any description on or immediately adjacent to the site that would be impacted.

Kiribati & Nauru

No impacts are anticipated for either Kiribati or Nauru. In Kiribati, only a short section of trenching or cable trusting is required to reach the roadside conduit. In Nauru, existing cable is available minimising any potential impacts of terrestrial cable installation. Any impacts to traffic etc will be temporary.

As described in Section 3.1, there is a requirement for a diesel powered generator in Kiribati to power cable repeaters. As this requirement is small scale any issue associated with Greenhouse Gas emission is *de minimis*.

In addition, measures will be taken so that alien or pest species are not introduced particularly in relation to hull fouling organisms (hull cleaned before works commence), ballast waters (discharged at sea) or machinery that needs to be imported for use on land (cleaned prior to transport).

6.3 Poverty & Gender Impact

Section 6.3 of the Baseline Data Report (Appendix 6.3) describes the relevant poverty, vulnerable population and gender issues in each of the three countries. In terms of potential impact overall, the Project will ensure lower cost Internet access for consumers, including low income households. As a result, the Project will contribute to improved social welfare, provide expanded access to information and services, and increase income-earning opportunities.

In addition, the Project is expected to have a positive impact on women's access to affordable Internet services in all three Countries particularly Kiribati. This is important because access

to affordable, high-speed Internet in employment particularly in the education and health sectors is known to be associated with economic and social empowerment. Improved Internet access can facilitate new livelihood opportunities for women who tend to stay on-island whereas many young men travel overseas (e.g. to work on merchant ships).

An added benefit is in the area of disaster risk management such as: (a) facilitating the deployment of disaster risk monitoring tools and applications that require large volumes of data transmission (including access to regional databases) by improving the quality and reducing the cost of Internet; (b) providing additional options/media for early warning systems and post-disaster communications.

6.4 Land Acquisition & Resettlement

The Due Diligence report addressing the issue of involuntary resettlement for Kosrae, Kiribati and Nauru is provided in Appendix 3. The report concludes that as all of the BMH and CLS sites will be located on Government owned or leased land, and as there will be no need for private or custom owned land to be used or accessed, no involuntary land acquisition will be required. In addition, cable routes are expected to follow public road reserves. As a result a Resettlement Policy Framework (RPF) is not required.

The majority of location options will enable shore side BMH installations to connect the open ocean segment to the terrestrial infrastructure traversing the fringing reef. An option in Kosrae is to bring the cable through Lelu Harbour and into the State owned school. The exact location of the cable routes will be determined following a detailed marine bathymetric survey during the design stage. Similarly, the locations of land-based infrastructure (other than utilisation of existing facilities) will be subject to detailed design.

The proposed CLS's (which will house the necessary equipment to enable the high-speed connection) will likely be sited within existing Government owned facilities.

In conclusion, as all of the BMH and CLS sites will be located in Government owned or leased land, and as there will be no need for private or custom owned land to be used or accessed, no involuntary land acquisition and RPFs are required.

6.5 Risk Assessment & Impact Identification Methodology

Risk Assessment is routinely undertaken as part of the ESIA process. In assessing a project's environmental risk, impacts are rated to determine the appropriate response or management actions that should be implemented to minimise potential impacts. The risk assessment methodology for the SCS Project is described in this Section.

The commonly adopted Australasian Standard for Risk Management has been used to assess the level of risk posed by the activities associated with the Project and is based on the following: the likelihood or probability of an event; and the consequences of the impacts of that event occurring (see Table 6.1).

Table 6.1: Qualitative risk analysis matrix

Likelihood	Consequence 1 Catastrophic	2 Major	3 Moderate	4 Minor	5 Insignificant
A - Almost certain	E	E	E	H	H
B - Likely	E	E	H	H	M
C - Possible	E	E	H	M	L
D - Unlikely	E	H	M	L	L
E - Rare	H	H	M	L	L

Risk Map Color Code
E = Extreme
H = High
M = Moderate
L = Low

This is a conventional risk management framework and is considered applicable in the context of this assessment which has a focus on high level identification of biodiversity and ecosystem services risks. It is envisaged that the subsequent ESIA process will provide detail on these risk areas as appropriate.

There are four main levels of risk after combining the 'likelihood' and 'consequences' factors (see Tables 6.2 & 6.3). Each level has a response or management control action. The four 'Risk Levels' are:

- Extreme (E) Risk - those impacts that require immediate action at the highest level of management.
- High (H) Risk - those impacts requiring action at senior management level.
- Moderate (M) Risk - those that require policies in place to address impacts and monitoring programs.
- Low (L) Risk - those impacts that do not require any specific management actions but may be part of routine management and monitoring plans.

Table 6.2: Qualitative measures of consequence

Level	Descriptor	Env/Social Impacts	Legal	Public/Media Attention	Financial
1	Catastrophic	Significant extensive detrimental long term impacts on the environment, community or public health. Catastrophic and /or extensive chronic discharge or persistent hazardous pollutant. Damage to an extensive portion of aquatic ecosystem. Long term impact on water resource.	License to operate likely to be revoked or not granted	Probable public or media outcry with natonal/internati onal coverage. Significant green NGO campaign.	> $1 million
2	Major	Off-site release contained with outside assistance. Short to medium term detrimental environmental and social impact off-site or long term environmental damage on-site.	May involve significant litigation and fines. Specific focus from regulator.	May attract attention of local and state media and local community groups.	$500,000-$1,000,000
3	Moderate	Onsite release contained with outside assistance. Significant discharge of pollutant, possible source of community annoyance. Non persistent, but possible widespread damage to land. Damage that can be remediated without long term loss or very localised long persistence damage.	Probably serious breach of regulation. Possible prosecution and/or fine. Significant difficulties or delays experienced in gaining future approvals.	May attract attention of local media, heightened by local community.	$50,000-$500,000
4	Minor	On site release immediately contained without outside assistance. Ongoing or repeat exceedances of odour, dust or noise/vibration limits.	Minor on the spot fines or formal written correspondence from regulator.	Local community attention or repeated complaints.	$5,000-$50,000
5	Insignificant	Negligible environmental impact. Minor transient release of pollutant including odour, dust and noise/vibration. Minor social impact.	No serious breach of regulation. Minor license non-compliance.	Local landholder verbal discussion/compl aint.	< $5,000.

Table 6.3: Qualitative measures of likelihood

Level	Descriptor	Example	Frequency
A	Almost certain: Environmental issue will occur, is currently a problem or is expected to occur in most circumstances.	Is expected to occur in most circumstances	> once per year
B	Likely: Environmental issue has been a common problem in the past and there is a high probability it will occur in most circumstances.	Will probably occur in most circumstances	Once per year
C	Possible: Environmental Issue may have arisen in the past and there is a high probability that it should occur at some time.	Could occur	Once every 5 years
D	Unlikely: Environmental issue may have occurred in the past and there is a moderate probability that it could occur at some time.	Could occur but not expected	May happen within Project Life
E	Rare: Environmental issue has not occurred in the past and there is a low probability that it may occur in exceptional circumstances.	Occurs in only exceptional circumstances	Not likely to happen with Project Life

6.6 Outcome of Risk Assessment & Impact Identification

Tables 6.4 and 6.5 present the results of the risks associated with the EMC Project. Risks identified 'Extreme' and 'High' Risk Project activities have been determined as low risk following implementation of mitigation measures.

6.7 Other Potential Impacts & Benefits

6.7.1 Cumulative Impacts

No cumulative impacts are anticipated given cable installation involves the placement of a small diameter solid cable (containing no liquids, and not needing transmission of electricity) in a narrow trench on the seabed and will be careful placed (via divers and/or a cable floated into place if required) in coastal waters over a relatively short period of time. There are no other known activities occurring at the same time that the cable is to be placed on the seafloor. There may be other construction activities on land, but since the CLS's will only require the construction of a single room, which may be a simple addition to an existing structure, no cumulative impacts are anticipated.

In addition, there are no expected cumulative social impacts due to the small project footprint, and the fact that it is not expected to cause permanent loss of communal fishing grounds and local people's livelihoods.

6.7.2 Irreversible & Irretrievable Impacts

Given the very small disturbance to the environment from the cable installation and landside building (30-50 m^2) construction, there will be no irreversible or irretrievable impacts from the Project. Implementation of measures outlined in the ESMP will serve to mitigate any potential impacts.

6.7.3 Transboundary Impacts

Transboundary impacts are likely to be limited to:

- Potential emission of greenhouse gases from the survey and cable laying vessels; and
- Impacts on endangered species and habitats.

Overall, the impacts of greenhouse gas emissions are expected to be no more than minor given the relative contribution of the vessels compared to other emitters, and no endangered species and habitats were identified that could be potentially adversely affected following implementation of mitigation measures.

6.7.4 Environmental & Social Enhancements / Benefits

The Project will not only improve people's access to income and social services but may also enhance social networks and contact with family members living abroad. Faster Internet is expected to facilitate regular and affordable connections among local and overseas-based groups, particularly women's organizations who rely on Internet for communication.

A fibre optic system was installed on Pohnpei, FSM, in 2010 and improvements in health care and education services have been reported. Better Internet connections should also help with remote medical services and distance education.

Table 6.4: Issues & risk assessment - Cable Installation

Activity	Source of Risk	Description of Potential Impact	Assessment of Risk			Mitigation / General Comments	Post-Mitigation Residual Impact
			C	L	Rating		
1. Employment & OHS							
Cable trenching, Manhole construction, cable installation	Earthworks, vegetation clearance, etc	Employment opportunities	3	B	H	Positive overall benefit, no mitigation required	H
	OHS risk due to earthworks, vegetation clearance, etc	Potential human hazards due to large machinery, noise, dust	1	C	E	Appropriate OSH policy implemented and OSH training offered	L
2. Terrestrial Ecology							
Cable installation	Minor vegetation removal and earthworks during cable trenching	Direct loss of terrestrial habitat	5	C	L	Little or no significant vegetation present, no mitigation required	L
		Terrestrial habitat fragmentation, general disturbance, pathway for invasive species	5	C	L	Little or no significant vegetation present, no mitigation required	L
		Impact on ecotourism operations due to loss of business as a result of construction activities	4	D	L	Construction period of short duration, no mitigation required	L
	Earthworks machinery	Noise & vibration creating bird (and other species) disturbance	5	C	L	No species of conservation significance identified, Construction period of short duration, no mitigation required	L
	Soil disturbance, spoil disposal	Sediment runoff into downstream watercourse, visual effects	4	D	L	Minor earthworks required, no spoil disposal required, mitigation consists of immediate trench re-instatement	L
3. Marine ecology							
Cable installation	Sub-tidal cable laying using cable trencher	Disturbance to soft bottom benthic communities	5	A	H	Minor construction footprint, sediments already prone to disturbance, no mitigation required	L
	Vessel movements associated with sub-tidal cable laying	Disturbance to pelagic species such as whales, dolphins, turtles	4	C	M	Limited occurrence with species in nearshore coastal environment, vessel movement slow, a trained independent observer to be present on board	L
	Cable installation along subtidal coral reef	Disturbance to coral reef communities due to presence of cable, colonization of cable	5	C	L	Very minor cable footprint, no specific mitigation required apart from microscale avoidance of significant coral outcrops (in Nauru in particular)	L
	Intertidal earthworks during cable trenching	Disturbance of intertidal reef communities / seagrass beds / birds	5	A	H	Minor earthworks required, small construction footprint, short duration activity, mitigation consists of immediate trench re-instatement	L
	Subtidal & intertidal works affecting informal fishing reserve	Direct & indirect impacts on fish & benthic communities within the adjacent fish reserve (Kiribati).	4	D	L	Significant separation between Project site and fish reserve	L

Table 6.4: Issues & risk assessment – Cable Installation (cont.)

Activity	Source of Risk	Description of Potential Impact	Assessment of Risk			Mitigation / General Comments	Post-Mitigation Residual Impact
			C	L	Rating		
4. Recreational & Heritage							
Cable trenching, Manhole construction, cable installation	Earthworks activities	Loss of or disturbance to potential recreational & heritage resources	2	H	H	There are no known heritage resources or areas used for recreational purposes at the proposed BMH & landing sites apart from the known resources in Lelu Harbour (Kosrae).	L
5. Traffic							
Cable installation, manhole construction, etc	Additional land traffic movements, lane closures	Issues due to additional traffic movements, congestion, increased risk of accidents, etc	2	H	H	Existing roads will be used to deliver and remove construction materials, and equipment to and from the proposed BMHs and CLSs. Additional vehicle movements expected to be minimal. No mitigation required.	L
	Vessel activity in nearshore coastal environment	Potential impact on existing recreational and commercial vessel activity	4	C	M	Ports Authority & local villagers will be notified in advance	L
6. Solid Waste							
Manhole construction, etc	Residual materials following construction	Impacts on waste handling facilities	4	D	L	No mitigation required	L
7. Noise & vibration							
All construction activities	Construction machinery and related traffic	Impacts on adjacent sensitive receptors from excessive noise	4	C	M	Construction activity of short duration, limited sensitive receptors in close proximity. Apart from appropriate noise attenuators on machinery, no additional mitigation required.	L
8. Air quality							
All construction activities	Construction machinery and related traffic	Impacts on adjacent sensitive receptors from excessive dust	4	D	L	Construction activity of short duration, limited sensitive receptors in close proximity, apart from dust suppression using a water cart (if required), no additional mitigation required.	L
9. Subsistence & livelihoods							
Cable installation	Cable trenching activities in subtidal areas	Impacts on fish harvested for subsistence as a result of vessel movements	4	D	L	Nearshore cable installation of short duration, mitigation to include notice to locals of upcoming activities	L
	Cable trenching activities across intertidal reef	Impacts on both subsistence commercially targeted benthic fauna (e.g., sea cucumbers, octopus, clams, seaweeds, etc) in immediate areas of cable trenching	4	D	L	Construction footprint small and installation activity of short duration, subtidal reef already impacted, mitigation to include notice to locals of upcoming activities	L

Table 6.5: Issues & risk assessment – Operation (including maintenance activities)

Activity	Source of Risk	Description of Potential Impact	Assessment of Risk			Mitigation / General Comments	Post-Mitigation Residual Impact
			C	L	Rating		
1. Employment & livelihoods							
Use of Cable to access internet	Access to cable for internet use	Improved telecommunications access to businesses and residents leading to additional employment opportunities	2	B	E[1]	Positive overall benefit, no mitigation required	E[1]
2. OHS							
Installed power cable	Powered cable (Kiribati only)	Potential for the public to come in to contact with powered cable and associated electrocution risk	1	C	E	Ensure CLS is located in close proximity to BMH, deep burial of powered cable and signage allowing cable route advising of risk of excavation	L
3. Sea vessel traffic							
Installed subsea cable	Vessel activity in nearshore coastal environment	Entanglement of anchor on cable	4	D	L	Due to burial and trenching of cable there is low risk of this occurring.	L

Notes: [1]The 'extreme' rating refers to a positive 'risk' and residual impact.

7. Information Disclosure, Consultation & Participation

7.1 Introduction

The consultation undertaken with stakeholders is detailed in Appendix 5. Appendix 6 presents lists of meeting attendees. Set out below is a summary of consultations undertaken.

7.2 Kosrae

Stakeholder meetings and public consultations were held during the site visit to Kosrae by the safeguards team from 14th to 23rd October, 2016.

Overall, stakeholder feedback during meetings and public consultation was very encouraging and positive. Primarily, people just wanted information on the nature and timeframe for the project. In fact, the limited connectivity in Kosrae prompted a lot of people to demand quicker implementation of the Project. The desire to obtain better Internet and communication services at an affordable rate was high.

Government and non-government organisations indicated the aspiration to offer more products and better services particularly private businesses and financial institutions (banks). In addition, there is a high rate of emigration from Kosrae in seach of better economic opportunities. Better communication will be welcomed by Kosraean families with loved ones living abroad who wish to keep close contract with family members at home.

A key issue raised related to land access and ownership. However, it was mentioned that the priority was locating the BMH and CLS sites on Government land. Further, it was highly likely that the existing utility corridor (telephone and electricity lines) would be used for the fibre cable networking on land. The purpose provision in the Government easement lease, which clearly identifies the 60 feet wide easement, will accommodate the duct route of the fibre cable from the BMH to the CLS. However, an issue was raised that landowners may potentially claim that land on the seaward side of the road, which has been eroded in recent times, belongs to them when in fact it is within the road easement. To avoid the issue of ownership and to ensure long term viability of the cable in these areas, it is proposed that the cable be installed on the inland side of the road.

The issue of accessing inappropriate information specifically by children was raised by women. The response was described as an issue of managing the risk. Education will need to be provided on how to manage access to Internet content at home.

7.3 Kiribati

Stakeholder meetings and a public consultation exercise was held during the site visit conducted between 24th and 29th October 2016.

Due to the current land tenure, and WWII history, the proposed sites were generally accepted as potential locations for the BMH sites.

The sense of public need for the project, seen as a potential improvement of the existing Internet and communication services, was overwhelming. Strong support from both the Government and non-government entities was evident.

Kiribati has a large contingent of its population overseas, and communication is an important part of their daily lives. There was a perception that the fibre cable will bring with it an accessible and affordable service.

The concerns were generally around the impact on fisheries (as a result of bringing the cable ashore), potential costs, and social impacts. The importance of fishing to the people of

Tarawa was evident, as some raised concerns of potential impacts of the fibre cable on fish. However, an explanation of the project and potential impacts alleviated these concerns.

It was explained that costs will likely depend on the Kiribati Government and the selected operator for the cable and that in theory it should be cheaper compared to the current satellite services, which was generally accepted.

The concerns with respect to the social impact of this project were a subject matter of discussions which differed between different age groups and gender. Women and children, were seen as the most vulnerable people to the negative impact of the new cable. Overall, the need for a public awareness and information assistance, from government for example, was apparent.

The Kiribati Government, particularly confirming the structure of Telcos access rights to use of the cable and confirming the CLS, was needed to be progressed in advance of Project delivery.

7.4 Nauru

Stakeholder meetings and a public consultation exercise was held during the field trip to Nauru (30th October & 2nd November 2016). Stakeholders included both government and non-government including environment, conservation, legal, gender, youth, women, and NGOs.

The technological gap between the younger generation and their parents was evident. Public awareness and education was raised as a prerequisite prior to the implementation phase. This will be a necessary component of managing the risk of opening Nauru to global Internet.

The project has great potential for Nauru. However, the legal framework and local infrastructure must be developed leading up to the fiber optic submarine cable landing date. Thus allowing the people and government of Nauru to fully utilised the cable. Freedom of speech is embedded in the Constitution. However, Internet freedom is still an area that requires further development. In fact, that Cyber Crime Act passed in May 2016, which certainly will assist with monitoring and managing Internet usage.

The potential negative impact both on the environment and people's lives were perceived to be nil. On the other hand, the positive impacts were overwhelmingly expressed. Overall, the perceived positive impacts appear to far outweigh any negative impact.

7.5 Disclosure

This ESIA will be publicly disclosed on Implementing Agency websites in FSM, Kiribati and Nauru, and will be available in hard copy at government offices in each Country. A public notice will let stakeholders know that the documents are available to view. The World Bank and ADB will also disclose this document on their websites.

7.6 Ongoing Consultation & Participation

During project implementation the Implementing Agencies in each country will be responsible for keeping the public and stakeholders informed of progress. Further consultation will be undertaken before the detailed marine survey, during any land access negotiations and before and during installation. Each Implementing agency will develop a consultation plan for their project and will be supported by an in-country Project Management Unit (PMU) or an individual Project Coordinator (PC) to implement the plan.

8. Environmental & Social Management Plan

8.1 Introduction

The Environmental & Social Management Plan (ESMP) is organised into two cross-referenced tables, namely the environmental mitigation table (ESMiT) and monitoring table (ESMoT) provided in Appendix 7. These tables detail the mitigation measures and monitoring actions that the Implementing Agency has committed to implement, from the planning through to the operating period of the project. The ESMP table numbering is consistent so that reference can be made in bid documentation or during any other monitoring activity and the correct mitigation and monitoring measure can be found.

This approach makes for an ESMP that is practical and can be easily used. The ESMP will inform the Contractor's ESMP which will be prepared following detailed design.

8.2 Performance Indicators

Given that nearly all of the potential negative impacts could arise during cable installation, and that robust environmental contract clauses will be able to avoid all impacts, key performance indicators will be as follows:

i) confirmation that the ESMP tasks are defined as specific individual or grouped environmental and social clauses in the contract bid documents for cable laying;

ii) confirmation that environmental management criteria are included as part of the cable-laying contractor selection process, including their experience preparing and implementing ESMPs, working in sensitive tropical locations such coral reefs, recognizing fish aggregation/spawning areas, seagrass meadows and seamounts;

iii) a safeguards advisor with marine ecology expertise located and retained as an advisor by each country's Implementing Agency (IA) providing assistance with ESMP implementation, contractor briefing on marine habitat protection, contractor ESMP supervision (including observations during cable laying within the reef), and participation in community consultation;

iv) a written record of the briefing on safeguards and inspection of vessels, according to the tasks as they are defined in the ESMP and contract specification, completed with the survey and cable placement contractors, as soon as the contractors have been selected.

v) compliance monitoring checklists prepared and being used by the contractor and safeguards consultant and due diligence notes, completed as defined in the ESMP, and making the notes available in an easily accessible file for the contractor, PC, PMU, and others to use.

vi) a written mitigation and monitoring completion report, listing all mitigation and monitoring measures defined in the ESMP, their implementation timing, monitoring and any follow up actions; and,

vii) a written record of interviews with local fishers, examining any cable placement issues, vis-à-vis fishing gear damage.

The safeguards advisor for each EMC party will be responsible for preparing a performance indicator report on behalf of that party's PMU, by listing the seven items above and providing a short text to indicate how these items were implemented and their success as of the start of the operating period of the project.

8.3 Implementation Arrangements

8.3.1 Overview

The Project involves three countries (FSM, Kiribati and Nauru), each with their own project funding supported by either the World Bank or ADB.

The development and implementation of the joint components of the EMC Project are administered through the East Micronesia Cable Steering Committee (EMC SC), which is comprised of two members from each of the participating countries. A joint technical project manager reporting to the EMC SC will be responsible for finalizing the system specifications and conducting the tender for the undersea components of the EMC.

During implementation of the cable supply contract(s), each country's IA may establish a PMU and/or hire a PC to manage the project as delegated by the IA. For Kosrae, the implementing agency is the FSM DTCI; for Kiribati, the MICTTD; and for Nauru, the Nauru ICT Department. Each IA is responsible for implementing the ESMP and complying with the safeguards policies of its development partner (WB or ADB) as per its funding agreement.

A cable-laying contractor will be contracted to supply all undersea components of the project up to the BMH at each landing. Each of the parties will be sperately responsible for letting the contracts for the associated terrestrial works at the respective landings.

Each IA will be responsible for day-to-day project delivery including the supervision of the cable-laying contractor. This responsibility may be delegated by the IA to its government PMU or its PC. Each country's PMU or PC will continue this role until the country establishes a State-Owned Entity or other Special Purpose Vehicle (SPV) for the purpose of owning and operating each country's long term interest in both the undersea and terrestrial components of the EMC.

Each IA's PMU/PC will be responsible for identifying the final location of land-based infrastructure (BMH, CLS and cabling), securing land access (lease or easement), procuring contractors and supervising the land-based works, public and stakeholder consultations and managing complaints and grievances in their respective country.

8.3.2 ESMP Implementation Arrangements

ESMP activities relating to cable laying will be coordinated and managed by the IA or the IA's PMU or PC which may delegate responsbility to a Safeguards Advisor, part-time, as needed for the duration of the implementation period. ESMP activities during undersea cable laying include:

- Ensure safeguards clauses in the cable laying bid documents
- Review and clearance of the cable laying Contractor's CEMP
- Review and comment on detailed design, detailed marine surveys and other technical outputs
- Remote and site-based supervision of the cable laying contractor, particularly when the cable is being laid in the nearshore / foreshore environments.
- Updates to the ESMP, if required
- Reporting safeguards activities and progress to the IA on a quarterly basis

- Training, oversight, support and capacity building to the IA as required, but particularly for consultation, voluntary land acquisition, management of non-compliances and incidents, and obtaining local permits and approvals.

A Safeguards Advisor hired by each IA may also support the IA's project team in ensuring compliance with the ESMP for associated terrestrial works and stakeholder engagements, including:

- Ensuring land acquisition and resettlement is voluntary and is carried out in accordance with World Bank or ADB safeguards policies.
- Ensuring land access documentation is obtained before construction starts.
- Managing consultation, disclosure of information, keeping records of consultations and providing feedback to the IA.
- Receiving and recording grievances and complaints and managing their resolution.
- Remote and site-based supervision of local contractors for compliance with the ESMP, including managing any non-compliances and incidents.
- Obtaining local permits or environmental approvals, including preparing any documentation and communications with environment agency staff.
- Reporting safeguards activities and progress to the IA on a six monthly basis.

A Safeguards Advisor serves as additional support to each party's local environmental protection agency, and will have specific experience with World Bank and / or ADB safeguards policies to ensure compliance with both government and donor safeguards requirements. A Safeguards Advisor may be based overseas. If they are based overseas, they will be required to travel to the project location at key milestones.

8.4 Institutional Capacity Assessment

Kosrae, Kiribati & Nauru appear to have competent staff that work in the various environmental consenting agencies who have had some, if limited, experience with processing EIAs.

However, in light of the fact that the impacts of this Project are expected to be minor in nature and extent, the capacity within the environmental agencies appears adequate, and there is not considered to be any need for changes to related institutional or organizational arrangements, capacity development or training measures.

The respective IAs have indicated that they have capacity to take on the responsibilities required to implement the Project subject to provision of technical assistance offered by the WB and ADB. The Safeguards Advisors recruited for the Project will be required to have experience in the implementation of WB or ADB safeguards. The IAs and their respective project implementation teams will coordinate with their Safeguards Advisors to ensure that the supplier complies with ESMP requirements, which will be incorporated into the supply contract(s). EAch IA's project team will fill existing safeguards capacity gaps and ensure that there is adequate expertise and resources to implement the ESMP for that country.

In addition, the cable supplier, installation contractor and building contractors will be required to have sufficient ESMP implementation skills and resources within their team for the duration of their contract.

The World Bank and ADB will support the IAs to prepare Terms of Reference for the Safeguards Advsiors, as needed, and will provide ongoing safeguards support for the duration of the project. No specific training is proposed.

8.5 Mitigation & Monitoring Costs

8.5.1 Environmental

The ESMP identifies mitigation and monitoring actions. Monitoring will be required during cable installation field (likely to be 1-2 days), when the cable placement is ongoing nearshore. For the deep ocean work the oceanographic survey is expected to be completed several weeks ahead of the cable placement operation.

Assuming that each Safeguards Advisor will be an individual who is sourced from outside these countries, safeguards monitoring costs are estimated as follows:

- Safeguards Specialists for Kosrae, Kiribati and Nauru is estimated to be 55 days total annually ($US46,000, plus $30,000 travel & disbursements budget).

In addition an allowance of $US25,000 each has been provided for Kiribati and Nauru for a UXO survey.

8.5.2 Social Development Programs & Resettlement Costs

Social mitigation and monitoring will involve at least five tasks (ESMP-Annex 2). Cost of community awareness activities such as community meetings/public consultations and information materials prior to construction, during and after construction is expected to be approximately $30,000.00, or about $10,000 for each country, for the complete development period.

As access on Government or State land will be voluntarily donated, there is no land acquisition required for the project and therefore no budget allocated.

8.5.3 Total Costs

Combining both the environmental and social mitigation and monitoring costs the total estimated collective costs for all three EMC parties are expected to be approximately US$76,000 for the entire project, or about $25,333 each (not including the UXO surveys for Kiribati and Nauru). These cost estimates assume efficiences to be gained from either a joint or coordinated procurement of the Safeguards teams. Additional costs especially for travel will need to be considered if the Safeguards Advisors are procured/coordinated severally.

8.6 Reporting & Monitoring Requirements

All reporting requirements are specified in the ESMP (see ESMP 2.15 and 3.1). In summary quarterly progress reports from each country's Safeguards Advisors to its respective IA (as delegated to a PC or PMU) is required, and 6 monthly PMU reports to WB/ADB (as per normal reporting requirements under funding agreements).

At the end of the preconstruction period each country's Safeguards Advisor will prepare mitigation and monitoring completion reports for their respective IAs to submit to the WB and ADB as required. The contractor will be required to submit progress reports to the IAs, in addition to the oceanographic survey findings and a semi-annual summary of ESMP implementation. Eeach PMU or PC or Safeguards Advisor through its respective IA will preapre and submit a semi-annual compliance monitoring summary report, as well as the construction period mitigation and monitoring completion reports, once the facilities are fully installed.

Monitoring requirements are specified in the ESMP monitoring table, the ESMoT.

8.6.1 Environmental Code of Practice

This work requires the preparation of an Environmental Code of Practice for corridor selection, placement of the cable, and siting of the landing stations. The Environmental Code of Practice lists many of the items defined in this ESMP and adds further detail on boundaries and restriction to be adhered to by contractors conducting work in the marine environment and on shore. It has been prepared as a companion volume with this ESIA.

9. Grievance Redress Mechanism (GRM)

9.1 Introduction

Although at this stage there are no identified environmental and involuntary resettlement complaints associated with the proposed project, a grievance redress mechanism (GRM) is presented, to be applied by each Country in the event that at any time during project implementation a grievance or complaint is received and requires action. The GRM lasts for the duration of the project but each of the three countries can continue this beyond the project if they wish, under their own system. For example, there could be a grievance filed as a result of fishing gear becoming snagged on the cable, presumed to be due to due to faulty cable placement.

The GRM is scaled to the risks and adverse impacts of the project. If promptly addressed, concerns and complaints of potentially affected people using a clear and transparent process that is gender responsive, culturally appropriate, and at no costs and without retribution, can be resolved. The mechanism will not impede access to national or state judicial or administrative procedures. The PMU will inform affected people (AP) about this GRM before commencement of any civil works, as part of the consultation process.

A grievance redress committee will be established to:

(i) Record, categorize and prioritize the grievances;

(ii) Settle the grievances in consultation with complainant(s) and other stakeholders;

(iii) Inform the aggrieved parties about the solutions; and

(iv) Forward the unresolved cases to higher authorities.

The committee will be comprised of one member of each implementing agency PMU, the PC and other members (as required), with a chair being appointed.

9.2 Proposed GRM

The following seven-step mechanism (Table 9.1) is proposed for grievance redress of social and environmental matters.

During implementation, the PMU Project Manager will be responsible for managing the GRM. The PMU Project Manager will be the grievance focal point, and receive and address project related concerns. The PMU Safeguards Advisor will maintain the database and support the PMU Project Manager as required. Concerns will be resolved first by the PMU. Affected people will be made fully aware of their rights regarding land ownership and environmental degradation. During the installation / construction period the contractors will be a key participant in the grievance redress process, and the PC and the PMU will need to confirm that

each contractor has assigned a GRM coordinator and has a GRM system that is consistent with the Project GRM.

Any complaint will be recorded and investigated by PMUs and the contractor (as appropriate). A complaints register will be maintained by each PMU, and will show the details and nature of the complaint, the complainant's name, the date and actions taken as a result of the investigation. It will also cross-reference any non-compliance report and/or corrective action report or other relevant documentation filed under that complaint.

When construction starts, a sign will be erected at all sites providing the public with updated project information and summarizing the GRM process including contact person details at the PMU. All corrective actions and complaints responses carried out on site will be reported in the six monthly safeguards reports prepared by the PMU Safeguards Advisor.

Throughout this process, the respective Country Courts and Environment Protection Agencies will be available to hear public complaints and provide advice if the complainant feels that the PMU's responses are unsatisfactory.

On receipt of a complaint in any form (in person, telephone, written) the PMU Project Manager will log the details in a complaints register. The PMU Project Manager or Safeguards Advisor (at the Manager's request) will respond within 1 week with advice on corrective actions to be taken. The PMU Safeguards Advisor will review and find solution to the problem in consultation with village/island/state or affected party and relevant local agencies.

If the complainant is dissatisfied with the outcome, or has not received advice in the allotted time period, he or she can take grievance to the national/state level. The relevant authorities will review the case and report back to the PMU Project Manager who will discuss the outcome the complainant.

If unresolved, or if at any time the complainant is not satisfied, the matter can be taken through the courts. Both successfully addressed complaints and unresolved issues will be reported to the World Bank or ADB by the PMU.

Table 9.1: Grievance Redress Process

Step	Process	Duration
1	Affected Person (AP) / village elected or traditional chief takes grievance to PMU or Contractor	Any time
2	PMU Project Manager and Safeguards Advisor reviews issue, and in consultation with island/state or relevant agencies and contractor (if appropriate), agrees to a solution and records the results.	2 weeks
3	PMU Project Manager reports back to island/state/AP and gets clearance the complaint has been resolved.	1 week
If unresolved		
4	Island/state/AP take grievance to Committee for resolution	Decision within 2 weeks
5.	Committee refers matter to relevant national agency	2 weeks
6.	Committee can deliberate for up to four weeks	4 weeks
7.	Committee reports back to AP	1 week
If unresolved or if at any stage and AP is not satisfied with progress		
AP can take the matter to appropriate state or national court.		

10. Conclusions & Recommendations

Overall, the proposed EMC Project will require very limited land-based infrastructure, will have minimal mainly marine-based impacts which are limited in scale and extent and can be fully mitigated, will require no involuntary land acquisition, and will prioritise the use of existing building and infrastructure for landing stations and conveying land based cable.

The project will impact a corridor of no more than 3-4 m wide (including the footprint of the submarine water-jet trenching machine on the sea floor and to a depth of 0.75 m beneath the sediment). The cable, about 4 cm in diameter in the nearshore zone, will be buried. Burial of the cable will be done to reduce interference with coastal fishing gear and reduce the risk injury to corals and people during storm events.

The cable route will be surveyed to avoid sensitive habitats such as corals and Conservation Areas with placement guided by experienced divers who will place the cable according to instructions from a marine ecologist. These measures will serve to mitigate any potential negative impacts on the marine environment.

All priority land options to be traversed by the cable and associated infrastructure are either government owned or leased, including the seafloor.

Given the small-scale impact of the work, and the fact that nearly all of the work takes place on board a vessel at sea with specially trained crew, no negative social impacts are anticipated during any stage of the project.

The construction of the BMH facility on land will require a local sub-contractor. In Kosrae, a key potential impact relates to the trenching of the cable adjacent to the road; to address this reinstatement of the disturbed areas will be required as specified in the ESMP. In Kiribati and Nauru no impacts are envisaged given the infrastructure is already in place to convey the terrestrial cable.

The ESMP defines a full set of working area boundaries, work restrictions and timing limits, which will be included in the construction contract specifications and which the contractor will have to comply with. Compliance will be monitored by safeguards advisors in each country PMU.

Appendices

Appendix 1 Baseline Data Report

Appendix 2 International Conventions and Treaties

Appendix 3 Land Due Diligence Report

Appendix 4 Potential cable alignments & BMH Sites

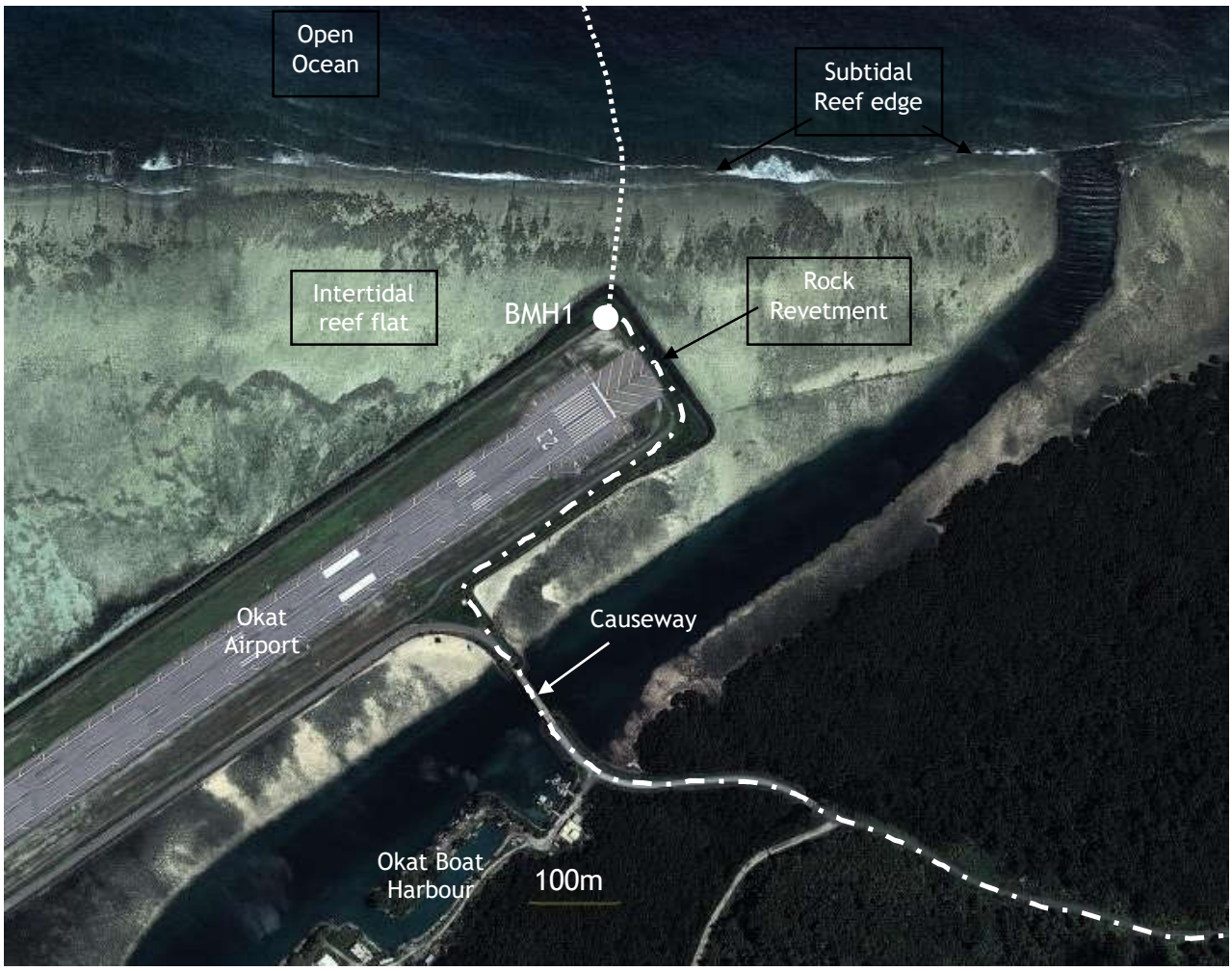

Figure 4a: Potential submarine and terrestrial cable alignments for BMH1 (white dashed lines) in Kosrae.

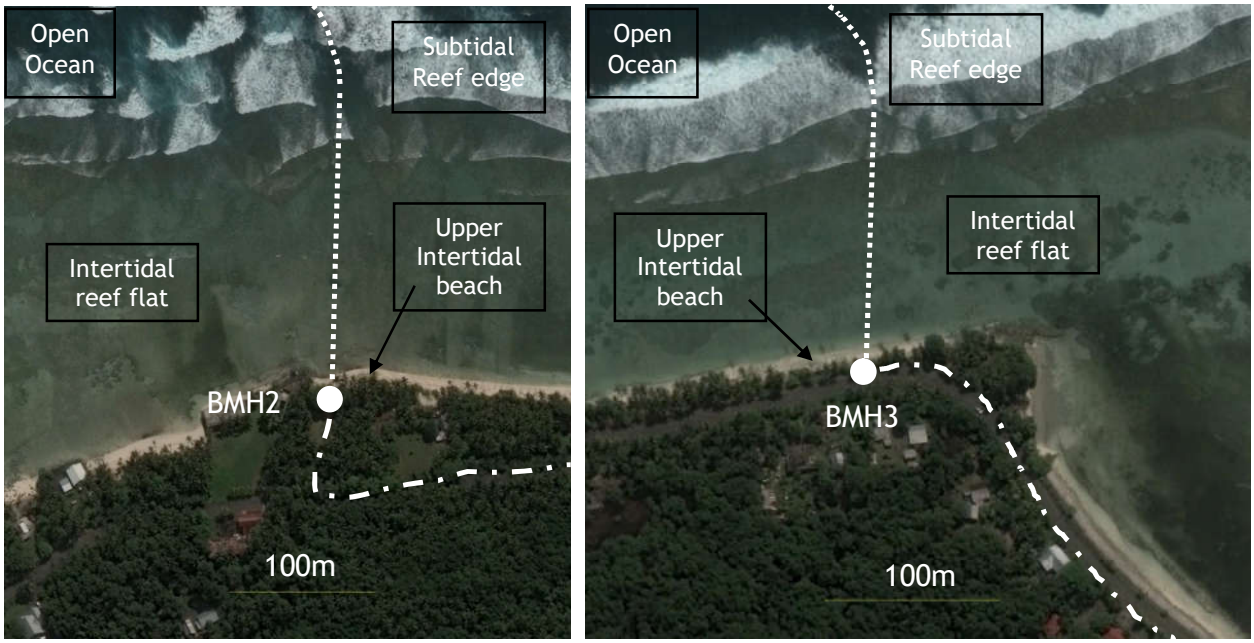

Figure 4b: Potential submarine and terrestrial cable alignments for BMH1 (white dashed lines) in Kosrae.

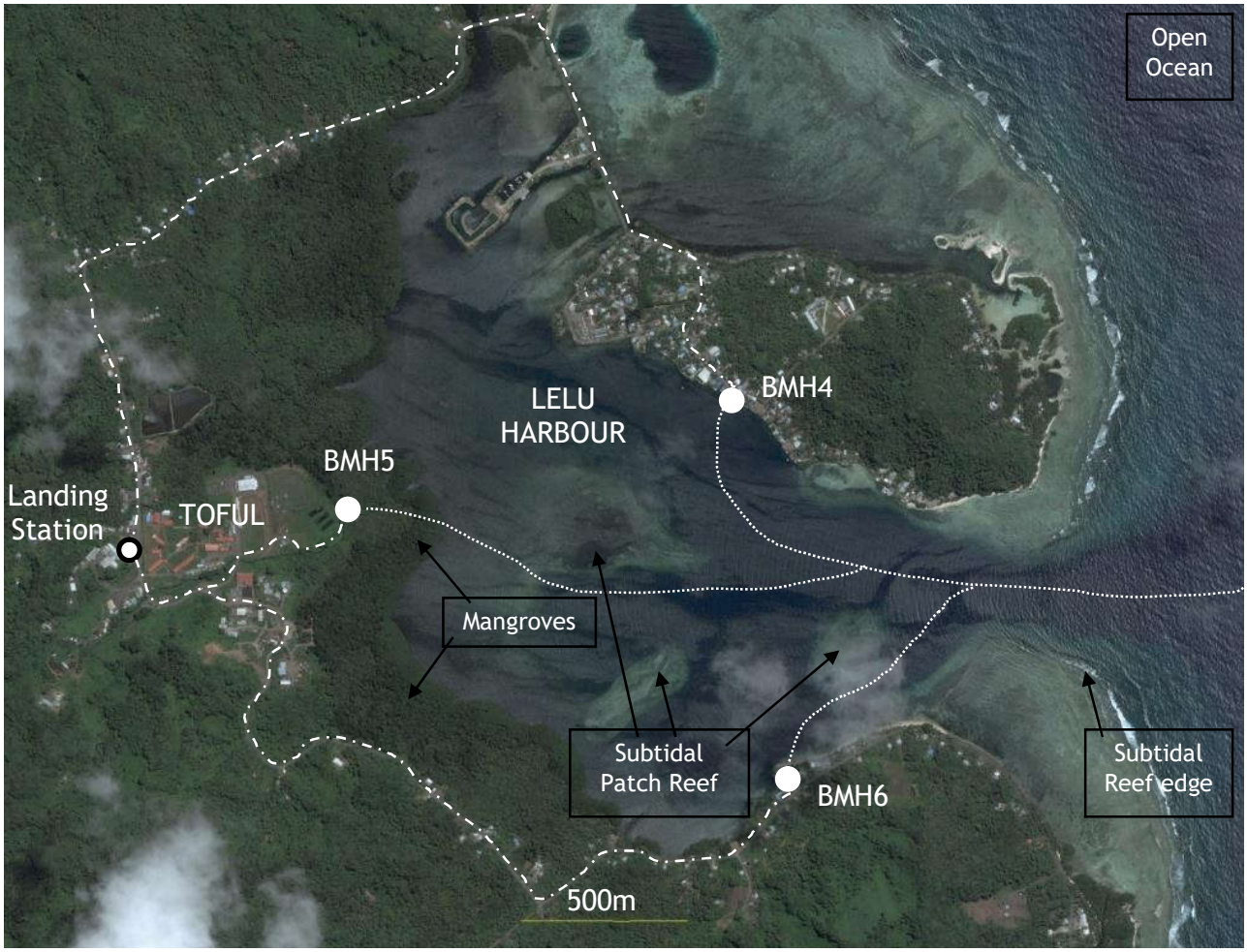

Figure 4c: Potential submarine and terrestrial cable alignments for BMH4, 5 & 6 (white dashed lines) in Kosrae.

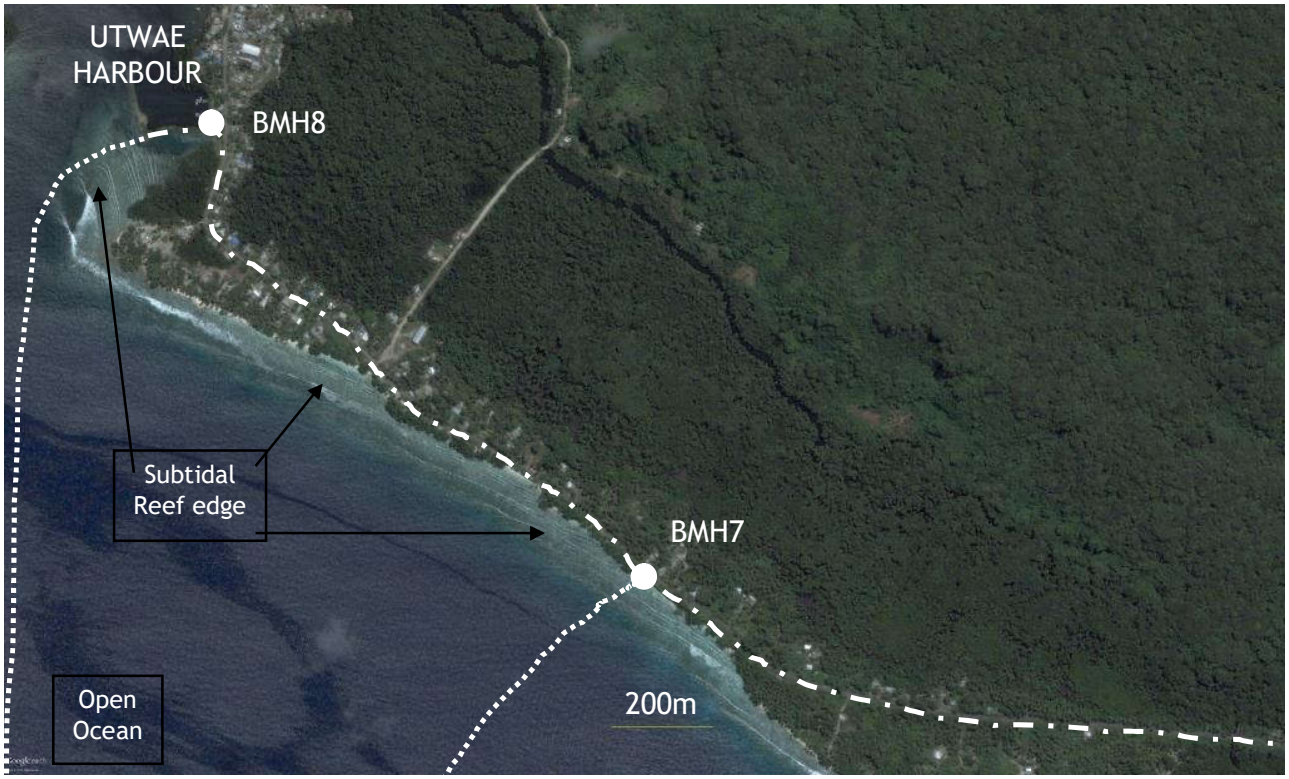

Figure 4e: Potential submarine and terrestrial cable alignments for BMH7 & 8 (white dashed lines) in Kosrae.

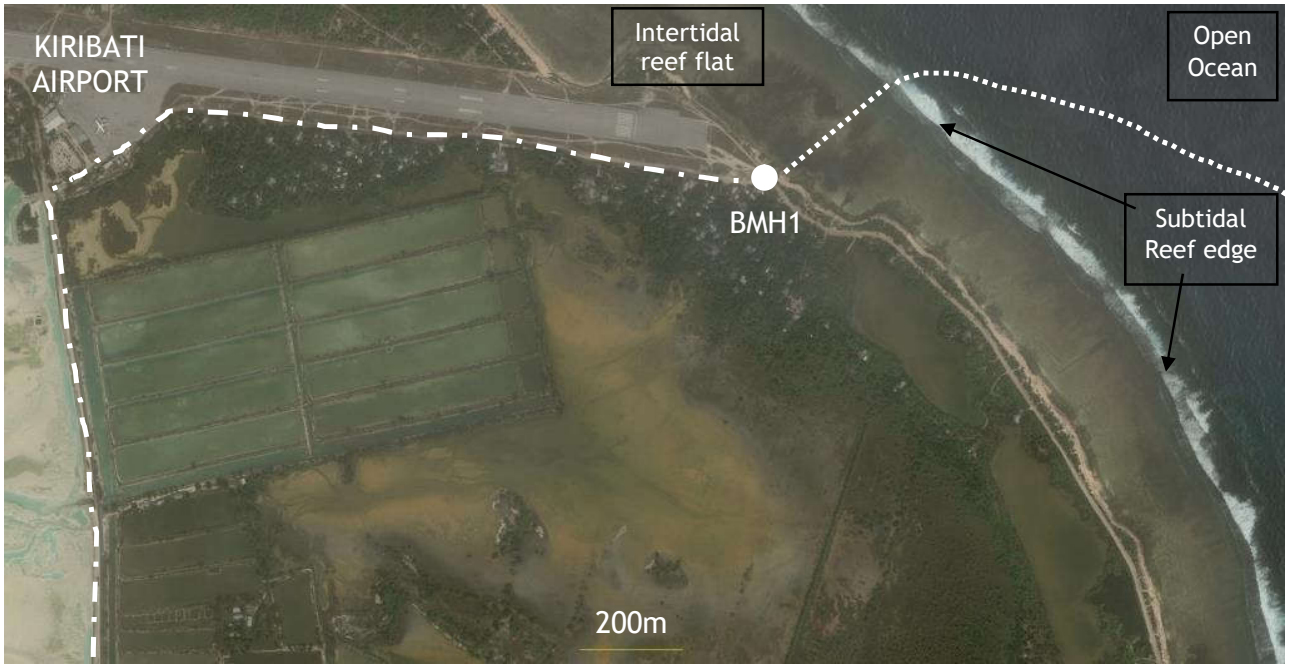

Figure 4f: Potential submarine and terrestrial cable alignments for BMH1 (white dashed lines) in Kiribati.

Figure 4g: Potential submarine and terrestrial cable alignments for BMH2 (white dashed lines) in Kiribati.

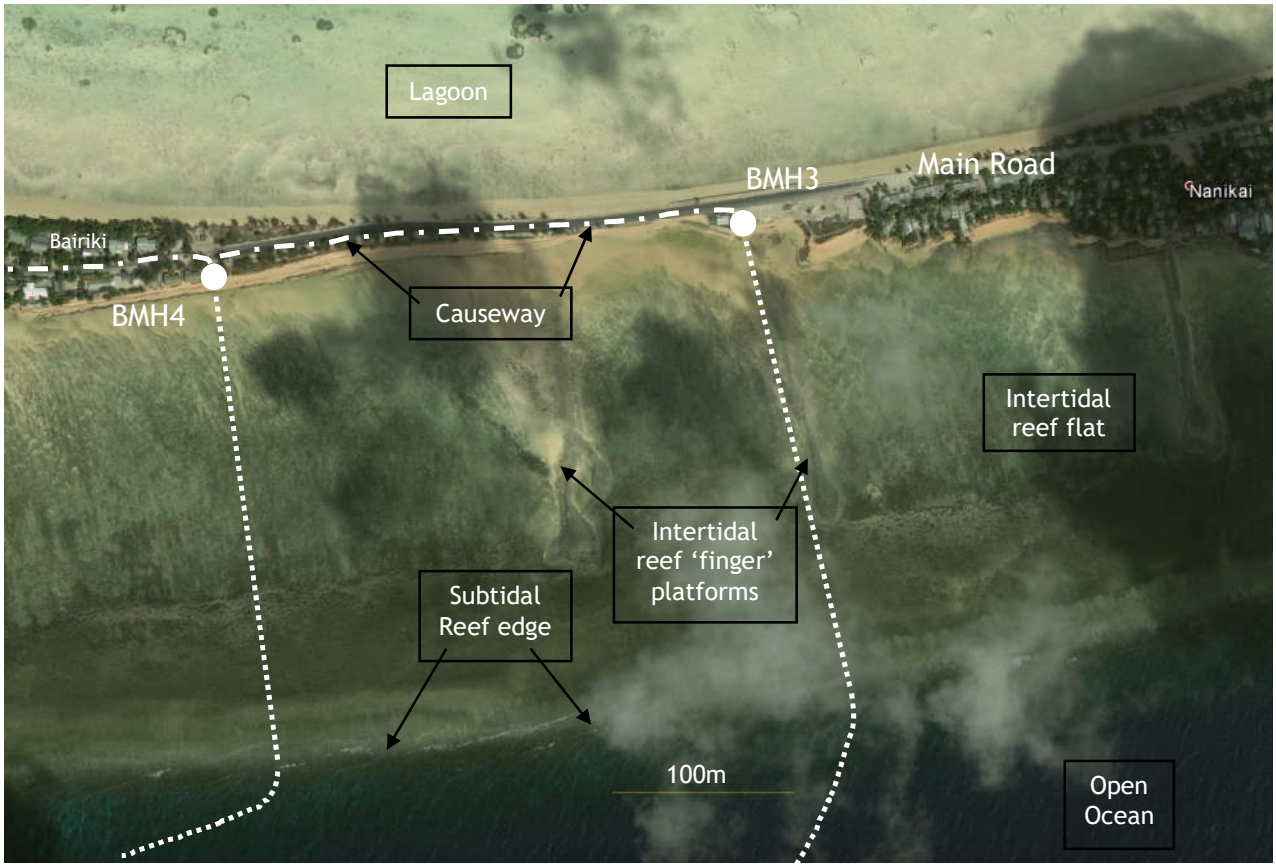

Figure 4h: Potential submarine and terrestrial cable alignments for BMH3 & 4 (white dashed lines) in Kiribati.

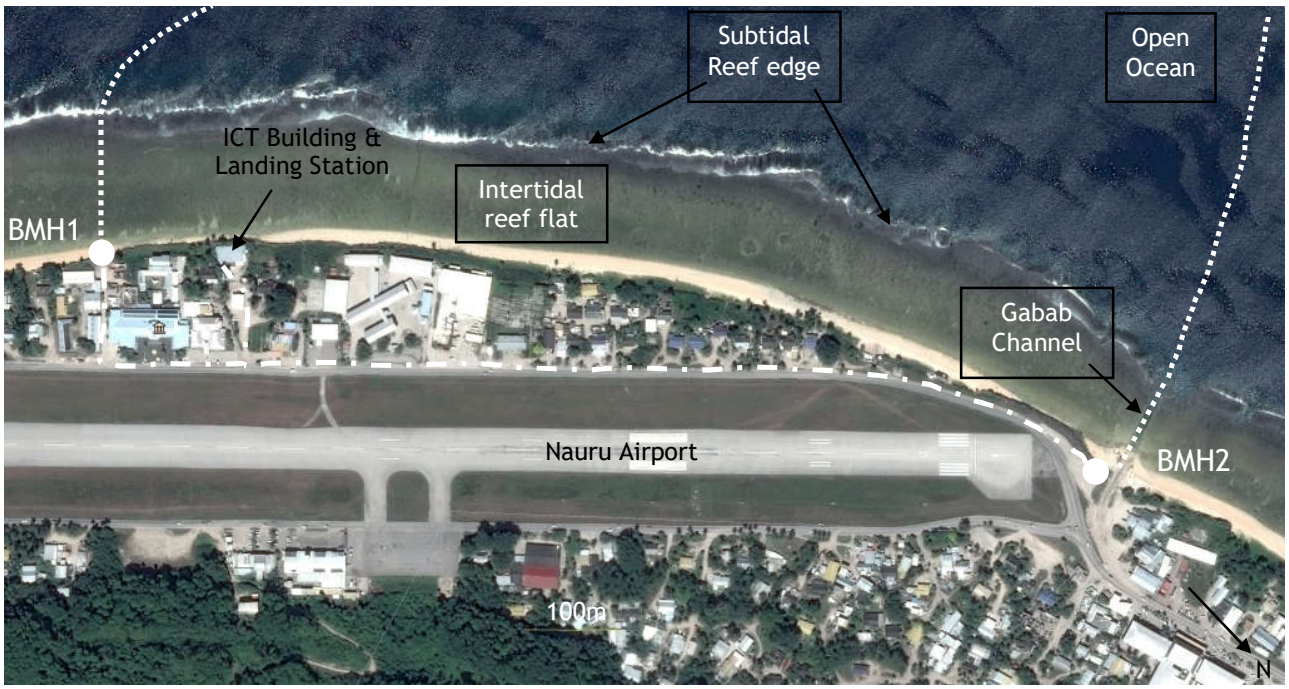

Figure 4i: Potential submarine and terrestrial cable alignments for BMH1 & 2 (white dashed lines) in Nauru (Note terrestrial fibre cable is already in place).

Appendix 5 Consultation Summaries

Appendix 5A: Summary of Kosrae Consultation

October 17, 2016		
General Consultation	List of attendees (see Appendix 4)	• Preferred CLS location is Tofol • Can use existing roadside easement • A number of sites used for coastal monitoring • Series of maps available to access (Conservation area, bathymetry, coastal erosion, seawalls) • BMH description provided, issue with private land owners • Issue of eroding private land into road easement. • Discussion re potential BMH sites – Airport site (disputing which department internally has jurisdiction), southern sites (conservation areas nearby) and Lelu Harbour sites (school is State Land). • EIA requirements
October 18, 2016		
Bank of Guam	Gwendolyn E Nicolas Assistant Vice President Branch Manager	• Bank operation hindered by limited and slow Internet • At times staff had to stay on until late at night, in order to complete transactions & transmitting to Main Branch (Guam) • Services available are also limited due to slow Internet • Products offered can be expand and delivered with a better Internet • We are happy to express our support for this project
FSM Bank	Lynn Langu Assistant Branch Manager	• Had to work long hours some days to complete work needed because of the slow Internet • Relaying information to and from Pohnpei can be frustrating • Mobile banking is a real possibility, if the fibre optic cable provides us with fast Internet • There is real need for this project in Kosrae
FSM ACE	Smith Sigrah Kosrae Manager	• Businesses like ours do need this for our website and dealing with customers • Doing business on the Internet can be slow and impacts on our business operation. • It can be difficult to relay finance information with our head branch in Pohnpei • We need a better and faster Internet • It is necessary to invite you to address the Commerce Board this Thursday
Lelu Municipal Government	Ben Jesse Mayor	• Appreciate this, for including our office in your consultation. • To me, our work in this municipality will definitely benefit from this project. • We need to inform and raise public awareness in a timely manner. This is difficult with the existing Internet. • May be a chance for our people to do courses online in Hawaii or the States. • We support whatever happens. If this cable lands on our municipality, that is great. If not, we still support it.
October 19, 2016		
Utwe Resident	Simon Lak Former Mayor	• This is a good chance for our people • Contacting our family members overseas is important for us
Utwe Resident	Aluk Levi Former Mayor	• We need better Internet to contact our family members overseas • About time to see this new technology implemented in Kosrae • No issues with landing the cable here
Utwe Municipal Government	Truman Waguk Mayor	• Hoping that the cable lands here in Utwe • We need better communication/Internet for our local people • Support this and will talk to local people about this new project • Utwe seemed to be always the last to get these types of developments. Anyway, it is good because we get the best projects result, because we get it with lesson learned from other municipalities, like the water system. • See no real issue with our local fishing activities • The sooner the better
Malem Resident	Malon Talley Church Pastor & Youth Leader	• Built a Gym for the youth; to give them something to occupy their time with, otherwise they will drift into drinking etc. The local school is also using this gym as well. • We have a vision and program that includes a Youth Centre, as an extension of our gym. This requires a better Internet; kids can do research or distant learning.

		• This project is what we need. • Also need better communication with our families overseas; this is important to us locals.
Ahmadiyya Muslims Community	Imam E.M. Kauser Religious Minister	• It is now difficult to communicate with our head quarter in London. • Sometimes we need to pay our orders from ACE but cannot, as such service (eftpos) is not available. We had to carry large cash to do that, and that is not advisable for anyone to carry large cash around. • Predecessor used to go to either Treelodge or Nautilus and stay there the practically the whole day, so he can access the Internet. • We cannot access the Muslim television now, but that is an important part of our operation. • We pay the maximum package, but the access we received is not consistent. • We note the negative impacts of such Internet capability but these are insignificant comparing to the benefits we will have. • We support this project; and we will arrange for the Kiribati counterpart to meet you.
Kosraean Women Association	Salorne Mast (President) Masy Livae Merbina Nena Brnisda Nakumura Jenny Seymour Hetty J Palik Tamoe E Ylaguk Priscilla Labonete Rose K Sigrah	• President welcomes the opportunity to be involved and to hear about the project. • Concerns with the exposure of youths to the negative impact of the Internet. • Some mothers/women are rather better prepared than most to receive this new technology and exposure. In fact, most do not fully comprehend this exposure, and kids are better versed with the Internet. So hard for mothers to monitor kids' activities over the Internet, especially with the kind of exposure this technology will bring. • As mothers, this will be another role for us, making sure that the new Internet is used properly. However, support will be needed to inform/educate or prepare us for this technology. • Interests raised about who will be managing or in charge of this cable. • We can see the capacity and speed of this technology, but there is a need to guarantee that the rates will be affordable.
October 20 2016		
Community Consultation	Senators Members of public Business List of Attendees (see Appendix 4)	• Need to know who fund this project • Concerns with maintenance of this cable ('Warranty') • Impact on fish and sea creatures • Telecom need to negotiate their role with regards to this cable • Highlight the role of Municipal stakeholders
Chamber of Commerce	Business owners (see Appendix 4)	• Keen to see this project completed • Liberalisation of communication is welcomed • Noted that the road at Utwe will move inland due to continuous erosion of the existing road • Keen to see more than one operator (competition) • Expected the rates to be much cheaper

Appendix 5B: Summary of Kiribati Consultation

25 October 2016		
Amalgamated Telecommunication Holding Kiribati	Kamleshwar Sharma CEO	• ATH supports the concept • ATH wants to contribute to the process • Happy to provide any technical information, but need a written request
	Arobati Teamako A/Manager Earth Station	• This is a new technology to us
Ocean Link		• Difficult to access and compete with ATHK • Need to have the cable accessible to private operators • Difficulty in interconnection between two operators • Keen to see who is going to manage the cable • Operator of the cable must be independent of the current operators (fair competition)
Women Development	Bairee. Beniamina. Officer in Charge	• Communication is vital for women; especially with families within Tarawa, and with those overseas. • Issue now is the "bad image" being downloaded and shared by kids. • Children's' time being spent on phones, laptops, tablets is an issue with their schoolwork. Imagine if the fibre cable will allow faster Internet.

		• We are aware that teachers have found pornographic materials in student's phones. • Some students pretend to do school work but they spend school time on their phones or Internet. • Better communication will allow us to share information with communities, especially community development information. • We need to manage this new technology through some kind of program for the public.
NGOs	Uriam. Robati. Senior NGO Officer	• We have almost 300 NGOs registered with us; and there is more being set up and seeking help on how to incorporate their NGO. • Main concern is that we need more public information on this type of new technology. • Our people should be aware and have some understanding. • There have been some issues with the current project being implemented by McDowell: some people vandalise it because there were no consultation, awareness, and information for the local people (community). • Appreciate that you start by informing us. I hope that the public awareness and information will continue on so that local people, especially those who are less fortunate, to know and understand this new project.
Social Welfare	Tabotabo.Auatabu. Principal Social Welfare Officer	• We are aware that Internet has some negative influence on people. • The most vulnerable in this type of development is our children. They access to a fast technology, with little guidance. Be mindful, that some parents have less knowledge of this Internet technology. That make it difficult for them and the kids. • There is a need for more consultation, so that people are fully aware of this new technology. They will need help to manage the risks that this will bring to their homes. We will liaise with the Ministry of Communication on this important issue. • There is a need to have some kind of protection for our kids. Either, educating the parents or have some program, like parent lock, so that parents can manage the Internet usage in their homes. • Adults, also need some protection with this new Internet technology.
26 October 2016		
MOEL	Uataake Terite Technical Office Barnabas Iotiabata IT Technician	• Internet only service • Concerns with cable management and operator (independent) • Good timing for us to review our satellite contract • Will build in the cable into our next business plan • We would like to be involved in the planning with Government
27 October 2016		
Public Consultation – Nanikai Community	Attended by approximately 50 people from local community of Nanikai (see Appendix 4)	• Will cable affect fish? • How is cable brought ashore? • Will other islands in Kiribati benefit? • Will cable be visible? • What will the cost of Internet access be? • How will access to offensive websites be managed? • Will local labour used in cable installation Project?
28 October 2016		
EcoCare	Dr Kameri Onorio	• Provided explanation of Project • Several other EIAs have been completed in Kiribati
Environment and Conservation Division	Taoues Reiher (Director) Victoria Hnanguie (Officer)	• Provided explanation of Project • EIA might not be needed which is a requirement for license to install & operate.
KAP (Kiribati Adaptation Programme)	Etrily Menikaoti	• Provided explanation of Project • To provide island profile
KANGO	Tereeao Teingiia (President)	• Provided explanation of Project • KANGO managers all recognized small NGOs in Kiribati
Ministry of Public Works	Meeting with key enginners	• Provided explanation of Project • Programme of seawall works not proactive, its reactive • There is duct in the roadside but they don't know whether the cable could be placed in it.

29 October 2016		
Ahmadiyya Muslim Community Tarawa	Imam Khawaja Fahad Ahmad	• Long overdue for Kiribati to have a reliable Internet • Current Internet is expensive • Communicating with our headquarter is vital • We provide basic education service for local people, and we need good Internet • Better Internet will allow us to expand our community education service

Appendix 5C: Summary Nauru Consultation

31st October		
Department of Commerce, Industry & Environment	List of Attendees (see Appendix 4)	• Provided explanation of Project • Gabab site has strong currents. • To be mindful of public mindset re environmental impacts • Looking at establishing MPAs particularly southern coast, working with local community. • Could existing pipeline be used in intertidal by government buildings?
1st November 2016		
Lands & Survey	Penisasi Nakautoga	• Land survey has been done for most claims • Support by providing the necessary information
Youth Affairs	Lavinia Akken	• Youth are very well familiar with the Internet • Youth are fast learner in using the Internet • Issues with accessing and distributing inappropriate images • Work hindered by unreliable Internet service
Culture Affairs	Riverina Scotty	• We feel like we are isolated • Need to expose our cultural products to a wider market • We need more visitors and tourists
Child Protection	Krystelle McKenzie	• Children are vulnerable especially with this coming technology (exposure)
Justice & Border Control	Filipo Masaurua Stella Dubriya Daron Adeang	• Rights: Peoples rights to have equal access to this service at an affordable cost • The project should be gender sensitive, especially the women and children (rights and protection) • Issues as of date will worsen of there are no appropriate measures to protect and manage the potential risks of this technology
Department of Commerce, Industry, and Environment		• Presentation and Briefing on the project • Potential location discussed with no issues raised
Eco Nauru	Tyronne Deiye	• Established but currently applying for funds, such as the GEF Small Grant • Our team is well equipped (experience and knowledge) to do conservation and environmental work
2nd November 2016		
Public Meeting	List of attendees (see Appendix 4)	• Interests on the cable project was evident • Keen to access a more reliable and affordable Internet service • Open and fair competition will benefit people • Government needs to alert landowners of their utilising the leasehold for the cable. There should be not issue, a matter of courtesy. • Interested to know who funds the project. Glad to know it is not paid by the Government.

Appendix 6 List of Attendees

Appendix 7 Environmental Mitigation (ESMiT) and Monitoring (ESMoT) Tables

Table 7.1: Environmental and Social Impact Mitigation Table (ESMiT)

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	LOCATION	TIMING/ DURATION	IMPLEMENTATION	SUPERVISION
1.0 Pre-Construction Period (Planning and design actions to prevent impacts)						
1.1 Physical Environment						
Land Access	Unable to secure access to sites identified in ESIA	Acquire land owner approvals before works begin. Transfer of any entitlements, and keep documentation. Identify other sites on other Government land	BMH & CLS sites identified in the ESIA	Prior to start of installation	PMUs/PCs and Safeguards Advisors	Safeguards Advisors
Air Quality	Green House Gas emissions from vessels	Require vessel emission certification re PM, SO2 and NOx to be submitted in contract specs to meet USEPA emission standards (http://www.epa.gov/otaq/marine.htm). A smoke density test will also be performed by the technical monitor using the Canadian Department of Transport Smoke Chart set out in the schedule of regulations (https://www.dieselnet.com/standards/ca/marine.php).	Entire cable route	Prior to start of installation	PMUs/PCs	Safeguards Advisors
Substrate	Use of foreign materials for filling cable trench, causing unknown pollution.	Contractor's specification to include; 1. All backfill to be previously excavated material. 2. Only inert/stable materials are to be used in cable laying and anchoring. 3. To be aware of unexploded WWII munitions.	Inshore Coastal areas.	Low tide in intertidal areas.	PMUs/PCs	Safeguards Advisors
UXO	Failure to complete an unexploded ordinance sweep of cable route leading to detonation and loss of life	Conduct a UXO survey of the cable alignment as it passes the barrier reef cut and all the way to the landing site, prior to any cable placement activity.	Inshore Coastal areas.	Prior to start of any cable laying activity.	IAs/ SPVs	PMUs/PCs
Hydrothermal Vents	Physical damage to vents by cable or cable laying equipment. Smothering by disturbing area	In construction contract specifications require survey team to identify a cable route that maintains a minimum clearance of 200 m from active hydrothermal vents (if known) and id route in the cable-laying spec.	Deep sea areas.	During preparation of contract specs	PMUs/PCs	Safeguards Advisors

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	LOCATION	TIMING/ DURATION	IMPLEMENTATION	SUPERVISION
Sea mounts	Physical damage to habitat and possible fishery usage.	During preparation of contract specifications, Project Coordinator to include a minimum clearance of 2 Km from the base of seamounts, for any cable alignment (for both the oceanographic survey and cable –laying operators)	Oceanic deep-sea areas.	During preparation of contract specifications	IAs	PMUs/PCs
1.2 Ecological Environment						
Coastal & deep ocean habitats	Accidental discharge of pollutants from vessel and from vessel grounding.	In bid documentation, require 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	Offshore & inshore coastal areas	Preparing bid construction contract documentation	IAs	PMUs/PCs
Sensitive nearshore Ecological Resources (i.e., coral reef, sea grass)	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 survey team to survey cable alignment for coral outcrops, and design alignment to avoid. Coral assemblages to be marked on design drawings.	Subtidal, Intertidal & terrestrial cable route	Prior to start of installation	IAs/SPVs	PMUs/PCs
Conservation areas	Disturbance of marine organisms and habitats in 'no take 'areas	Cable alignment to avoid conservation areas. Define in contract specifications, via GPS and survey markers, a cable route that provides ≥ 75m distance from CA boundaries, and requires all survey and cable laying vessels to maintain this distance at all times.	Subtidal & Intertidal cable route	Prior to start of installation	IAs/SPVs	PMUs/PCs
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 included in the Code of Environmental Practice (COEP) document.	Subtidal & Intertidal cable route	For bid & contract documentation	IAs	PMUs/PCs
1.3 Socio-Economic Environment						
Coastal Resource Users – subsistence & artisanal fisheries	Damage to ecosystem integrity and fishery productivity through loss or damage to local fishing grounds.	Specify in contract specs trenching/cable laying activities to be limited to a narrow corridor (0.4m wide by 0.75m deep) and trenching to be followed by immediate burial.	Subtidal & Intertidal cable routes	For bid & contract documentation	IAs	PMUs/PCs

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	LOCATION	TIMING/ DURATION	IMPLEMENTATION	SUPERVISION
Safeguards Advisors	Inexperienced technician leading to delayed or failed implementation of ESMP items	Hiring of of Safeguards Advisors to help implement and record delivery of ESMP for each country	FSM, Kiribati, Nauru	At start of project for the duration of the project	IAs	PMUs/PCs/ World Bank and ADB task teams
Community Information	Misconceptions raising people's fears regarding project footprint and potential damages to marine food supply.	At least one community consultation prior to commencement of civil works, during construction and after project completion to reduce concerns about construction impacts.	Kosrae, Kiribati, Nauru	Before civil work begins	IAs	Safeguards Advisors/ PMUs/PCs
Community Grievances	Minor concerns/issues developing community resentment due to unaddressed project related concerns	Establish GRMs, for use throughout the life of Project, prior to commencement of civil works and making this known to villages during follow up meetings before the work begins.	Local villages	Before civil works begin	IAs	Safeguards Advisors/ PMUs/PCs
Access during landside trenching & cable installation works	Failure of contractors to do trenching work with minimal damage and access restrictions to property	Contract specs to include instruction re: full rehabilitation immediately after completion of trenching works. Develop notification protocol to provide notice of access restrictions, comprising the following steps: - Notification of the roadside residents by letter providing details of the project, potential access restrictions and likely timing of activities; - Follow-up telephone contact to confirm letter receipt and offer further consultation; - On-site meetings with affected residents (if requested); and - "Door-knock" notifications of residents 48 hours prior to trenching to provide details of work program, duration of access restriction and contact details in case of grievance. Develop a specific procedure, in consultation with hospital management, to ensure emergency access is maintained to local Hospital at all times.	Residents with access affected by trenching & cable installation works	Before civil works begin	IAs	Safeguards Advisors/ PMUs/PCs
2.0 Construction Period (Impacts associated with the work)						
2.1 Physical Environment						

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	LOCATION	TIMING/ DURATION	IMPLEMENTATION	SUPERVISION
Air Quality	Emissions from survey and cable placement vessels	Zero tolerance and immediate repair required – specified in Contract specifications; namely stack emissions and stack smoke tests. Vessel fined and shut down within 5 days of notice	At all work sites	From the time the vessel begins work on this project	Contractor(s)	Safeguards Advisors/ PMUs/PCs
Substrate	Introduction of foreign substances reacting with environment or introduced medium for introduced organisms.	Contractor's specification to include; 1. All backfill to consist of previously excavated material. 2. Only inert/stable materials are to be used in cable laying and anchoring. 3. To be aware of unexploded WWII munitions.	Inshore Coastal areas.	For all seafloor trenching operations	Contractor(s)	Safeguards Advisors/ PMUs/PCs
Hydrothermal Vents	Physical damage to vents or cable.	As per contract specifications, lay cable along surveyed alignment which has identified any hydrothermal vents and maintains a minimum clearance of 200 m from active hydrothermal vents to protect the site(s).	Oceanic deep-sea areas.	When work is under taken.	Contractor	Safeguards Advisors/ PMUs/PCs
Sea mounts	Physical damage to habitat and possible fishery usage.	As defined in the contract specifications, lay cable along designated survey route, which maintains a minimum clearance of 2 Km from the base of seamounts	Oceanic deep-sea areas.	When work is under taken.	Contractor	Safeguards Advisors/ PMUs/PCs
2.2 Ecological Environment						
Coastal & deep ocean habitats	Accidental discharge of pollutants from vessel and from vessel grounding.	Adhere to contract specifications and national laws, containing all fuel, lubricants and transmission fluids in double walled tanks on vessels and if in drums, store below deck, as specified in contract specifications. Maintain a contingency plan to address spills and storm events.	Offshore & inshore coastal areas	When work is undertaken	Contractor	Safeguards Advisors/ PMUs/PCs
Sensitive nearshore Ecological Resources (i.e., coral reef, sea grass)	Disturbance of marine & terrestrial organisms and habitats	Contractor(s) to adhere to ≥75m avoidance rule and lay cable along surveyed route, as per cable-laying specification, thus avoiding coral reefs and outcrops. Restrict cable footprint to as narrow a path as possible when burying across a seagrass meadow, and fill trench immediately.	Subtidal, Intertidal & terrestrial cable route	When work is undertaken	Contractor In Country ICT / SPV	Safeguards Advisors/ PMUs/PCs
Species potentially at risk (whales, dolphins, turtles)	- Ocean sonar survey affecting cetaceans. - Entanglement in cable by deep diving cetaceans	Contractor to be provided with ECOP which contains detailed guidelines on minimally intrusive oceanographic survey method.	Oceanic deep-sea areas.	When work is undertaken	Contractor	Safeguards Advisors/ PMUs/PCs

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	LOCATION	TIMING/ DURATION	IMPLEMENTATION	SUPERVISION
2.3 Socio-Economic Environment						
Coastal Resource Users – subsistence & artisanal fisheries	Damage to local nearshore fishing grounds or introduce greater chances of gear entanglement	As per contract specifications, contractor to confine trenching activities narrow a corridor (0.4m width—width if small backhoe bucket) and restore site when finished. Trenching/laying activities confined to a short period. Request Fisheries authorities to advise local fishers of activities, dates, and avoidance measures. Place markers along cable alignment in shallow waters.	Offshore, Inshore Coastal areas.	When work is under taken.	Contractor	Safeguards Advisors/ PMUs/PCs
Coastal Resource Users – Game fishers	Displacement of activities during cable laying. Entanglement of fishing gear. Damage to ecosystem integrity and fishery productivity.	PC to ensure shipping notice is issued warning of cable laying, dates, and safe clearance for other activities. Request Port Authorities & Marine Resources Authority to advise local operators of cable laying activities, location (planned corridor survey) and avoidance measures. Confine laying activities to a short period preferably outside any fishing seasons defined during consultation.	Offshore areas	When work is under taken.	Contractor/IAs/SPVs	Safeguards Advisors/ PMUs/PCs
Coastal shipping – commercial shipping and ports	Damage to ships through cable entanglement. Disruption to shipping during cable laying.	Ensure shipping notice is issued, warning of cable-laying, dates, and safe clearance for other activities. Request Port Authorities to advise local shipping of laying activities and avoidance measures.	Offshore and inshore areas	When work is under taken.	Contractor/IAs/SPVs	Safeguards Advisors/ PMUs/PCs
Land Use	Detour from agreed cable alignment Community perception of cable encroachment to marine protected areas	Conduct a series of consultations with government, private sector and non-government organizations including women and youth on progress of work and cable alignment.	At locations where this occurs	When work is under taken.	Contractor /IAs	PMU/PC
Access	Temporary loss of local communities access to fishing grounds during cable laying	Provision of electronic and print notices to local communities/ fishers of construction schedule and contact person in case of inquiries.	During cable laying	When work is under taken.	Contractor	PMU/PC
Inadequate information disclosure	Failure to include villages in final alignment planning and decision making	Prior to start of work, present draft plan to villages and seek input and agreement on final alignment plan, etc.	At key locations	At start of construction	Contractor/IAs/SPVs	Safeguards Advisors/ PMUs/PCs
Environmental Completion Reporting	Contractor fails to prepare summary report defining mitigation & monitoring actions completed & what needs to be continued during Operating period.	Prepare a completion report and deliver to the Engineer.	N/A	Complete within the last 4 months of installation period	Contractor/IAs/SPVs	Safeguards Advisors/ PMUs/PCs

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	LOCATION	TIMING/ DURATION	IMPLEMENTATION	SUPERVISION
Contractor Awareness Raising	A contractor with little understanding of EMPs or safeguard matters initiates the work and causes damage, impacts and complaints	Conduct a 1 day contractor ESMP implementation briefing reviewing the mitigative, monitoring and reporting requirements	IA/PMUs office	1 day	IAs/SPVs	PMUs/PCs
Contractors H & S	Injury or death to contractors during contracted works	Contractors to prepare H & S plan	All	Submission prior to works being undertaken	Contractor	PMUs/PCs
3.0 Operating Period						
3.1 Physical & Ecological Environment						
Mitigation measures completion Report	No report and no record of actions implemented	PC will not approve final payment to contractor until a completion report identifying all relevant items in the ESMP and the actions taken by the contractor has been submitted.	N/A	At start of operating period before final payment	Contractor	PMUs/PCs
Oceanic habitat - Hydrothermal vents	Physical impact on cable of vent water.	New vents can appear in proximity to the cable and re-routing of cable may be required to maintain safe clearance	Offshore deep water environment	As part of periodic maintenance checks	SPVs	SPVs
Perceived marine pollution	Local communities fear of potential damage to marine life and other impacts.	Grievance Redress Committee (or successor within each SPV) to address community concerns taking immediate action to address perceived concerns.	EMC	As concerns arise	SPVs	SPVs
3.2 Socio-Economic Environment						
Impact associated with improved Internet — better access to harmful sites	Failure to adopt measures and continue mitigation actions defined in the Construction Environmental Completion report.	Make population aware of 'Internet site blocking features available to every subscriber; possibly via a village advisory group.	When in use.	At all times	SPVs and appointed NGOs or women's groups	SPVs
Fishing	Fishing Gear snagging	Clearly advertise location of undersea cable and alert local fishers and dangers of gear snagging (which will actually be minor as it will be buried 3 feet below the seafloor.	Inshore Coastal areas.	After cable is in place.	SPVs	SPVs

Table 7.2: Environmental and Social Impact Monitoring Table (ESMoT)

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	MONITORING ACTION DETAILS	TIMING/ DURATION	OUTPUT	IMPLEMENTATION	SUPERVISION

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	MONITORING ACTION DETAILS	TIMING/ DURATION	OUTPUT	IMPLEMENTATION	SUPERVISION
1.0 Pre-Construction Period (Planning and design actions to prevent future impacts)							
1.1 Physical Environment							
Air Quality	Green House Gas emissions from vessels	Require vessels emission certification re PM, SO2 and NOx to be submitted in contract specs. The results will need to meet USEPA emission standards (http://www.epa.gov/otaq/marine.htm CFR-40 set ofcodes). A smoke density test will also be performed by the technical monitor using the Canadian Department of Transport Smoke Chart set out in the schedule of the regulations (https://www.dieselnet.com/standards/ca/marine.php).	Confirm contract specification and compliance certification	During pre-installation period	Written and signed DD inspection note-to file	IAs/SPVs	PMUs/PCs/ Safeguards Advisors
Substrate	Use of foreign materials for filling cable trench, causing unknown pollution.	Contractor's specification to include; 1. All backfill will have to be only locally sourced or seabed material. 2. Only inert/stable materials are to be used in cable laying and anchoring. 3. To be aware of unexploded WWII munitions.	Confirm contract specification and compliance certification	During pre-installation period	Written and signed DD inspection note-to file	IAs/SPVs	PMUs/PCs/ Safeguards Advisors
UXO	Failure to complete an unexploded ordinance sweep of the cable route in coastal waters could lead to loss of life	Conduct a UXO survey of the cable alignment as it passes the barrier reef cut and all the way to the landing site, prior to any cable placement activity.	Obtain record of UXU sweep completed	During pre-installation period	Written and signed DD inspection note-to file	IAs/SPVs	PMUs/PCs
Hydrothermal Vents	- Physical damage to vents by cable or cablelaying equipment. - Smothering by disturbing area	In construction contract specifications (prepared by EMC joint technical project manager require survey team to identify a cable route that maintains a minimum clearance of 200 m from active hydrothermal vents (if known) and id this route in the cable-laying specification.	Confirm that appropriate specifications contained in bid documentation	During pre-installation period	Written and signed DD inspection note-to file	IAs/SPVs	PMUs/PCs/ EMC Joint technical project manager
Sea mounts	Physical damage to habitat and possible fishery usage.	During preparation of contract specifications, EMC Joint technical project manager to include a minimum clearance of 2 Km from the base of seamounts, for any cable alignment (for both the oceanographic survey and cable -laying operators)	Confirm adequate presentation in bid documentation	When bid documents are being prepared	DD note-to file	IAs	PMUs/PCs/ EMC Joint technical project manager

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	MONITORING ACTION DETAILS	TIMING/ DURATION	OUTPUT	IMPLEMENTATION	SUPERVISION
1.2 Ecological Environment							
Coastal and deep ocean habitats	Accidental discharge of pollutants from vessel and from vessel grounding.	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	Confirm appropriate specification contained in bid documentation	During pre-installation period	Written and signed DD inspection note-to file	IAs/SPVs	PMUs/PCs/ EMC Joint technical project manager
Sensitive nearshore Ecological Resources (i.e., coral reef, sea grass)	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 survey team to survey cable alignment for coral outcrops, and design alignment to avoid. Coral assemblages to be marked on design drawings.	Confirm appropriate specification contained in bid documentation	During pre-installation period	Written and signed DD inspection note-to file	IAs/SPVs	PMUs/PCs/ EMC Joint technical project manager
Conservation areas	Disturbance of marine organisms and habitats in 'no take 'areas	Define in contract specifications, via GPS and survey markers, a cable route that provides ≥ 75m distance from CA boundaries, and requires all survey and cable laying vessels to maintain this distance at all times.	Confirm contract specification in place as indicated in ESMP	During pre-installation period	Written & signed DD inspection note-to file	IAs/SPVs	PMUs/PCs/ EMC Joint technical project manager
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 included in the Code of Environmental Practice (COEP) document.	Confirm inclusion in contract specifications	When specifications are being written	Record to file	IAs	PMUs/PCs/ EMC Joint technical project manager
1.3 Socio-Economic Environment							
Coastal Resource Users - subsistence and artisanal fisheries	Damage to ecosystem integrity and fishery productivity through loss or damage to local fishing grounds.	Define in contract specs trenching/cable laying activities to be limited to a narrow corridor and trenching to be followed by immediate burial.	Confirm inclusion in contract specifications	When specifications are being written	Record to file	IAs	PMUs/PCs/ EMC Joint technical project manager

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	MONITORING ACTION DETAILS	TIMING/ DURATION	OUTPUT	IMPLEMENTATION	SUPERVISION
Safeguards Advisors	Inexperienced technician leading to delayed or failed implementation of ESMP items	Appointment of Safegaurds Advisor to help implement and record delivery of ESMP for each country	Confirm technician is on staff at start of project	At start of project for duration	Note to file	IAs	PMUs/PCs/ World Bank and ADB task teams
Community Information	Misconceptions raising people's fears regarding project footprint and potential damages to marine food supply.	Conduct community consultation prior to commencement of civil works, during construction and after project completion to reduce concerns about construction impacts.	As required	As required	Note to file	IAs/SPVs	Safeguards Advisors PMUs/PCs
Community Grievances	Minor concerns/issues developing community resentment due to unaddressed project related concerns.	Establishment of grievance redress mechanisms (GRM) prior to commencement of civil works and making this known to villages during follow up meetings before the work begins.	Confirm that a grievance redress mechanism requirements is in Contract specs.	At start of detailed design stage	Note to file	IAs/SPVs	Safeguards Advisors PMUs/PCs
Access during landside trenching & cable installation works	Failure of contractors to do trenching work with minimal damage and access restrictions to property	Contract specs to include instruction re: full rehabilitation immediately after completion of trenching works. Develop notification protocol to provide notice of access restrictions. Develop a specific procedure, in consultation with hospital management, to ensure emergency access is maintained to local Hospital at all times.	As required	As required	Note to file	IAs/SPVs	Safeguards Advisors PMUs/PCs
2.0 Construction Period (Impacts associated with the work)							
2.1 Physical Environment							
Air Quality	Emissions from survey and cable placement vessels	Zero tolerance and immediate repair required — as specified in Contract specifications; namely stack emissions and stack smoke tests as defined in IEE and at web sited defined in IEE. Vessel fined and shut down within 5 days of notice	Contractor to provide emission test results	Prior to start of work	Record to file	Contractor(s)	Safeguards Advisors PMUs/PCs

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	MONITORING ACTION DETAILS	TIMING/ DURATION	OUTPUT	IMPLEMENTATION	SUPERVISION
Substrate	Introduction of foreign substances reacting with environment or introduced medium for introduced organisms.	Contractor's specification to include; 1. All backfill will be previously excavated material. 2. Only inert/stable materials are to be used in cable laying and anchoring. 3. To be aware of unexploded WWII munitions.	Site inspection	During installation	DD note to file	Contractor(s)	Safeguards Advisors PMUs/PCs
Hydrothermal Vents	Physical damage to vents or cable.	As per contract specifications, lay cable along surveyed alignment which has identified any hydrothermal vents and maintains a minimum clearance of 200 m from active hydrothermal vents to protect the site(s).	Hydrothermal vents detected during initial ocean survey, periodically check cable location to ensure it complies with limits.	When detailed design is complete and cable placement is to take place	Compliance Checklist signed	Contractor	Safeguards Advisors PMUs/PCs
Sea mounts	Physical damage to habitat and possible fishery usage.	As defined in the contract specifications, lay cable along designated survey route, which maintains a minimum clearance of 2 Km from the base of seamounts	If seamounts are identified during detailed design the monitor will check on cable location ensure it complies with limits defined.	When detailed design is completed and the cable placement is to take place	Compliance Checklist signed	Contractor	Safeguards Advisors PMUs/PCs
2.2 Ecological Environment							
Coastal & deep ocean habitats	Accidental discharge of pollutants from vessel and from vessel grounding.	Adhere to contract specifications and national laws, containing all fuel, lubricants and transmission fluids in double walled tanks on vessels and if in drums, store below deck, as specified in contract specifications. Maintain a contingency plan to address spills and storm events.	Inspect both survey and cable laying vessel and confirm compliance	At start of work for all vessels used	Written compliance checklist	Contractor	Safeguards Advisors PMUs/PCs
Sensitive nearshore Ecological Resources (i.e., coral reef, sea grass)	Disturbance of marine & terrestrial organisms and habitats	Contractor(s) to adhere to ≥75m avoidance rule and lay cable along surveyed route, as per cable- laying specification, thus avoiding coral reefs and outcrops. Restrict cable footprint to as narrow a path as possible (0.4m wide by 0.75m deep), when burying across a seagrass meadow, and fill trench immediately. Contractor to received map from	Inspect cable laying operations in vicinity of coral formations and confirm compliance	When work is in close proximity to sensitive areas	Compliance report with photos	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	MONITORING ACTION DETAILS	TIMING/ DURATION	OUTPUT	IMPLEMENTATION	SUPERVISION
		Government Marine Resources agency, showing sensitive areas on route from passage to landing.					
Conservation areas	Disturbance of marine organisms and habitats in 'no take 'areas	Cable alignment to avoid conservation areas. Define in contract specifications, via GPS and survey markers, a cable route that provides ≥ 75m distance from CA boundaries, and requires all survey and cable laying vessels to maintain this distance at all times.	Inspect cable laying operation in coastal waters to confirm minimum distance from CAs is maintained	As soon as work takes place near shore waters	Record of inspection and findings— written and photos	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs
Species potentially at risk (whales, dolphins, turtles)	Entanglement in cable by deep diving cetaceans	Control cable tension so that laid cable conforms to undulations of seabed as per cable laying spec	Ensure cable layer understands cetacean sensitivities	At start of survey and start of cable placement	DD note to file	Contractor	Safeguards Advisors PMUs/PCs
2.3 Socio-Economic Environment							
Coastal Resource Users – subsistence & artisanal fisheries	Damage to local nearshore fishing grounds or introduce greater chances of gear entanglement	As per the contract specifications, contractor is to confine trenching activities to as narrow a corridor as possible (0.4m width—width if small backhoe bucket) and restore site when finished and confine trenching/laying activities to as short a period as possible. Request Fisheries authorities to advise local fishers of cable laying activities, dates, and avoidance measures. Consider placing markers along cable route in shallow (<10 m) waters.	Examine trenching activity in nearshore waters and establish compliance with work area limits defined in ESMP. Interview fishers to determine if contractor advised re cable laying activity Locate with cable markers	Trenching in nearshore waters	DD note to file	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs
Coastal Resource Users –Game fishers	Displacement of activities during cable laying. Entanglement of fishing gear. Damage to ecosystem integrity and fishery productivity.	Project Coordinator to ensure a shipping notice is issued warning of cable laying, dates, and safe clearance for other activities Request Port Authorities & Marine Resources Authority to advise local operators of cable laying activities, location (planned corridor survey) and avoidance measures. Confine laying activities to as short a period as possible, preferably outside any fishing seasons defined during the consultation with Marine Resources authorities.	Shipping notice	When work is under taken.	Shipping notice to file	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	MONITORING ACTION DETAILS	TIMING/ DURATION	OUTPUT	IMPLEMENTATION	SUPERVISION
Coastal shipping – commercial shipping and ports	Damage to ships through cable entanglement. Disruption to shipping during cable laying.	Ensure shipping notice is issued, warning of cable-laying, dates, and safe clearance for other activities. Request Port Authorities to advise local shipping of laying activities and avoidance measures. Contractors to provide written statement to TC that marine navigation lights and other national maritime measures are closely followed by contractors' vessels at all times.	Shipping (local and international) notice(s) issued. Appropriate markers and signage employed	When work is under taken.	Shipping notice to file	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs
Land Use	Detour from agreed cable alignment Community perception of cable encroachment to 'no-go' marine protected areas	Consult with government, private sector and non-government organizations including women and youth on progress of work and cable alignment. These consultations have the objective of informing all interested people on the work and general alignment location and methods to used.	Obtain review and file record/notes/ minutes of consultations completed	Within 5 days of landuse issue consultation taking place	Copy of record of completed meeting	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs
Access	Temporary loss of local communities access to fishing grounds during cable laying	Provision of electronic and print notices to local communities/ fishermen of construction schedule and contact person in case of inquiries.	Inspect material and confirm timely distribution	At start of installation when issues could arise	Copy of material	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs
Inadequate information disclosure	Failure to include villages in final alignment planning and decision making	Prior to start of work, present draft plan to villages and seek input and agreement on final alignment plan, etc.	As required	At start of installation	Note to file	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs
Environmental Completion Reporting	Contractor fails to prepare summary report detailing mitigation & monitoring actions completed & Operating period needs	Prepare a completion report and deliver to the Engineer.	Review completion report and file compliance checklist	Following submission by contractor	Compliance checklist	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs
Contractor Awareness Raising	Contractor with little understanding of EMPs or safeguards initiates the work and causes damage, impacts & complaints	Conduct a 1 day contractor ESMP implementation briefing reviewing mitigation, monitoring and reporting requirements	Review briefing material and attendance list	Following session	Review report	Contractor/IAs/ SPVs	Safeguards Advisors PMUs/PCs

PARAMETERS	POTENTIAL IMPACT	MITIGATION MEASURES	MONITORING ACTION DETAILS	TIMING/ DURATION	OUTPUT	IMPLEMENTATION	SUPERVISION
3.0 Operating Period							
3.1 Physical and Ecological Environment							
Mitigation measures completion Report	No report and no record of actions implemented	Prepare completion report	Confirm report available and provided by contractor	At end of installation, 1 month into operating period	DD note	Contractor/IAs	Safeguards Advisors PMUs/PCs
Oceanic habitat – Hydrothermal vents	Physical impact on cable of vent water.	New vents can appear in proximity to the cable and re-routing of cable may be required to maintain safe clearance	Undertake periodic check in vicinity of vent areas (if found)	After volcanic activity detected	DD note	SPVs	SPVs
Perceived marine pollution	Fear of potential damages to marine life and impact to food supplies by communities	Use the Grievance Redress Committee to address community concerns which needs to be established by the Implementing Agency, taking immediate action to address mostly perceived concerns, before they become negative rumours.	Review and record operation of the grievance redress committee and prepare Inspection report	As concerns arise	Inspection report	SPVs	SPVs
3.2 Socio-Economic Environment							
Impact associated with improved Internet — better access to harmful sites	Failure to adopt measures and continue mitigation actions defined in the Construction Period Environmental Completion report.	Make population aware of 'Internet site blocking features available to every subscriber; possibly via a village advisory group.	Examine and record steps taken to inform public. Measure effectiveness of consultation.	Once the service becomes operational	DD note Ongoing record of incidents.	SPVs	SPVs
Fishing	Fishing Gear snagging	Clearly advertise location of undersea cable and alert local fishers and dangers of gear snagging (which will actually be minor as it will be buried 3 feet below the seafloor.	Confirm with fishers that steps necessary were taken	After cable is in place.	DD note	SPVs	SPVs

Appendix 8 Evaluation of Compliance with WB Safeguard Policies & ADB Safeguard Policy Statement (SPS) Environmental Requirements

Table 8A: Evaluation of ESIA against WB Safeguard Policies that have been triggered for the Kosrae and Kiribati projects

WB Operational Policy	Application to Project	Potential Impacts	Mitigation Measures
OP4.01 Environmental Assessment	This OP is triggered as there will be minor environmental and social impacts to be managed.	As outlined in Section 6.2	Implementation of the ESMP (Section 7)
OP4.04 Natural Habitats	This OP is triggered as there may be some disturbances to marine ecosystems.	A) Cable laying activities in near shore areas could cause damage to live coral resulting in unstable positioning of the cable. B) The laying of the cable in the marine environment will result in the loss of a small area of habitat specifically, seagrasses which provide habitat for juvenile fish species and benthic invertebrates.	A) Use diver and/or marker buoy guided cable placement and post lay surveys to ensure that the cable comes to rest on the sea floor in the wide channels identified through field surveys. B) No mitigation possible, loss of some seagrass areas are likely, however, the cable will either be buried during construction or the cable will bury itself in soft sediments over time. Seagrass
OP 4.11 Physical and Cultural Resources	This OP is triggered as a precaution. There are no known physical or cultural resources within the project impact area but chance find mitigations are recommended.	Disturbance of physical & cultural resources	Any physical or cultural resources, as defined in WB OP4.11 that are discovered by chance during the course of the project development will be covered by the chance find procedures.

Table 8B: Evaluation of ESIA elements against ADB Safeguard Requirements – Environment (from Appendix 1 of ADB 2009)

ADB SPS Environmental Requirement	Reference to this ESIA
1. Environmental Assessment	
4. …At an early stage of project preparation, the borrower/client will identify potential direct, indirect, cumulative and induced environmental impacts on and risks to physical, biological, socioeconomic, and physical cultural resources and determine their significance and scope, in consultation with stakeholders, including affected people and concerned NGOs. If potentially adverse environmental impacts and risks are identified, the borrower/client will undertake an environmental assessment as early as possible in the project cycle. For projects with potentially significant adverse impacts that are diverse, irreversible, or unprecedented, the borrower/client will examine alternatives to the project's location, design, technology, and components that would avoid, and, if avoidance is not possible, minimize adverse environmental impacts and risks. The rationale for selecting the particular project location, design, technology, and components will be properly documented, including, cost-benefit analysis, taking environmental costs and benefits of the various alternatives considered into account. The "no project" alternative will be also considered.	Addressed throughout this ESIA
5. The assessment process will be based on current information, including an accurate project description, and appropriate environmental and social baseline data; … will consider all potential impacts and risks of the project on physical, biological, socioeconomic (occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media and physical cultural resources in an integrated way. The project's potential environmental impacts and risks will be reviewed against the requirements presented in this document and applicable laws and regulations of the jurisdictions in which the project operates that pertain to environmental matters, including host country obligations under international law.	Addressed throughout this ESIA
6. Impacts and risks will be analyzed in the context of the project's area of influence. This area of influence encompasses (i) the primary project site(s) and related facilities that the borrower/client (including its contractors) develops or controls, such as power transmission corridors, pipelines, canals, tunnels, access roads, borrow pits and disposal areas, and construction camps; (ii) associated facilities that are not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project; (iii) areas and communities potentially affected by cumulative impacts from further planned development of the project, other sources of similar impacts in the geographical area, any existing project or condition, and other project-related developments that are realistically defined at the time the assessment is undertaken; and (iv) areas and communities potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a	The Area of Project Influence is described in Section 4. Baseline data

different location. The area of influence does not include potential impacts that might occur without the project or independently of the project. Environmental impacts and risks will also be analyzed for all relevant stages of the project cycle, including preconstruction, construction, operations, decommissioning, and postclosure activities such as rehabilitation or restoration.	
7. The assessment will identify potential transboundary effects, such as air pollution, increased use or contamination of international waterways, as well as global impacts, such as emission of greenhouse gases and impacts on endangered species and habitats.	Refer Section 6.7.3.
8. The environmental assessment will examine whether particular individuals and groups may be differentially or disproportionately affected by the project's potential adverse environmental impacts because of their disadvantaged or vulnerable status, in particular, the poor, women and children, and Indigenous Peoples. Where such individuals or groups are identified, the environmental assessment will recommend targeted and differentiated measures so that adverse environmental impacts do not fall disproportionately on them.	Refer Sections 6.3 and 6.4
9. Depending on the significance of project impacts and risks, the assessment may comprise a full-scale environmental impact assessment (EIA) for category A projects, an initial environmental examination (IEE) or equivalent process for category B projects, or a desk review. An EIA report includes the following major elements: (i) executive summary, (ii) description of the project, (iii) description of the environment (with comprehensive baseline data), (iv) anticipated environmental impacts and mitigation measures, (v) analysis of alternatives, (vi) environmental management plan(s), (vii) consultation and information disclosure, and (viii) conclusion and recommendations. The annex to this appendix provides further details. An IEE, with its narrower scope, may be conducted for projects with limited impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.	This ESIA was addressed as a full-scale ESIA
10. When the project involves existing activities or facilities, relevant external experts will perform environmental audits to determine the existence of any areas where the project may cause or is causing environmental risks or impacts. If the project does not foresee any new major expansion, the audit constitutes the environmental assessment for the project. A typical environmental audit report includes the following major elements: (i) executive summary; (ii) facilities description, including both past and current activities; (iii) summary of national, local, and any other applicable environmental laws, regulations, and standards; (iv) audit and site investigation procedure; (v) findings and areas of concern; and (vi) corrective action plan that provides the appropriate corrective actions for each area of concern, including costs and schedule.	Not relevant
11. When the project involves the development of or changes to policies, plans, or programs that are likely to have significant environmental impacts that are regional or sectoral, strategic environmental assessment will be required. A strategic environmental assessment report will include (i) an analysis of the scenario, (ii) an assessment of long-term and indirect impacts, (iii) a description of the consultation process, and (iv) an explanation of option selection.	Not relevant

2. Environmental Planning and Management	
12. The borrower/client will prepare an environmental management plan (EMP) that addresses the potential impacts and risks identified by the environmental assessment. The EMP will include the proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the project is designed, constructed, and operated in compliance with applicable laws and regulations and meets the requirements specified in this document. The level of detail and complexity of the environmental planning documents and the priority of the identified measures and actions will be commensurate with the project's impacts and risks. Key considerations include mitigation of potential adverse impacts to the level of "no significant harm to third parties", the polluter pays principle, the precautionary approach, and adaptive management.	Section 8 ESMP
13. If some residual impacts are likely to remain significant after mitigation, the EMP will also include appropriate compensatory measures (offset) that aim to ensure that the project does not cause significant net degradation to the environment. Such measures may relate, for instance, to conservation of habitat and biodiversity, preservation of ambient conditions, and greenhouse gas emissions. Monetary compensation in lieu of offset is acceptable in exceptional circumstances, provided that the compensation is used to provide environmental benefits of the same nature and is commensurate with the project's residual impact.	Not relevant
14. The EMP will define expected outcomes as measurable events to the extent possible and will include performance indicators or targets that can be tracked over defined periods. It will be responsive to changes in project design, such as a major change in project location or route, or in technology, unforeseen events, and monitoring results.	Section 8 ESMP and Appendix 7 Environmental Mitigation (ESMiT) and Monitoring (ESMoT) Tables
15. At times, a third party's involvement will influence implementation of the EMP. A third party may be, inter alia, a government agency, a contractor, or an operator of an associated facility. When the third-party risk is high and the borrower/client has control or influence over the actions and behavior of the third party, the borrower/client will collaborate with the third party to achieve the outcome consistent with the requirements for the borrower/client. Specific actions will be determined on a case-by-case basis.	Not relevant
16. The borrower/client will use qualified and experienced experts to prepare the environmental assessment and the EMP. For highly complex and sensitive projects, independent advisory panels of experts not affiliated with the project will be used during project preparation and implementation.	ESIA meets this criterion.
3. Information Disclosure	

17. The borrower/client will submit to ADB the following documents for disclosure on ADB's website: I. a draft full EIA (including the draft EMP) at least 120 days prior to ADB Board consideration, and/or environmental assessment and review frameworks before project appraisal, where applicable; II. the final EIA/IEE; III. a new or updated EIA/IEE and corrective action plan prepared during project implementation, if any; and IV. the environmental monitoring reports.	Will be complied with. Refer to reporting processes in Section 8.6.
18. The borrower/client will provide relevant environmental information, including information from the documents in para. 17 in a timely manner, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.	ESIA will be publically disclosed.
4. Consultation and Participation	
19. The borrower/client will carry out meaningful consultation with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation. …Consultation will be carried out in a manner commensurate with the impacts on affected communities. The consultation process and its results are to be documented and reflected in the environmental assessment report.	Section 7 of ESIA
5. Grievance Redress Mechanism	
20. The borrower/client will establish a mechanism to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the project's environmental performance. The grievance mechanism should be scaled to the risks and adverse impacts of the project. It should address affected people's concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and	Section 9 of ESIA
6. Monitoring and Reporting	
21. The borrower/client will monitor and measure the progress of implementation of the EMP. The extent of monitoring activities will be commensurate with the project's risks and impacts. In addition to recording information to track performance, the borrower/client will undertake inspections to verify compliance with the EMP and progress toward the expected outcomes. For projects likely to have significant adverse environmental impacts, the borrower/client will retain qualified and experienced external experts or qualified NGOs to verify its monitoring information. The borrower/client will document monitoring results, identify the necessary corrective actions, and reflect them in a corrective action plan. The borrower/client will implement these corrective actions and follow up on these actions to ensure their effectiveness.	Section 8.5 of ESIA

22. The borrower/client will prepare periodic monitoring reports that describe progress with implementation of the EMP and compliance issues and corrective actions, if any. The borrower/client will submit at least semiannual monitoring reports during construction for projects likely to have significant adverse environmental impacts, and quarterly monitoring reports for highly complex and sensitive projects. For projects likely to have significant adverse environmental impacts during operation, reporting will continue at the minimum on an annual basis. Such periodic reports will be posted in a location accessible to the public. Project budgets will reflect the costs of monitoring and reporting requirements.	Appendix 7 - Environmental Mitigation (ESMiT) and Monitoring (ESMoT) Tables
7. Unanticipated Environmental Impacts	
23. Where unanticipated environmental impacts become apparent during project implementation, the borrower/client will update the environmental assessment and EMP or prepare a new environmental assessment and EMP to assess the potential impacts, evaluate the alternatives, and outline mitigation measures and resources to address those impacts.	Section 8 ESMP
8. Biodiversity Conservation and Sustainable Natural Resource Management	
24. The borrower/client will assess the significance of project impacts and risks on biodiversity and natural resources as an integral part of the environmental assessment process specified in paras. 4–10. The assessment will focus on the major threats to biodiversity, which include destruction of habitat and introduction of invasive alien species, and on the use of natural resources in an unsustainable manner. The borrower/client will need to identify measures to avoid, minimize, or mitigate potentially adverse impacts and risks and, as a last resort, propose compensatory measures, such as biodiversity offsets, to achieve no net loss or a net gain of the affected biodiversity.	Section 6.2 General Environment
a. Modified Habitats	
25. In areas of modified habitat, where the natural habitat has apparently been altered, often through the introduction of alien species of plants and animals, such as in agricultural areas, the borrower/client will exercise care to minimize any further conversion or degradation of such habitat, and will, depending on the nature and scale of the project, identify opportunities to enhance habitat and protect and conserve biodiversity as part of project operations.	Not relevant – not modified habitats – impacts are no more than minor.
b. Natural Habitats	
26. Mitigation measures will be designed to achieve at least no net loss of biodiversity. They may include a combination of actions, such as postproject restoration of habitats, offset of losses through the creation or effective conservation of ecologically comparable areas that are managed for biodiversity while respecting the ongoing use of such biodiversity by Indigenous Peoples or traditional communities, and compensation to direct users of biodiversity.	Not considered to apply – impacts are no more than minor.
c. Critical Habitats	

27. No project activity will be implemented in areas of critical habitat unless the following requirements are met …:	Not considered to apply – no critical habitats - impacts are no more than minor.
28. When the project involves activities in a critical habitat, the borrower/client will retain qualified and experienced external experts to assist in conducting the assessment.	Not considered to apply – no critical habitats - impacts are no more than minor
d. Legally Protected Areas	
29. In circumstances where some project activities are located within a legally protected area, in addition to the requirement specified in para. 28, the borrower/client will meet the following requirements …:	Not considered to apply – no relationship with legally protected areas - impacts are no more than minor.
e. Invasive Alien Species	
30. The borrower/client will not intentionally introduce any new alien species …	Section 6.2 General Environment in Section 6 Anticipated Impacts
f. Management and Use of Renewable Natural Resources	
31. Renewable natural resources will be managed in a sustainable manner….	Not relevant – not dealing with renewable natural resources.
9. Pollution Prevention and Abatement	
32. During the design, construction, and operation of the project the borrower/client will apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards….	Appendix 7 - Environmental Mitigation (ESMiT) Tables
a. Pollution Prevention, Resource Conservation, and Energy Efficiency	
33. The borrower/client will avoid, or where avoidance is impossible, will minimize or control the intensity or load of pollutant emission and discharge. In addition the borrower/client will examine and incorporate in its operations resource conservation and energy efficiency measures consistent with the principles of cleaner production…	Appendix 7 - Environmental Mitigation (ESMiT) Tables
b. Wastes	
34. The borrower/client will avoid, or where avoidance is not possible, will minimize or control the generation of hazardous and nonhazardous wastes and the release of hazardous materials resulting from project activities. … When waste disposal is conducted by third parties, the borrower/client will use contractors that are reputable and legitimate enterprises licensed by the relevant regulatory agencies.	Section 3.1 Project Components

c. Hazardous Materials	
35. The borrower/client will avoid the manufacture, trade, and use of hazardous substances and materials subject to international bans or phaseouts because of their high toxicity to living organisms, environmental persistence, potential for bioaccumulation, or potential for depletion of the ozone layer and will consider the use of less hazardous substitutes for such chemicals and materials.	Section 3.1 Project Components
d. Pesticide Use and Management	
36. The environmental assessment will ascertain that any pest and/or vector management activities related to the project are based on integrated pest management approaches and aim to reduce reliance on synthetic chemical pesticides in agricultural and public health projects.	Section 6.2 General Environment in Section 6 Anticipated Impacts
37. The borrower/client will not use products that fall in World Health Organization Recommended Classification of Pesticides by Hazard Classes Ia (extremely hazardous) and Ib (highly hazardous) or Class II (moderately hazardous), if the project host country lacks restrictions on distribution and use of these chemicals, or if they are likely to be accessible to personnel without proper training, equipment, and facilities to handle, store, apply and dispose of these products properly. The borrower/client will handle, store, apply and dispose of pesticides in accordance with international good practice such as the Food and Agricultural Organization's International Code of Conduct on the Distribution and Use of Pesticides	
e. Greenhouse Gas Emissions	
38. The borrower/client will promote the reduction of project-related anthropogenic greenhouse gas emissions in a manner appropriate to the nature and scale of project operations and impacts. ….	Section 6.2 General Environment in Section 6 Anticipated Impacts
10. Health and Safety	
a. Occupational Health and Safety	
39. The borrower/client will provide workers with a safe and healthy working environment, taking into account risks inherent to the particular sector and specific classes of hazards in the borrower's/client's work areas, including physical, chemical, biological, and radiological hazards. The borrower/client will take steps to prevent accidents, injury, and disease arising from, associated with, or occurring during the course of work by (i) identifying and minimizing, so far as reasonably practicable, the causes of potential hazards to workers; (ii) providing preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (iii) providing appropriate equipment to minimize risks and requiring and enforcing its use; (iv) training workers and providing them with appropriate incentives to use and comply with health and safety procedures and protective equipment; (v) documenting and reporting occupational accidents, diseases, and incidents; and (vi) having emergency prevention, preparedness, and response arrangements in place.	Appendix 7 - Environmental Mitigation (ESMiT) Tables

40. The borrower/client will apply preventive and protective measures consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety Guidelines.	
b. Community Health and Safety	
41. The borrower/client will identify and assess the risks to, and potential impacts on, the safety of affected communities during the design, construction, operation, and decommissioning of the project, and will establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts. These measures will favor the prevention or avoidance of risks and impacts over their minimization and reduction. …	Section 6.3 and 6.4 of ESIA.
42. The borrower/client will inform affected communities of significant potential hazards in a culturally appropriate manner. The borrower/client will be prepared to respond to accidental and emergency situations. This preparation will include response planning document(s) that addresses the training, resources, responsibilities, communications, procedures, and other aspects required to respond effectively to emergencies associated with project hazards. Appropriate information about emergency preparedness and response activities, resources, and responsibilities will be disclosed to affected communities.	Section 7 of this ESIA
43. When structural elements or components, such as dams, tailings dams, or ash ponds, are situated in high-risk locations and their failure or malfunction may threaten the safety of communities, the borrower/client will engage qualified and experienced experts, separate from those responsible for project design and construction, to conduct a review as early as possible in project development and throughout project design, construction, and commissioning.	Not relevant – Project does not involve such elements
11. Physical Cultural Resources [44-48]	Not relevant – Project does not affect PCRs – see Section 6.4 of ESIA

Table 8C: Evaluation of ESIA elements against ADB Safeguard Requirements – Involuntary Resettlement - Appendix 2 of ADB 2009

Safeguard Requirements 2: Involuntary Resettlement	Reference to this ESIA
A. Introduction	
1. …. ADB …seeks to avoid involuntary resettlement wherever possible; minimize involuntary resettlement by exploring project and design alternatives; enhance, or at least restore, the livelihoods of all displaced persons in real terms relative to pre-project levels; and improve the standards of living of the affected poor and other vulnerable groups. Note: In the context of involuntary resettlement, displaced persons are those who are physically displaced (relocation, loss of residential land, or loss of shelter) and/or economically displaced (loss of land, assets, access to assets, income sources, or means of livelihoods) as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas.	As noted in Section 2.5.3 of this ESIA, all land acquisition associated with the project will be voluntary. The location of the cable can be changed to accommodate voluntary land acquisition. The land due diligence study (see Appendix 3) indicates that there are several suitable Government owned or leased sites available for the location of infrastructure, none of which will cause any involuntary resettlement. If private or custom-owned land is required, this will be acquired voluntarily, using lease or easement arrangements. It therefore appears that this safeguard policy requirement is not triggered. For the avoidance of doubt, each relevant requirement of these involuntary resettlement safeguard requirements is reviewed against the ESIA below.
B. Scope of Application	
3. The requirements apply to all ADB-financed and/or ADB-administered sovereign and non-sovereign projects, and their components regardless of the source of financing, including investment projects funded by a loan; and/or a grant; and/or other means, such as equity and/or guarantees (hereafter broadly referred to as projects). The requirements also cover involuntary resettlement actions conducted by the borrower/client in anticipation of ADB support.	Applies to Nauru elements of Project

Safeguard Requirements 2: Involuntary Resettlement	Reference to this ESIA
4. The involuntary resettlement requirements apply to full or partial, permanent or temporary physical displacement (relocation, loss of residential land, or loss of shelter) and economic displacement (loss of land, assets, access to assets, income sources, or means of livelihoods) resulting from (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas. Resettlement is considered involuntary when displaced individuals or communities do not have the right to refuse land acquisition that results in displacement. This occurs in cases where (i) lands are acquired through expropriation based on eminent domain; and (ii) lands are acquired through negotiated settlements, if expropriation process would have resulted upon the failure of negotiation. Note: In the context of involuntary resettlement, displaced persons are those who are physically displaced (relocation, loss of residential land, or loss of shelter) and/or economically displaced (loss of land, assets, access to assets, income sources, or means of livelihoods) as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas.	There is no: (i) involuntary acquisition of land, nor are there (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas. Therefore the ADB involuntary resettlement safeguard requirements are not triggered.
5. If potential adverse economic, social, or environmental impacts from project activities other than land acquisition (including involuntary restrictions on land use, or on access to legally designated parks and protected areas) are identified, such as loss of access to assets or resources or restrictions on land use, they will be avoided, or at least minimized, mitigated, or compensated for, through the environmental assessment process. If these impacts are found to be significantly adverse at any stage of the project, the borrower/client will be required to develop and implement a management plan to restore the livelihood of affected persons to at least pre-project level or better.	No significant adverse impacts on land access in areas other than legally designated parks and protected areas are identified. Section 6.2.2 of the ESIA identifies that there will be temporary restrictions on costal use (fishing) during the very brief duration of installation. Otherwise, interference with marine and coastal environmental will be less than minor.
C. Requirements	
1. Compensation, Assistance and Benefits for Displaced Persons	
7. Displaced persons in a project area could be of three types: (i) persons with formal legal rights to land lost in its entirety or in part; (ii) persons who lost the land they occupy in its entirety or in part who have no formal legal rights to such land, but who have claims to such lands that are recognized or recognizable under national laws; and (iii) persons who lost the land they occupy in its entirety or in part who have neither formal legal rights nor recognized or recognizable claims to such land. The involuntary resettlement requirements apply to all three types of displaced persons.	The Project does not involve any displaced persons as defined.
8. The borrower/client will provide adequate and appropriate replacement land and structures or	Not relevant see 7 above

Safeguard Requirements 2: Involuntary Resettlement	Reference to this ESIA
cash compensation for parties described in paras. 7(i) and 7(ii) and 7(iii) ….	
9. Preference will be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based…	Not relevant see 7 above
10. The rate of compensation for acquired housing, land and other assets will be calculated at full replacement costs….	Not relevant see 7 above
11. In the case of physically displaced persons, the borrower/client will provide (i) relocation assistance, secured tenure to relocation land, better housing at resettlement sites with comparable access to employment and production opportunities, and civic infrastructure and community services as required; (ii) transitional support and development assistance, such as land development, credit facilities, training, or employment opportunities; and (iii) opportunities to derive appropriate development benefits from the project.	No physical displacement – see 7 above
12. In the case of economically displaced persons, regardless of whether or not they are physically displaced, the borrower/client will ……	No economic displacement – see 7 above
13. Involuntary resettlement should be conceived of and executed as part of a development project or program.	Not relevant see 7 above
14. The borrower/client will ensure that no physical displacement or economic displacement will occur until [various specific requirements are met].	Not relevant see 7 above
2. Social Impact Assessment	
15. The borrower/client will conduct socioeconomic survey(s) and a census, with appropriate socioeconomic baseline data to identify all persons who will be displaced by the project and to assess the project's socioeconomic impacts on them. For this purpose, normally a cut-off date will be established by the host government procedures. In the absence of such procedures, the borrower/client will establish a cut-off date for eligibility. Information regarding the cutoff date will be documented and disseminated throughout the project area. The social impact assessment (SIA) report will include (i) identified past, present and future potential social impacts, (ii) an inventory of displaced persons and their assets, (iii) an assessment of their income and livelihoods, and (iv) gender-disaggregated information pertaining to the economic and sociocultural conditions of displaced persons. The project's potential social impacts and risks will be assessed against the requirements presented in this document and applicable laws and regulations of the jurisdictions in which the project operates that pertain to involuntary resettlement matters, including host country obligations under international law.	The procedure adopted in this ESIA is described in Section 7 and Appendix 5 of the ESIA. The chosen methodology was a targeted survey approach involving direct consultation with the limited number of potentially impacted parties, and recognition that impacts would be no more than minor and then only during the short duration of cable installation (see Section 6.2.2 of ESIA). A census was not undertaken as part of this programme because it was recognised very early on that the Project did not involve involuntary displacement as defined in the SPS Requirement.
16. As part of the social impact assessment, the borrower/client will identify individuals and groups who may be differentially or disproportionately affected by the project because of their disadvantaged or	See consultation records in Appendix 5.

Safeguard Requirements 2: Involuntary Resettlement	Reference to this ESIA
vulnerable status. Where such individuals and groups are identified, the borrower/client will propose and implement targeted measures so that adverse impacts do not fall disproportionately on them and they are not disadvantaged in relation to sharing the benefits and opportunities resulting from development.	
3. Resettlement Planning	
17. The borrower/client will prepare a resettlement plan, if the proposed project will have involuntary resettlement impacts.	No resettlement plan needed – the project does not involve involuntary resettlement impacts.
18. A resettlement plan will be based on the social impact assessment and through meaningful consultation with the affected persons.	Not relevant see 16 above
19. The borrower/client will analyze and summarize national laws and regulations pertaining to land acquisition, compensation payment, and relocation of affected persons in the resettlement plan.	Not relevant – no relocation of affected persons
20. All costs of compensation, relocation, and livelihood rehabilitation will be considered project costs.	Not relevant – no relocation of affected persons or need for livelihood restoration,
21. The borrower/client will include detailed measures for income restoration and livelihood improvement of displaced persons in the resettlement plan.	No resettlement plan needed – the project does not involve involuntary resettlement impacts.
22. The information contained in a resettlement plan may be tentative until a census of affected persons has been completed.	No resettlement plan needed – the project does not involve involuntary resettlement impacts
23. Projects with significant involuntary resettlement impacts will need adequate contingency funds to address involuntary resettlement impacts that are identified during project implementation.	Not relevant – the project does not involve involuntary resettlement impacts.
24. The borrower/client will use qualified and experienced experts to prepare the social impact assessment and the resettlement plan.	ESIA preparation undertaken using independent experienced and qualified experts.
4. Negotiated Land Acquisition	
25. Safeguard Requirements 2 does not apply to negotiated settlements, unless expropriation would result upon the failure of negotiations.	Not relevant – the project does not involve involuntary resettlement impacts.

Safeguard Requirements 2: Involuntary Resettlement	Reference to this ESIA
5. Information Disclosure	
26. The borrower/client will submit the following documents to ADB for disclosure on ADB's website: (i) a draft resettlement plan and/or resettlement framework endorsed by the borrower/client before project appraisal; (ii) the final resettlement plan endorsed by the borrower/client after the census of affected persons has been completed; (iii) a new resettlement plan or an updated resettlement plan, and a corrective action plan prepared during project implementation, if any; and (iv) the resettlement monitoring reports.	No resettlement plan needed – the project does not involve involuntary resettlement impacts. .
27. The borrower/client will provide relevant resettlement information, including information from the documents in para. 26 in a timely manner…...	No resettlement plan needed – the project does not involve involuntary resettlement impacts.
6. Consultation and Participation	
28. The borrower/client will conduct meaningful consultation with affected persons, their host communities, and civil society for every project and subproject identified as having involuntary resettlement impacts…..	Effective and proper consultation was undertaken to provide an appropriate basis for this ESIA.
7. Grievance Redress Mechanism	
29. The borrower/client will establish a mechanism to receive and facilitate the resolution of affected persons' concerns and grievances about physical and economic displacement and other project impacts, paying particular attention to the impacts on vulnerable groups. The grievance redress mechanism should be scaled to the risks and adverse impacts of the project….	See Section 9 of the ESIA
8. Monitoring and Reporting	
30. The borrower/client will monitor and measure the progress of implementation of the resettlement plan. The extent of monitoring activities will be commensurate with the project's risks and impacts….	No resettlement plan needed – the project does not involve involuntary resettlement impacts. Ongoing social impact monitoring is proposed in Appendix 7 Table 7.2 of the ESIA.
31. The borrower/client will prepare semiannual monitoring reports that describe the progress of the implementation of resettlement activities and any compliance issues and corrective actions.	No resettlement plan needed – the project does not involve involuntary resettlement impacts. Ongoing social impact monitoring is proposed in

Safeguard Requirements 2: Involuntary Resettlement	Reference to this ESIA
	Appendix 7 Table 7.2 of the ESIA.
9. Unanticipated Impacts	
32. If unanticipated involuntary resettlement impacts are found during project implementation, the borrower/client will conduct a social impact assessment and update the resettlement plan or formulate a new resettlement plan covering all applicable requirements specified in this document.	See Appendix 7 Table 7.2 of the ESIA.
10. Special Considerations for Indigenous Peoples	
33. The borrower/client will explore to the maximum extent possible alternative project designs to avoid physical relocation of Indigenous Peoples that will result in adverse impacts on their identity, culture, and customary livelihoods…..	There will be no relocation of any parties as a consequence of the Project.