

# FEDERATED STATES OF MICRONESIA MARITIME INVESTMENT PROJECT

## Environmental and Social Management Framework and Environmental and Social Management Plan

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## Acronyms and Abbreviations

AGs	Attorney General
CIU	Central Implementation Unit
CoC	Chain of Custody
CSDMP	Contaminated Soil Disposal Management Plan
CITES	<i>Convention on International Trade in Endangered Species of Wild Flora and Fauna</i>
DoFA	Department of Finance and Administration
DoTCI	Department of Transportation, Communication and Infrastructure
EPA	Environmental Protection Agency
EEZ	Exclusive Economic Zone
EHS	Environmental Health and Safety
EIA	Environmental Impact Statement
EDSCP	Erosion, Drainage and Sediment Control Management Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FSM	Federated States of Micronesia
FSMMIP	Federated States of Micronesia Maritime Investment Project
GRM	Grievance Redress Mechanism
HMTC	Harmonized Minimum Terms and Conditions
HT	Human Trafficking
IAS	Invasive Alien Species
ISPS	International Ship and Port Facility Security Code
IUU	Illegal, Unreported and Unregulated
MSC	Marine Stewardship Council
NORMA	National Oceanic Resource Management Authority
NPDES	National Pollutant Discharge Elimination System
OHS	Occupational Health and Safety
ORP	Oxidation-Reduction Potential

PAE	Party Allowable Effort
PNA	Parties to the Nauru Agreement
PM	Particulate Matter
PMU	Project Management Unit
PPA	Project Preparation Advance
PEIS	Preliminary Environmental Impact Statement
PSCP	Port Spill Contingency Plan
SAR	Search and Rescue
SEP	Stakeholder Engagement Plan
SIDS	Small Island Developing States
SOP	Standard Operating Procedures
TEU	Twenty-foot Equivalent Units
TAE	Total Allowable Effort
TVPA	<i>Victims of Trafficking and Violence Protection Act of 2000 – USA Law</i>
µm	Microns
UXO	Unexploded Ordinance
VDS	Vessel Days Scheme
WB	World Bank
WCPO	Western and Central Pacific Ocean
WHO	World Health Organization
WWF	World Wildlife Fund

**WEIGHTS AND MEASURES**

m-		meter
m <sup>2</sup>	-	square meter
m <sup>3</sup>	-	cubic meter
mm	-	millimeter
Foot		= 25.4mm
Mile		=1.61 km
Nautical mile		=1.852km

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## How to Use this Document

This Environment and Social Management Framework (ESMF) is for the Federate States of Micronesia Maritime Investment Project (FSMMIP). It was prepared by the ESIA Consult Pty Ltd, the Department of Transport, Communications and Infrastructure (DoTCI) and the relevant Port Authorities.

The ESMF was developed as part of the preparatory documentation for the FSMMIP, to provide guidance for the FSM Implementing Agency (DoTCI) and the Central Implementation Unit (CIU) on environmental and social safeguard aspects of the Project.

The ESMF sets out how the safeguards aspects of the FSMMIP will be applied during the identification and where necessary, screening of all sub-project activities, and in their subsequent design and implementation.

The ESMF will also inform the development of the Project Operations Manuals (POM) and the preparation of the required safeguard tools and instruments for selected priority sub-projects to be funded under the FSMMIP.

The ESMF applies to the entire project.

## EXECUTIVE SUMMARY

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The Government of the Federated States of Micronesia (FSM) is applying to the World Bank (WB) for grant financing to undertake the "*Federated States of Micronesia Maritime Investment Project*" (FSMMIP). The FSMMIP will improve the safety, efficiency and climate resilience of maritime infrastructure and operations in the four states of FSM in compliance with the International Ship and Port Facility Security (ISPS) Code to ensure safety and security arounds its port.

As part of the requirements of the submission to the World Bank, the Government of FSM is required to prepare environmental and social safeguards documentation as part of the Project Preparation Advance (PPA) stage. The FSMMIP has been categorized as a Category B (Moderate) project consistent with the World Bank Safeguards Policies. To fulfil the requirements of the World Bank, the Government of FSM has prepared this Environmental and Social Management Framework (ESMF) and Environmental and Social Management Plan (ESMP) in support of a FSMMIP proposal.

This Environmental and Social Management Framework, (ESMF), provides the tools for the integration of environmental and social stewardship into the project as required by the FSM and State relevant laws and regulations and the Environmental and Social Safeguards Policies of the World Bank (WB). The ESMF is a necessary instrument for the FSM's preparation for the FSMMIP under World Bank Policy OP4.01 Environmental Assessment because the specific subprojects/activities for implementation are not yet known.

### Project Objectives and Components

The FSMMIP will improve the safety, efficiency and climate resilience of maritime infrastructure and operations in the FSM in compliance with the International Ship and Port Facility Security (ISPS) Code to ensure safety and security arounds its port.

The project has four main components, these being:

The main component of the project is activity one, which is the levelling, subbase, drainage and pavement works at the four main ports. As described in Section 3.1, all ports have a component of hard substrate (concrete) immediately adjacent to the wharf itself; however, the majority of the port, specifically the container yard is uneven dirt where flooding can occur. This activity will involve developing a hard stand for the container yard which will significantly improve usage particularly during wet periods of the year.

Further, Component One also includes the:

- a. Leveling, subbase, drainage and hardening of primary terminal storage areas;
- b. Rehabilitation of utilities related to water supply, sewerage and power supply in container storage areas; and
- c. Upgrading terminal superstructure, such as buildings and facilities in the primary cargo handling area, warehousing, reefer connections, incorporating environmental protective measures in works, and increasing energy efficiency.

Component Two (2) will improve maritime safety and security, which will strengthen connectivity between the FSM States and outer islands, and facilitate access to food, water, fuel and emergency response services:

- a. Repair quay furniture including but not limited to structures, piling, fenders, bollards, ladders etc at the main ports;
- b. Upgrade fencing, gates, lights, back-up generators, CCTV systems to comply with ISPS requirements;
- c. Replace/upgrade Aids to Navigation - Based on a condition survey of existing Aids to Navigation, practical measures will be implemented to improve navigational safety. It is expected that Aids to Navigation would be repaired, installed and/or upgraded for all principal ports in the four states, including fixed, floating or virtual/electronic Aids to Navigation, and leading lights;
- d. Spill Kits for the four principal ports and 150m containment boom system for Pohnpei Port;
- e. Assess options and measures to counter trafficking in persons, including elevating awareness. This sub-component will review and assess options and measures to counter trafficking of persons and will propose steps FSM could take to comply with the minimum standards under the U.S. TVPA. As part of this sub-component, a gender assessment was undertaken, and this will lead into the implementation of the gender-based violence and trafficking prevention action plan; and
- f. Provide Search and Rescue (SAR) equipment and safety devices. This would include: (i) financing of equipment and safety devices to enhance communications networks, both onshore and onboard, erecting durable pictorial signs with key water safety messages in the local language on key outer islands and waterways, data storage systems; and, (ii) support for initiatives to elevate public awareness about safe boating practices and provide basic safety devices, such as radar reflectors and safety gear (personal flotation devices, etc.), for small domestic fishing craft.



Component Three (3) will support technical assistance to strengthen oversight and management of port facilities, improve the coordination of emergency response systems, elevate awareness of SAR awareness and ISPS requirements, and implement project activities. The following sub-components are proposed:

- a. Prepare designs and supervise maritime infrastructure works. Prepare climate resilient designs and supervise maritime infrastructure works to be carried out under the project;
- b. Maritime Sector Planning:
  - i. Review of institutional and governance structures including policies, legislation, institutional arrangements, and roles and responsibilities of principle stakeholders involved in the maritime sector, nationally and from state perspectives. The review will recommend ways to strengthen oversight and streamline coordination, particularly around key areas of concern including climate resilience, safety and security;
  - ii. Port strategic planning including developing strategic plans for each state's main port, considering both existing and long-term commercial opportunities and likely impacts of climate change and natural disasters. Optimal layouts and configurations of port/cargo yard activities will be identified, as well as key government responsibilities and services for improving operational efficiency and safety;
  - iii. Review of port operations based on analyses of current cargo and container handling facilities and equipment related to international and domestic vessels, including current practices related to security and compliance with ISPS requirements, as well as customs and immigration policies and practices. Forecast future cargo and containers volumes and passenger numbers, including possible commercial opportunities, and assess the financial and environmental sustainability of operations under different scenarios;
  - iv. Assess options to manage maritime waste at port facilities. A study would be carried out to assess options for better management of solid and liquid waste from vessels calling at key ports in FSM as well as waste generated as part of port operations. The study would include a review of handling and storage policies and of processing and recycling processes, to identify opportunities to improve waste management and the potential for developing and operating reception facilities;
  - v. Based on opportunities and needs, and taking into account likely impacts of climate change, prioritize investments and develop preliminary designs for works; and
  - vi. Identify standards and good practices to strengthen and maintain port and terminal infrastructure and assets.
- c. Capacity Building Initiatives. Design and conduct training and specialized technical advisory services to develop local capacity to operate and regulate the sector under a revised governance structure, ensure compliance with ISPS requirements, and better manage SAR;
- d. Outer Island Services and Chuuk Lagoon. Assess options to better organize and strengthen oversight of private vessels operating in Chuuk Lagoon;
- e. Assess and develop employment opportunities for women in the local maritime sector;
- f. Project Management. Provide funding for implementation of the project, including financial support to hire qualified staff to oversee technical aspects of the project, as well as support procurement, financial management, and safeguards. This would include short- or long-term technical and advisory support; and
- g. Emerging Priority Issues which will provide swift response in the event of an Eligible Crisis or Emergency through a portion of the undisbursed project envelope to address immediate post-crisis and emergency financing needs. The Contingent Emergency Response Component may be used following natural disasters or other crises and emergencies, allowing funds to be reallocated from other components of the project.

Component Four (4) Contingent Emergency Response. Component 4 is designed to provide swift response in the event of an Eligible Crisis or Emergency by allowing a portion of undisbursed project funds to be reallocated to respond to natural disasters and/or other crises and emergencies. The CERC may be used following natural disasters or other crises and emergencies, allowing funds to be reallocated from other components of the FSMMIP.

Consumables such as aggregate, cement, steel and other infrastructure fittings will need to be transported to the sites – these materials will need to be imported. The FSMMIP will only use aggregate sourced from licensed quarries on the islands. The FSMMIP will not include the mining of aggregate from marine systems. All sites have reticulated water systems.

Accommodation is relatively limited on some of the islands (Yap and Kosrae), however, the current program of works are unlikely to require significant numbers of off-island workers, so the existing accommodation options (hotels, hostels and guesthouses) should be sufficient and is unlikely to represent an increase in impacts over and above those that already exist.

The activities will be undertaken over a five-year timeframe.

### FSM and State Legislation

The FSMMIP will need to comply with both National and State Laws including relevant environmental laws.

Earthworks associated with any construction activities undertaken in relation to the FSMMIP would likely be deemed to be minor but could require permit and associated Environment and Social Management Plan (ESMP). All workers engaged on the FSMMIP will need to be covered under the terms of the WB EHS Guidelines, which means development of comprehensive job safety analyses (JSAs) for each role, including potential contractors involved in building works. This process will involve development of Safety Management Plans for each position.

### World Bank Safeguard Policies

Initial screening indicates that Environmental Assessment (OP/BP4.01) World Bank Safeguard Policy will be triggered as a result of the Project, requiring the Borrower to prepare the safeguards instruments to guide detailed planning once sub-projects are identified firmly at a later stage of Project planning. This ESMF is an integral part of compliance with this policy. Screening of known activities and those likely to be undertaken has indicates an assessment of Category B for the project. This screening finds that impacts are less significant and that a range of potential measures for mitigation can be readily designed. For unknown activities, further screening, as outlined in this ESMF, will be required to ensure that only Category B or C sub-projects are undertaken as part of the project. No Category A activities can be undertaken under the project

This ESMF follows the protocols set out in OP4.01.

### Significant and Potential Environmental and Social Impacts and Mitigation Measures

The following table summarizes potentially adverse social and environmental impacts identified as a consequence of the FSMMIP, along with associated mitigation measures that are able to be implemented within the scope of the project.

Component / Sub-component	Negative Impacts	
	Negative	Mitigation
<b>Component 1: Maritime Infrastructure Investments</b>		
Leveling, subbase, drainage and hardening of primary terminal storage areas	<p>Hazardous substances and waste management</p> <p>Source of aggregates for construction (sand and gravel)</p> <p>Construction impacts (noise and dust, and disruption) to port users and nearby communities</p> <p>Some port users may object to increased security and more restricted access</p> <p>Occupational injuries or loss of life.</p>	<p>Development of waste management plans</p> <p>Any non-hazardous or contaminated waste shall be disposed of at an approved facility at a licensed and engineered landfill, with appropriate permits and approvals under international treaties such as Waigani. All hazardous waste must be exported for recycling/disposal at licensed facilities.</p> <p>The FSMMIP will only use aggregate sourced from licensed quarries on the islands. The FSMMIP will not include the mining of aggregate from marine systems. If any aggregate is imported, where possible, it will be from Part 1 countries, no further due diligence required; If from Part 2 countries<sup>1</sup>, conduct due diligence on sources to ensure compliance with source government laws and regulations.</p> <p>Constrain working hours and provide adequate warning of works to affected people.</p> <p>Consult widely to ensure limited impacts</p> <p>Implement ESMP to mitigate risks</p>
Rehabilitate utilities related to water supply, sewerage and power supply in	Hazardous substances and waste management	<p>Development of waste management plans</p> <p>Constrain working hours and provide adequate warning of works to affected people</p>

<sup>1</sup> Part II Countries – Developing Countries including potential source PICs such as Palau, Nauru, Solomon Is., Fiji, Kiribati etc.

container storage areas, as required	<p>Construction impacts (noise and dust, and disruption) to port users and nearby communities</p> <p>Some port users may object to increased security and more restricted access</p>	<p>Consult widely to ensure limited impacts</p> <p>Implement ESMP to mitigate risks</p>
Upgrade terminal superstructure, such as buildings and facilities in the primary cargo handling area, warehousing, reefer connections, incorporating environmental protective measures in works, and increasing energy efficiency	<p>Construction impacts (noise and dust, and disruption) to port users and nearby communities</p> <p>Some port users may object to increased security and more restricted access</p>	<p>Development of waste management plans</p> <p>Constrain working hours and provide adequate warning of works to affected people</p> <p>Consult widely to ensure limited impacts</p> <p>Implement ESMP to mitigate risks</p>
<b>Component 2: Maritime Security and Safety Equipment</b>		
Repair quay wall structures and replace quay furniture (fenders, bollards, ladders) in principal ports	<p>Waste management</p> <p>Occupational injuries or loss of life</p> <p>Potential to impact marine environment during construction</p>	<p>Contractors are required to prepare and implement Contractors ESMP, which includes an OHS/JSA manual.</p> <p>All staff must be adequately trained and resourced for the job.</p> <p>Provide barriers to exclude the public from work sites.</p> <p>Implement ESMP to mitigate risks</p>
Upgrade/provide fencing, gates and terminal lighting to ensure compliance with ISPS requirements at Delap, Uliga and Ebeye Docks	<p>Waste production</p> <p>Construction impacts (noise, dust, erosion)</p> <p>Increased power use through lighting</p>	<p>Develop waste management plans</p> <p>Implement ESMP to manage construction impacts</p> <p>Select power efficient lighting, design to optimize efficiency</p>
Replace/upgrade Aids to Navigation (AtoNs)	<p>Potential for environmental impacts during installation</p> <p>Occupational injuries or loss of life</p>	<p>Utilize existing markers / foundations if possible.</p> <p>Ecological survey of marker locations to identify presence of any sensitive habitats.</p> <p>Contractors are required to prepare and implement Contractors ESMP, which includes an OHS/JSA manual.</p> <p>All staff must be adequately trained and resourced for the job.</p>
Oil spill equipment	Ongoing storage, maintenance and training in use of equipment required.	<p>Develop O&amp;M plans. Training programs (including train the trainers)</p> <p>Used spill material is contaminated – waste management plan required</p>
Provide Search and Rescue (SAR)	Need for O&M and ongoing training	Develop O&M plan

equipment and safety devices		Develop training program and undertake SAR drills.
Gender-based Violence and Trafficking Prevention	Cultural resistance to discussing GBV and HT	Design gender sensitive, popular, and culturally appropriate IEC materials Hold workshops to raise awareness Adopt culturally appropriate communication and teaching methods
Assess the benefits of a scanner for Delap Dock	Perceived privacy issues	Raise community awareness
<b>Component 3: Technical Assistance and Project Management</b>		
Prepare design and supervise maritime infrastructure works	Lack of skilled resources Lack of safeguards experience	Recruit and include mentoring component in role. Safeguards Specialist to provide support and capacity building
Review institutional and governance arrangements		
Review port operations	Existing poor practices	Identify poor practices, provide training and rectify
Maritime sector planning	Lack of local experience in Port Master Planning	Recruit consultant and include capacity building role Involve local agencies in process Ensure local 'ownership' in process and outcomes
Capacity building initiatives	DoTCI and the Port Authorities have limited safeguards capacity	Strengthen capacity of Port Authority personnel to undertake safeguard activities. Safeguards Specialist to provide support and act as mentor
Assessment of options to better organize and strengthen oversight of private vessels operating in Chuuk Lagoon.	There are currently about 800 vessels using a small area immediately south of the main port on Weno could impact smaller vessels and cause delays or changes to vessel traffic movement paths during these times	Opportunities to ensure all users have increased safety around the port and inlet. Strengthen capacity of DoTCI and the relevant Chuuk Department of Transport and users in relation to marine transport safety. Involve local agencies in process Ensure local 'ownership' in process and outcomes
Encourage employment opportunities for women	Potential for exploitation Existing gender bias	Ensure compliance with FSM laws and Good International Industry Practice Raise community awareness
Project management	Added demands on low capacity offices and ministries involved in the implementation of the project	Strengthen capacity of designated ministry and/or local government personnel to undertake project activities.
Emerging priority issues	Issues currently unknown	Identify as early as possible Screen potential sub-projects as per ESMF

	Some priorities may have significant impacts	
<b>Component 4: Contingent Emergency Response</b>	Emergencies unknown By nature, emergencies severe Potential for environmental and social impacts associated with responses	Review needs Liaise with broader Government Comply with ESMF, in particular screening of projects and reference to CERC negative list

The FSMMIP has a moderate risk of environmental and social impacts. These include impacts to water quality through sediment movement during construction works, construction of drainage and improvement of port infrastructure. This is likely to have a beneficial impact in the medium to longer term by reducing erosion and thus impacts on water quality. Noise and air quality may also be impacted during these works. Appropriate actions are proposed to deal with these issues. Lighting that is badly designed could cause impacts to marine organisms. Logistically, works will need to be conducted such that there is limited impact on port users.

The FSMMIP does not require any land acquisition and/or resettlement.

Appropriate and relevant avoidance and mitigation options have been proposed in the ESMF and ESMP, which if put in place, will significantly reduce the potential impacts of the FSMMIP to an acceptable level. An Erosion, Drainage and Sediment Control Management Plan and Contaminated Soil Disposal Management Plan has been developed along with Waste Management, Oil Spill and other Management Plans. More importantly, the FSMMIP will have significant environmental and social benefits that will be achieved more generally.

#### Environmental and Social Management Process

The ESMF sets out a process for screening sub-projects during project implementation, based on each sub-project being evaluated according to a predetermined screening process to determine the potential risk of environmental and social impacts, and associated mitigation options.

#### Consultation

Consultation is mandated by OP/BP 4.01; Environment Assessment. Consultation required is a two-way process in which beneficiaries provide advice and input on the design of proposed projects that affect their lives and environment.

The ESMF sets out protocols for stakeholder engagement and grievance redress. An important feature of the FSMMIP is that it is based around an adaptive management approach and therefore explicit feedback and review measures have been incorporated in the stakeholder engagement/grievance redress procedures.

The FSMMIP has developed a Grievance Redress Mechanism to deal with any complaints and issues that may arise as a result of the FSMMIP. The Grievance Redress Mechanism is consistent with FSM and World Bank Safeguard procedures.

#### Institutional Arrangements for Safeguards Implementation

Department of Transport, Communication and Infrastructure (DoTCI) will be responsible for the ESMF and integrating the requirements into the Program. Relevant port authorities will have responsibility for the day-to-day implementation of all safeguard requirements with support from DoTCI.

For the FSMMIP, a Safeguards Advisor will be attached to the Central Implementation Unit (CIU) and with DoTCI and will ensure the effective implementation of the Project ESMF and ESMP.

#### ESMF Capacity Building and Budget

The FSM Government has carried out stakeholder and community consultations during the preparation of the ESMF and has prepared this ESMF to manage the residual social and environmental impacts from the project. The implementing agencies involved do not have specific safeguard policy experience, Department of Transport, Communication and Infrastructure who will deliver the project will include international and local staff dedicated to social and behavior change and advocacy who will have the capacity and capability to implement the consultations and social mitigation measures from the ESMF.

The ESMF provides an indicative budget for implementing the elements of this ESMF, based on best estimates with assumptions of the kind of activities likely to be undertaken in the FSMMIP.

Budgeting for environmental interventions and the application of mitigation measures to enhance positive impacts for FSM is an investment in the future as it will reduce the environmental and social liability at local, and national levels. Overall, the FSMMIP will provide significant environmental and social benefits to the ports and communities.

# 1 INTRODUCTION

1. The Government of the Federated States of Micronesia (FSM) is applying to the World Bank (WB) for grant financing to undertake the "*Federated States of Micronesia Maritime Investment Project*" (FSMMIP). The FSMMIP will improve the safety, efficiency and climate resilience of maritime infrastructure and operations in the four states of FSM in compliance with the International Ship and Port Facility Security (ISPS) Code to ensure safety and security arounds its port.
2. As part of the requirements of the submission to the World Bank, the Government of FSM is required to prepare environmental and social safeguards documentation as part of the Project Preparation Advance (PPA) stage. The FSMMIP has been categorized as a Category B (Moderate) project consistent with the World Bank Safeguards Policies. To fulfil the requirements of the World Bank, the Government of FSM has prepared this Environmental and Social Management Framework (ESMF) and Environmental and Social Management Plan (ESMP) in support of a FSMMIP proposal.

## 1.1 PURPOSE AND SCOPE OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

3. The World Bank is supporting the FSM to deliver the FSMMIP. This ESMF provides for the integration of environmental and social stewardship into the project as required by the Environmental and Social Safeguards Policies of the World Bank. World Bank Policy OP4.01 Environmental Assessment states that: "*For projects involving the preparation and implementation of annual investment plans or subprojects, identified and developed over the course of the project period during the preparation of each proposed subproject, the project coordinating entity or implementing institution carries out appropriate EA according to country requirements and the requirements of OB/BP4.01*".
4. The ESMF is necessary under World Bank Policy OP4.01 Environmental Assessment because the specific sub-projects/activities for implementation are not yet known. The primary purpose of the ESMF is to provide a screening process for activities that are identified during project implementation that were not identified during project preparation.

### 1.1.1 Environmental and Social Management Framework

5. An ESMF is an instrument that examines the issues and impacts associated when a project consists of a program and/or series of sub-projects, and the impacts cannot be determined until the program or sub-project details have been identified.
6. The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social impacts. It contains measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project impacts.
7. The ESMF provides the overarching framework that is to be applied to the FSMMIP. As FSMMIP activities become defined then environmental and social management plans (ESMPs) specific to those activities can be developed, using the ESMF as a basis for risk assessment and mitigation strategies. In this way, the ESMP/s sit beneath the ESMF. A benefit of this approach is:
  - a. multiple ESMPs can be produced within a common framework
  - b. ESMPs can be produced for activities of different sizes (from task size to sub-project size)
  - c. preparation of ESMPs is simplified – there is not the need to repeat all the baseline/background material.
8. The ESMF sets out the following:
  - a. Brief details on the project description and sub-project typologies;
  - b. Screening process for each project element to determine the type of environmental assessment required to satisfy the FSM laws and World Bank safeguard policies;
  - c. Processes for implementation of safeguards during project implementation;
  - d. The integration of policy into the project screening and implementation;
  - e. Description of the implementation arrangements;
  - f. Stakeholder engagement plan and the grievance redress mechanism (GRM); and
  - g. Indicative budget for key safeguards activities.

9. The ESMF has been developed with the following practical theory in mind to assist the Government of FSM with respect to the current FSMMIP and any future port related projects that the Government of FSM and individual States may seek to develop:
  - a. known known - these are activities we know we know (see Section 0). For these activities, the project will rely on both the ESMF and more specifically the ESMP;
  - b. Known unknowns - these are activities we know but there are things we do not know about these activities with respect to potential environmental and social issues. For these activities, the integration of the ESMF and a potentially modified ESMP will be critical for future planning;
  - c. Unknown knowns- these are activities we don't know about yet, e.g. they have not been contemplated; however, when identified, the project partners will know the likely environmental and social issues and can be assess these using the ESMF and existing ESMP; and
  - d. Unknown unknowns - the activities we don't know anything about yet and that are likely to be outside the current FSMMIP but once known, can be considered against the process establish.

#### 1.1.2 Environmental and Social Management Plan

10. An ESMP is a management tool used to assist in minimizing the impact to the environment and socially; and establish a set of environmental and social objectives for specific known activities. To ensure the environmental and social objectives of the FSMMIP are met, the ESMP will be used by the project implementers to structure and control the environmental and social management safeguards that are required to avoid or mitigate adverse effects on the environment and communities.
11. The ESMP will be updated from time to time by DoTCI and the contractors in consultation with the Safeguards Advisor to incorporate changes in the detailed design phase of the FSMMIP.

## 2 BACKGROUND AND RATIONALE

### 2.1 COUNTRY CONTEXT

13. The FSM is located near the equator about 4,000 km southwest of the Hawaiian Islands in the Western Pacific Ocean and within the Caroline Islands group. The largest nation in the Micronesian sub-region, the FSM, is made up of four semi-autonomous states (Chuuk, Kosrae, Pohnpei, and Yap) located between Palau and the Philippines to the west and the Marshall Islands to the east.
14. The FSM is made up of 607 islands scattered over an area of about 2.6 million km<sup>2</sup>, including its Exclusive Economic Zone, in the western Pacific Ocean (Figure 1).

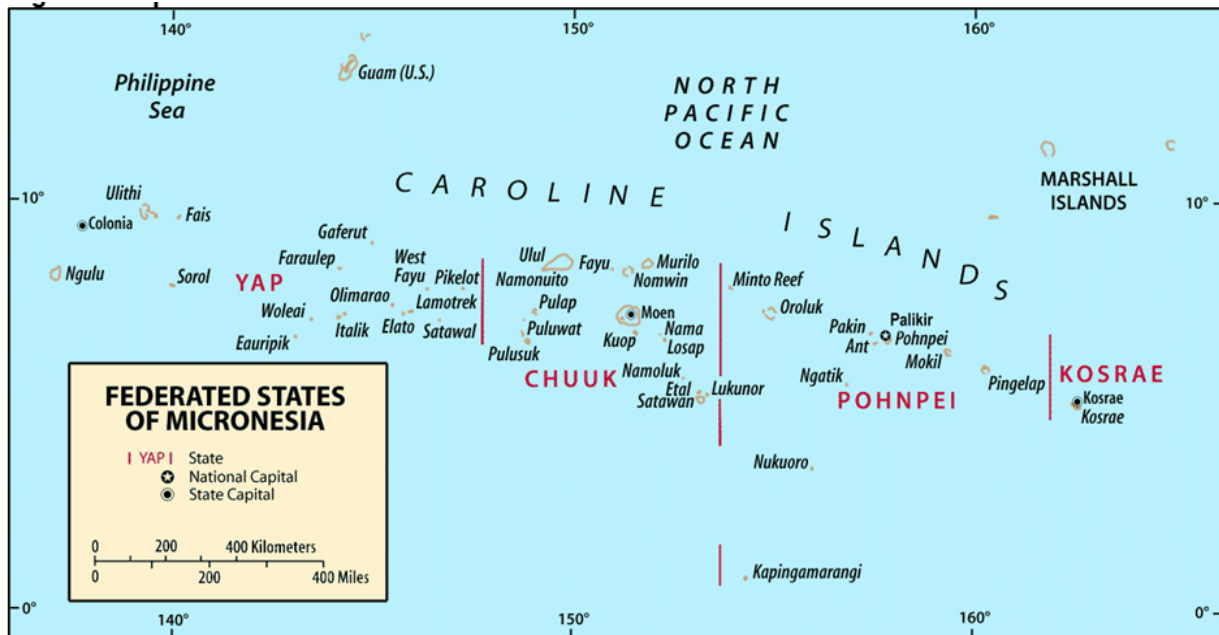


Figure 1 Map of the Federated States of Micronesia

15. The total land area of FSM is 704.6 km<sup>2</sup>, with 7,192 km<sup>2</sup> of lagoon area. The islands vary from small islets which are inundated at high tide, to atolls and large volcanic islands with land area of more than 80 km<sup>2</sup>. Approximately 65 of the islands are inhabited.
16. As with other Small Island Developing States (SIDS) in the region, FSM faces significant challenges related to its small size, remoteness, geographical dispersion, environmental fragility and exposure to external shocks. Frequent natural disasters and climate change impose high costs and may even threaten the physical viability of some areas of both the main islands and more remote outer islands. Such events can and do cause severe damage to infrastructure and other economic assets and have adverse impacts on livelihoods. As an archipelagic nation, FSM's economy is highly dependent on marine resources for international, inter-state and inter-island trade. Citizens of outer islands depend on marine resources for travel to main and other outlying islands, and for access to education, markets and health services. There are also limited airstrips across the nation. Maritime connectivity is therefore essential.
17. Based on an assessment by the World Bank, FSM faces three main challenges related to maritime sector institutional structure and capacity, the condition of and access to port infrastructure, and ISPS Code compliance and security. First, there is no national law on ports. While the *National Maritime Act 1997* delegates the national government legislative power over shipping and navigation, no national port-related law has been passed. By contrast, each state has enacted port regulations that cover such matters as berthing and mooring of vessels, wharves and installations, handling of dangerous goods, landing, storage and delivery of cargo, licensing, pollution prevention, pilotage, and port charges. The enabling foundation for these state regulations is unclear, and there is lack of clarity and/or duplication of roles between and among the state agencies and national government.
18. Secondly, funding for maintenance and rehabilitation of port facilities, dredging of channels, access and navigational aids is inadequate and likely to be even more so when the Compact with the United States of America ends in 2023. As a result, supportive infrastructure, including bollards, cleats and fenders, are in poor condition. Entrance channels and turning basins tend to be narrow and lack sufficient water depth, hindering safe navigation. Most international ports in



FSM require some level of dredging, wreck removal and upgrading of navigational aids to improve safety. In addition, port strategic plans either do not exist or are outdated, and capacity is limited.

19. Third, all ports in FSM are required to be compliant with the ISPS Code. However, an audit by the U.S Coast Guard identified deficiencies in all FSM ports. Common shortcomings include inadequate control over access, existence of multiple providers working within port premises, the cargo yard and repair facilities. Noncompliance with ISPS could preclude international vessels from entering or departing from FSM ports, with dire consequences for the economy. As ISPS is geared at the national level, non-compliance of even one port would affect all.

## 2.2 SECTORAL AND INSTITUTIONAL CONTEXT

### 2.2.1 Sectoral Context

20. Given FSM's geographic characteristics and the distances between the States and further, distance to outer islands (except in Kosrae), the provision of efficient, reliable and affordable sea transport services is considered essential for the country's basic economic and social functions, and to achieving FSM's national development plans. A fundamental requirement for providing intra-island shipping services is safe, well-functioning maritime transport infrastructure and assets, including wharfs, docks and jetties. Combined, maritime services and assets underpin inclusive economic growth and social development by providing FSM's communities with reliable access to economic opportunities, services and information.
21. International shipping into FSM is administered through the Micronesian Shipping Commission (MSC) through issuance of Entry Assurance Certificates (EACs). For FSM, three shipping lines are licensed to provide service along specific shipping routes, each according to a predetermined schedule and at a specific freight rate. The objective of this structured approach is to ensure the availability of reliable and affordable maritime services. Intra-state (domestic) shipping is essential, especially in Chuuk, Pohnpei and Yap, as each consists of multiple islands. Kosrae is a single island state with no outer islands. Local services enable mobility of people among the states, and provide employment for seafarers, access to other employment opportunities, and access to educational and health services.
22. All ports are regularly served by international cargo services from the U.S, Asia and other destinations. Pohnpei and Kosrae are large fishing fleet based ports.
23. All ports except for Tonoas have been designated as semi compliant with the International Ship and Port Facility Security (ISPS) Code, which is a set of measures to enhance the security of ships and port facilities. However, formal regulations governing activities at the port are lacking, and the dock has been operating under informal regulations for a considerable time.
24. Outer islands throughout FSM typically lack access infrastructure and aids to navigation (AtoN), and many do not have reef channels to access the islands. Consequently, vessels must anchor offshore and transfer passengers and cargo using small workboats or tenders. This poses a high safety risk because many of the outer islands experience strong winds and waves. Government services to the outer islands are limited, and private operators are not regulated, particularly in Chuuk Lagoon. Provision of safe and reliable transportation services to the outer islands remains a significant challenge.

### 2.2.2 Institutional Context.

25. Given FSM's political structure, responsibility for the maritime sector is divided into a two-tier system involving the national and state governments. At the national level, the Marine Division (MD) of DoTCI is responsible for overseeing FSM's maritime sector. DoTCI is tasked with managing the development and enforcement of legislation and regulations, coordinating among the states and external agencies (e.g., USA Coast Guard), and providing inter-state domestic shipping services using national vessels. DoTCI also provides technical support to state port authorities and agencies responsible for managing the ports and other maritime affairs, and regulates tariffs, e.g., under its concession agreement with the Pohnpei Stevedoring Company.

At the state level, the institutional and governance arrangements vary and are complicated. All ports and port infrastructure are owned by the states, which operate these assets through a port authority or transport department. The states lack uniform port arrangements, have different forms of ownership, administration and financing arrangements, and there is some duplication of roles and responsibilities between the state agencies and the national MD. Kosrae and Pohnpei have port authorities, Kosrae Port Authority (KPA) and Pohnpei Port Authority (PPA), respectively, which are state-owned entities established under state law. Both KPA and PPA operate under a hybrid approach, whereby each authority develops and maintains basic/terminal infrastructure and regulates port activities, but leases cargo handling and terminal operations out to a private operator. Ports in Chuuk and Yap are overseen by their respective State

Departments for Transport and Infrastructure but are operated by private Stevedoring companies under differing arrangements.

### 2.3 RELEVANCE TO HIGHER LEVEL OBJECTIVES

26. The proposed FSMIP is closely aligned with the Bank's twin goals of ending extreme poverty and boosting shared prosperity. The project will facilitate access, which is important for poverty alleviation given evidence of a strong relationship between extreme poverty and lack of accessibility and mobility. In FSM and other small, remote island nations, maritime shipping is the nexus for internal/external connectivity necessary for food imports and distribution, essential services and the trade of basic goods. For sustainability moving forward, FSM wants and needs to act urgently to improve the climate resilience of its marine transport networks and facilities.
27. The Regional Partnership Framework (RPF) for FY17 to FY21, which was approved in February 2017, covers nine small Pacific Island Countries (PIC9)<sup>2</sup>, including FSM. The RPF identifies four areas of focus for these PIC9 as: (i) fully exploiting the available economic opportunities; (ii) enhancing access to economic opportunities for all; (iii) protecting incomes and livelihoods; and, (iv) strengthening the enablers of growth and opportunities (macro-economic management, infrastructure and addressing knowledge gaps). Improved port and maritime services will facilitate better functioning transshipment services, thereby enhancing access to economic opportunities. Without a well-functioning maritime sector, livelihoods could be compromised, especially since FSM imports much of its food, pharmaceuticals and fuel. As such, FSMIP would support focus areas (i), (ii) and (iii). FSMIP would also support focus area (iv) by creating more reliable access to maritime infrastructure, and by improving the safety, reliability and resilience of the services provided.
28. The scope and objective of FSMIP are also aligned with several key Government development objectives delineated in FSM's Infrastructure Development Plan for FY2016-FY2025 (IDP). IDP recognizes the critical contribution that maritime transportation infrastructure and services play in supporting market opportunities throughout the country, and in facilitating modern, safe and efficient inter-state and inter-island passenger and cargo services. FSMIP will support dock facilities that will better meet both fishery and commercial shipping needs, improve the quality of AtoNs to enhance safety, strengthen port planning and management, and help enhance the resilience of maritime infrastructure and facilities to climate change.
29. FSM is at high risk of coastal flooding, cyclones, extreme heat and tsunami events. In addition, critical infrastructure (particularly ports) is located in low-lying coastal areas, which exposes them to flooding and cyclone hazards. The project aims to systematically improve climate resilience in FSM through a program of activities that cover both climate adaptation and mitigation.
  - a. *Climate adaptation.* Tools to be utilized under FSMMIP include: (i) sectoral planning tools informed by climate change and natural disasters; (ii) more climate resilient port infrastructure; (iii) measures to strengthen the enabling environment to enable the Government to manage a more safe, efficient and climate resilient maritime sector; and, (iv) contingent emergency response. Through incorporating a variety of activities, this will support the overarching development objective of supporting the Recipient in improving the climate resilience of their port operations and infrastructure, and in the event of an Eligible Crisis or Emergency, to provide an immediate response to the Eligible Crisis or Emergency. In addition, climate risks are viewed in a holistic manner, through the integration of resilient transport interventions into planning and decision-making processes.
  - b. *Climate mitigation.* Improved efficiency of maritime transport contributes to reducing greenhouse gas (GHG) emissions. Where appropriate, the project will seek to support energy efficient/renewable energy activities, such as installing photo-voltaic systems (PV Panels) on maritime structures to be rehabilitated as part of FSMMIP.

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<sup>2</sup> Kiribati, Republic of Nauru, Marshall Islands, FSM, Republic of Palau, Independent State of Samoa, Kingdom of Tonga, Tuvalu and Vanuatu.

## 3 PROJECT DESCRIPTION

### 3.1 PROJECT AREA / GEOGRAPHIC EXTENT

30. The project is focused on existing maritime facilities at five existing ports in FSM: Chuuk (Tonoas and Weno), Okat Port in Kosrae, Dekehtik Port in Pohnpei and Colonia Port in Yap. The works are limited to the port boundaries, e.g. the land is currently occupied by the ports and immediate waters (existing channels and berth pockets). Some existing channel markers, which are more remote from the ports, are also included in the project although these are all existing and no new navigation aids are being installed.
31. The FSMMIP will undertake activities that will require land to store materials as well as worker.

### 3.2 EXISTING PORTS

32. The FSMMIP is being undertaken at five ports across the four states of FSM. The following provides a description of the existing ports, the infrastructure, size of the ports, berthing arrangements etc. Additional information on the specific ports is contained within Annexure One.

#### 3.2.1 Yap

33. Colonia Port, Yap serves international cargo vessels, fuel tankers, and rarely, longline fishing vessel. Yap port has a berth of 253 meters over four berths. The depth of the berth is approximately 10 meters. The width of the apron is 19 meters, which is concrete. The majority of the port area is already concrete albeit uneven and water pooling occurs, although there are areas that are dirt.
34. During 2017-18, Yap had 61 vessel calls, twelve (12) fuel vessel calls and four (4) fishing vessel calls. Ten (10) other vessels utilized the dock during 2017-2018. Dockage is \$0.16 GRT and anchorage is \$0.03 GRT. Wharfage is \$1.25/ton while pilotage is \$0.16 GRT. A number of the fenders have significant damage.
35. The container yard is 6,851m<sup>2</sup>. The port can hold in excess of 400 containers, with 784 twenty-foot equivalent units (TEUs) passing through the port in 2017-2018. The port also has ten (10) reefer units. Stevedoring services are provided by Waab Transport Company (16 staff) who charge a terminal fee of \$8/ton per move. Shipping companies using the port include Palau shipping, the Micronesian Forwarder, Carolina Voyager, and the Waab Shipping Agency. There is roll on roll off capability with a Chinese donated vessel *Hapilmohol 1* berthed alongside. The vessel was not operational during the period of the study.
36. Fuel is off loaded at the port and then is piped through the port and the main street of Colonia, before doing a left turn and the pipe running parallel with a small bridge to the fuel storage yard across a small inlet. The pipe is marked on the main road.
37. The port during the field visit was observed to have very few empty containers (>20) and in very clean order. There were areas where old vehicles were stored. Further, the main storage building was observed to be in a state of disrepair with many holes in the roof and sides of the structure. Further, there is the derelict Fresh Tuna Incorporation building that is a safety and environmental issue.
38. The port is heavily utilized by the public for local transport to outer islands. During the mission, a vessel was being loaded. Passengers are allowed into the port via a side gate and there was security to ensure passengers did not access other areas of the port. The port is well fenced, and this therefore prohibits people entering the port freely. Security was present and operating at the main port entrance.
39. The port is built on reclaimed land on a point. In proximity to the port is the Yap Fishing Association
40. The port has an annual maintenance budget of \$8,000, none of which is specifically related to environmental and social issues.
41. A Google Earth image of the existing Yap port is Figure 2 while photos taken during the site visit are Figure 3.



Figure 2 Yap Port – Photo from Google Earth



Front gate of port



Port Workshop



Port Warehouse



Roof of Port Warehouse



Current stormwater flow path



Wharf front



Damaged fender



Container Area



Water pooling following rain



Container Yard



Derelict Fresh Tuna Incorporation Building



Derelict Fresh Tuna Incorporation Building



MV Hapilmohol 1



Reefer Yard



Local Passenger Vessel loading



Local Passenger Vessel loading



Local Passenger Vessel loading



Security overseeing Local Passenger Vessel loading

Figure 3 Photos of Yap Port

### 3.2.2 Chuuk

42. Chuuk has its main existing port at Weno (capital of Chuuk) and a port on Tonoas Island that is undergoing works for the construction of a coconut processing facility. Details collected during the site inspection are provided below. At the time of writing this report, no specific port data had been provided for Weno or Tonoas ports (see Annexure One).

#### 3.2.2.1 Weno

- 43. Weno Port is the main port for Chuuk and is the largest operating port for marine cargo in FSM.
- 44. The port has berths on the southern and western side with the western berth being used by container vessels while the southern berths are used by larger local vessels servicing outer islands (total length of 478 meters). The depth of the berths is between five and nine meters. The concrete apron which, depending on the berths, is 20-40 meters wide and

is in need of repair. The container yard is predominantly sand and dirt, with water pooling across the site. Much of the fencing is non-existent especially on the northern side where containers are being used as a fence. There is some lighting, although most is either damaged or no longer working effectively.

45. During 2017-18, Weno had 69 vessel calls, seventeen (17) fuel vessel calls, two (2) emergency calls and three (3) other vessel calls. Dockage depends on the ship's activities and anchorage is \$0.07 GRT. Wharfage is \$1.75/ton while pilotage is \$0.18 GRT. A number of the fenders have significant damage.
46. The container yard is 11,379.5m<sup>2</sup>. The port can hold in excess of 450 containers, with 97,896.13 tonnes of throughput, in 6,540 TEUs passing through the port in 2018. The port has no reefer units. Stevedoring services are provided by Transco.
47. The port during the field visit was observed to have numerous empty containers. Many were rusted out and/or badly stacked. There were areas where old vehicles were stored.
48. On the northern side of the port is a vessel that has rolled over. It is understood that the US Navy will come and salvage the vessel in the coming months and likely dump it at sea.
49. Adjacent to the port is a small inlet that is utilized by approximately 800 small vessels that transfer passengers to and from the smaller islands. There appeared to be no management of the vessels moving in and around the port.
50. A Google Earth image of the existing Weno Port is Figure 4 while photos taken during the site visit are Figure 5.



Figure 4 Weno Port – Photo from Google Earth



Wharf front



Damaged fender



Main Berth Wharf frontage



Side Berth Wharf frontage



Containers being used as a fence



Perimeter Fence





Container Yard



Water pooling in Container Yard



Main Gate



Container Yard



Workshop



Wreck on northern side of port



Local Vessel Mooring Area



Local Vessel Mooring Area

Figure 5 Photos of Weno Port

### 3.2.2.2 Tonoas

51. Tonoas is an outer island port constructed by the Japanese. No shipping appears to be currently undertaken at Tonoas for about 50 years, although there are plans for the construction of a coconut processing facility as well as fuel storage in the port area. Land has been set aside for this. The port's main berth is approximately 82 meters long, with the side berth on the western side being approximately 92 meters long although the depth of water at this location is significantly shallower than the main berth.
52. The port deck area is littered with significant old material. However, there are works being undertaken including the installation of a new fence on the western side of the causeway leading to the main wharf and lighting and port being installed around the port area. New generators were also observed.
53. A Google Earth image of the existing Tonoas port is Figure 6 while photos taken during the site visit are Figure 7. The proposed works to be undertaken for the coconut processing facility and fuel storage in the port area are shown in Figure 8.



Figure 6 Tonoas Port – Photo from Google Earth



Main Wharf Area



Main Wharf Area



Old building



Old infrastructure



Wharf Frontage



Damaged Wharf Frontage



New Light Poles awaiting installation



Old infrastructure



Old infrastructure



Old infrastructure



Berthing Dolphin



Marine environment adjacent to port



New Generators



New Fence



New Fence



New Fencing Infrastructure awaiting installation



New Equipment



Berth Frontage

Figure 7 Photos of Tonoas Port

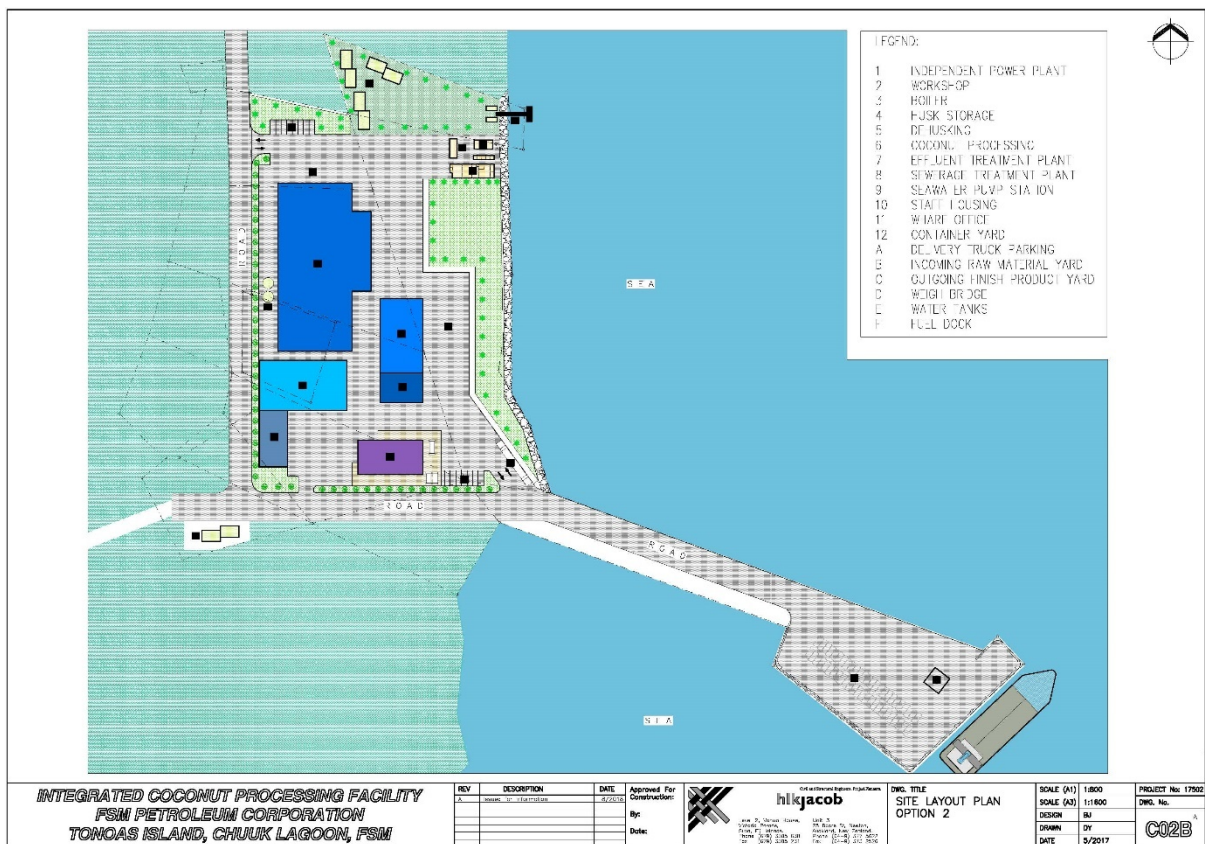


Figure 8 Proposed Works to be undertaken at Tonoas Port

3.2.3 Pohnpei

- 54. Pohnpei is the second largest operating port for marine cargo in FSM. Dekehtik Port, Pohnpei’s commercial seaport, is owned and operated by Pohnpei Port Authority. The main cargo wharf serves international cargo vessels, tankers, and purse seiners, while a smaller adjacent wharf is used by domestic vessels.
- 55. Dekehtik Port has three berths, with a wharf length of 328 meters and has an apron width of 25 meters. The berth pocket is dredged to between 10 and 12 meters. In 2018, the port has 794 commercial vessel calls, including 49 cargo vessels and 36 fuel vessels. The main cargo operators are Kyowa and Matson. Over 1100 fishing vessels made use of the port during 2017-18. By contrast, only two domestic vessels used the port.
- 56. The container yard is 20,204m<sup>2</sup> of gravel base. Significant water pooling was observed during the site visit in November 2018 immediately after rain. Approximately 105 containers can be stored at any time as well as 50 refrigerated

containers. There are presently only five reefer stations. In 2017, the port handled 3,182 TEU; and in 2018, 2,558 TEU. The stevedores operating the port are Federated Shipping Company. The port charges \$.75/ton for incoming and \$2.25/ton for outgoing goods.

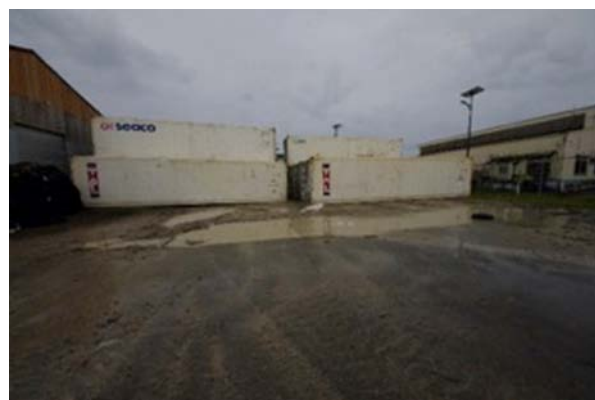
57. Located to the south of the main wharf, Takatik Fishing Wharf is dedicated to fisheries with the quay occupied by long line fishing vessels, FSM patrol boats, and other shallow-draft vessels. There is a private operation at the north of the wharf.
58. The port is relatively well fenced, although there are gaps where access can be obtained through although there is signage restricting entry. There is relatively little lighting except at the main gate area. Vessels mooring alongside have their lights on at night.
59. Some of the fenders at the port were observed to be damaged although the vast majority were in good condition. Unlike the other ports in FSM, Dekehtik Port has its fenders horizontally mounted rather than vertically mounted which significantly reduces damage to the tops of the fenders.
60. A Google Earth image of the existing Dekehtik port is Figure 9 while photos taken during the site visit are Figure 10.



Figure 9 Dekehtik Port – Photo from Google Earth



Container Yard



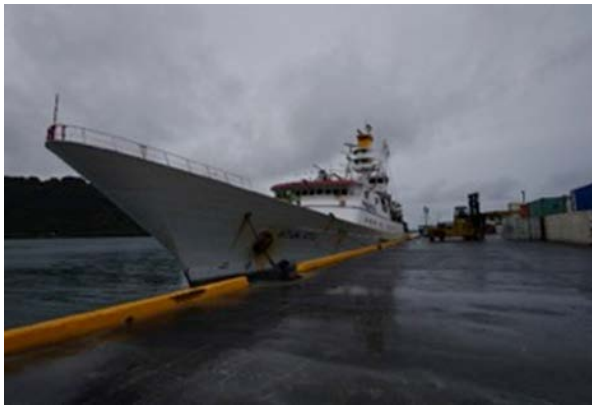
Water Pooling in the Container Yard



Fishing Vessel at Berth



Fuel Storage Area



Purse Seine Fishing Vessel at berth



Container Yard



Container Yard



Container Yard



Security Fencing



Old Generator



Port Security Office



Water Pooling in the Container Yard



Water Pooling on main wharf



Fishing Gear in Side Port Area



Vessels at Berth



Main Wharf

Figure 10 Photos of Dekehtik Port

### 3.2.4 Kosrae

61. Okat Port, Kosrae is the state's primary commercial port facility, handling all commercial shipping and fishing activities.
62. Okat Port has essentially one berth, with a wharf length of 167 meters and has an apron width of 18.1 meters. The berth pocket is dredged to 9 meters. In 2018, the port has 112 commercial vessel calls, including 22 cargo vessels operated by Kyowa and 16 vessels operated by PIL. Four fuel vessels visited the port. Sixty-six (66) fishing vessels made use of the port during 2018. By contrast, only three domestic vessels used the port and six other vessels.
63. The container yard is 8,100m<sup>2</sup> of gravel base. Water pooling was observed during the site visit in February 2019 after rain. The Port Authority was unaware of the number of containers that could be stored both within the container area and immediately adjacent to the container area used by Luen Thai Fishing Ventures; however, based on observations, during the field visit, there was in excess of 200 containers that were stored as well as 50 refrigerated containers. There are four deteriorated but still operational power points between the main gate and cargo warehouse used for



commercial cargo; however, these do not provide power to Luen Thai and as such, the vast majority of which are being run off generators with extensions leads all over the ground. There are no permanent reefer stations.

64. In 2017-18, the port handled 737 TEU; of which 274 were full and 452 were loaded empty.
65. Located to the west of the main wharf, Luen Thai Fishing Ventures operated a processing facility. Locally registered and foreign flagged long liners utilize the wharf and move fish through the facility.
66. The port is partially fenced, although there are gaps where access can be obtained through Leun Thai and on the western side of the port. There is relatively little lighting except at the main gate area and the majoring of lights are damaged.
67. Some of the fenders at the port were observed to be damaged although the majority were in satisfactory condition.
68. The main warehouse requires significant attention. None of the roller doors open and there is significant structural rust in many of the steel piers. It is a safety risk.
69. Fuel is bunkered through the middle of the port to the adjacent fuel depot. There are no markings indicating the location of the fuel lines and this is a safety risk.
70. Immediately adjacent to the port, Luen Thai Fishing Venture in coordination with the Government of Kosrae has recently built an accommodation block. It was noted that the vast majority of rooms had no windows.
71. A Google Earth image of the existing Okat Port is Figure 11 while photos taken during the site visit are Figure 12.



Figure 11 Okat Port, Kosrae – Photo from Google Earth



Container Yard



Container Yard



Existing Warehouse



Existing Warehouse



Rusted Piers on Existing Warehouse



Rusted Piers on Existing Warehouse



Back of Container Yard



Container Yard



Fishing Vessel at Berth



Fishing Vessel at Berth



Container Yard



Luen Thai Fishing Processing Facility



Reefer Extension Cords



Western port edge



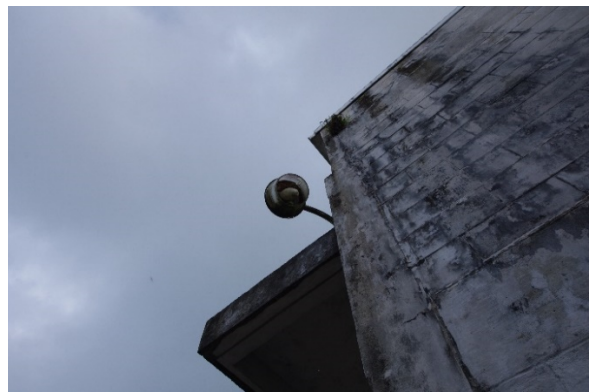
Luen Thai Fishing Reefers



Port Fence



New Accommodation Building



Damaged Lighting

Figure 12 Photos of Okat Port

### 3.3 CURRENT PORT STATE CONTROL PROCESS

72. Multiple agencies across both Federal and State Governments are involved in the process for fisheries related port State control in FSM (see Figure 13).
73. Under existing arrangements, foreign flagged fishing vessels wishing to enter Dekehtik Port (or other ports) contact the FSM Division of Immigration and Labor ("Immigration") in the first instance. Vessel submit their paperwork including information on vessel details, their FSM fishing license as well as crew lists. Immigration takes the lead role in approving entry of fishing (and other) vessels into the country (i.e. all visits within 12nm). The process of approving or denying entry is largely focused on immigration (rather than fisheries) considerations. No trip-by-trip fisheries information (e.g. catch details) is provided to Immigration in advance of the vessel's entry. Contact is largely through local shipping agents. The National Oceanic Resource Management Authority (NORMA) are consulted by Immigration where a fishing vessel

requesting entry is not licensed in FSM. Where the vessel was included on an illegal, unreported and unregulated (IUU) list or was otherwise not fit to enter port, NORMA may request that the vessel is denied entry.

74. Once approval is granted, fishing vessels seeking to use port facilities request access through the relevant State Port Authority (e.g. Pohnpei Port Authority). The State Port Authority rely on the immigration approval for the purposes of 'approving or denying' access. Where approval is granted by Immigration, Pohnpei Port Authority's main considerations are practical ones (e.g. is there space to accommodate the vessel?). In Pohnpei at least, both NORMA and Pohnpei Port Authority run an 'open port' with no case by case process of approval or denial of access. Vessels wait at the pilot station while approval from the port authority is granted. Depending on availability at the port dock, vessels will come to port for checks (the Environmental Protection Agency (EPA) first, then customs, immigration and quarantine) prior to transshipment. If no space is available, vessels will proceed straight to the transshipment area.
75. The Maritime Surveillance Wing of the FSM National Police is responsible for fisheries compliance and enforcement. Officers of the Maritime Surveillance Wing inspect vessels where possible while the vessel is at the wharf, or if not, inspections also take place while the vessel is at the transshipment or unloading location. The Maritime Surveillance Wing aims to inspect around 25% of vessels. Inspections are undertaken according to a standard checklist, developed in consultation with NORMA. At this stage, the majority of the relevant Port State Measures Agreement inspection process are dealt with for example, inspecting vessel documents and authorizations, gear, VMS functioning, etc. If compliance issues are detected during the clearing inspection, evidence is collected and passed on to the Department of Justice/Attorney General for action. If no compliance issues are detected, the vessel is free to tranship/unload. Vessel masters are not routinely provided with a copy of the inspection report, and these are not currently shared with other relevant parties (e.g. flag States, Regional fisheries management organizations (RFMOs), Food and Agriculture Organization of the United Nations (FAO)).
76. Separately to the Immigration/Port Authority process, purse seine vessels wishing to tranship in Dekehtik Port submit a request to NORMA to tranship >72 hours prior to transshipment. Both purse seine vessels and longline vessels also submit notification of port entry >24 hours prior to entering port. The information is provided in the format required in the Harmonized Minimum Terms and Conditions (HMTTC). For purse seine trips operating under the Parties to the Nauru Agreement's (PNA) Marine Stewardship Council (MSC) Chain of Custody (CoC) scheme, NORMA place monitors (usually trained observers) on board the vessel to record catch and species composition. Upon completion of transshipment for purse seine vessels, a Mate's Receipt is provided by the carrier vessel (or buyer) detailing the volume and species composition of the catch transhipped. No other transshipment forms are received from the offloading or receiving vessel.
77. Unless the vessel is unlicensed, the main checks for legality of product would be undertaken only after the vessel has arrived in port. There has been no denial of entry into port for fisheries reasons to date.

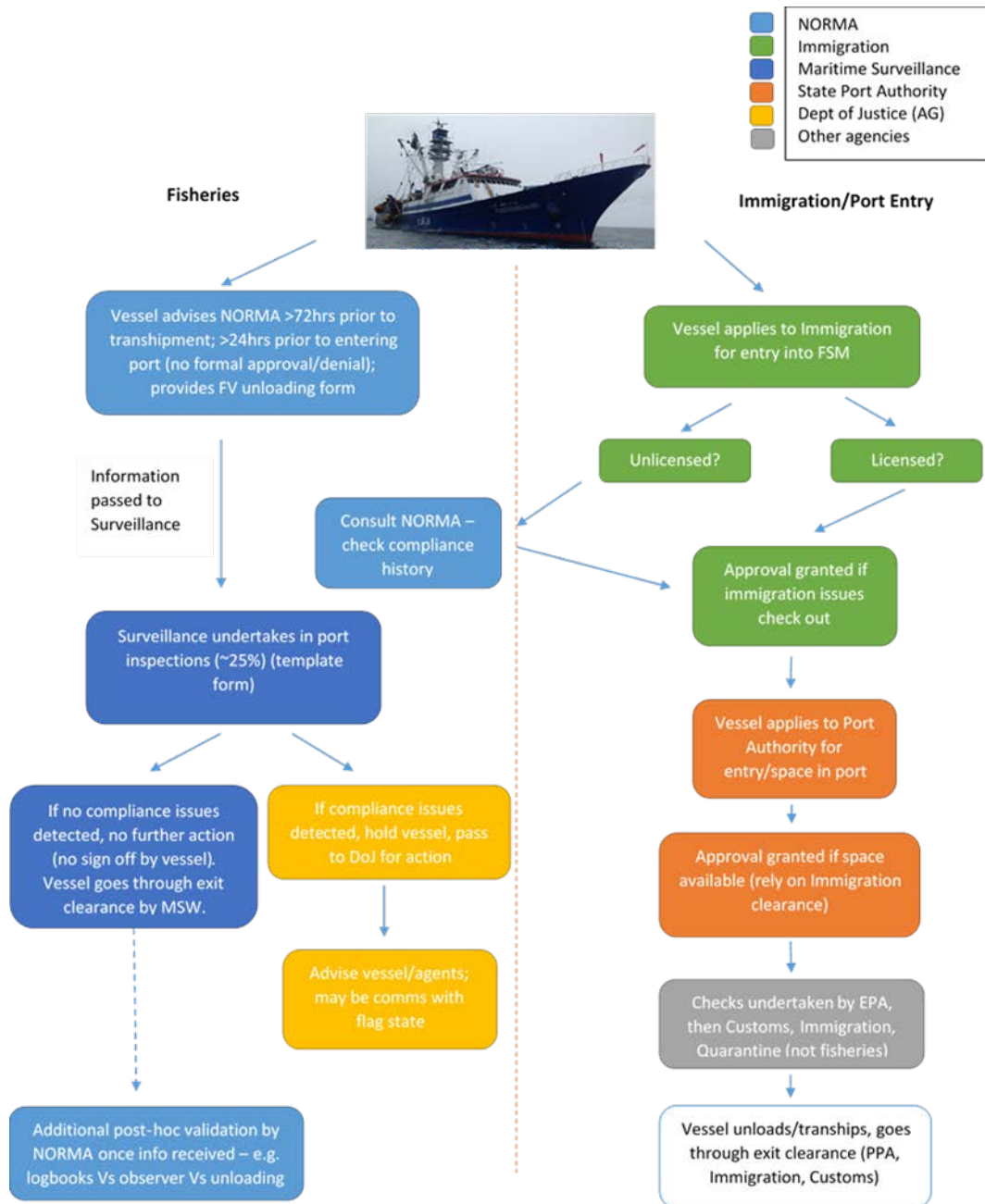


Figure 13: Existing FSM process for port entry/inspection.

## 4 DESCRIPTION OF THE ACTIVITIES

### 4.1 PROJECT DEVELOPMENT OBJECTIVES AND RESULTS

78. The proposed project development objective (PDO) is to improve the safety, efficiency and climate resilience of maritime infrastructure and operations in the FSM, and in the event of an Eligible Crisis or Emergency, to provide an immediate response to the Eligible Crisis or Emergency.
79. The achievement of the PDO will be measured through the following PDO-level results indicators:
  - a. Reduction in cargo vessel turnaround times at Pohnpei and Chuuk Ports (minutes);
  - b. Container yard productivity at Pohnpei and Chuuk Ports (moves/hour);
  - c. Project docks fully compliant with ISPS requirements (number);
  - d. Project docks rehabilitated with at least 1 climate resilience measure (number);
  - e. Ports with sectoral and contingency planning tools that address natural disasters and climate change (number);
  - f. Referrals of trafficking survivors to NGOs (number)

### 4.2 PROJECT COMPONENTS

80. The proposed FSMMIP will have the following four components and activities.
81. Component One (1) related to marine infrastructure. This component will enhance the resilience of maritime structures to natural disasters and climate change impacts through better design and quality of infrastructure, as well as safer and more efficient operation of port facilities.
82. The main component of the project is activity one, which is the levelling, subbase, drainage and pavement works at the four main ports. As described in Section 3.1, all ports have a component of hard substrate (concrete) immediately adjacent to the wharf itself; however, the majority of the port, specifically the container yard is uneven dirt where flooding can occur. This activity will involve developing a hard stand for the container yard which will significantly improve usage particularly during wet periods of the year.
83. Further, Component One also includes the:
  - a. Leveling, subbase, drainage and hardening of primary terminal storage areas;
  - b. Rehabilitation of utilities related to water supply, sewerage and power supply in container storage areas; and
  - c. Upgrading terminal superstructure, such as buildings and facilities in the primary cargo handling area, warehousing, reefer connections, incorporating environmental protective measures in works, and increasing energy efficiency.
84. Component Two (2) will improve maritime safety and security, which will strengthen connectivity between the FSM States and outer islands, and facilitate access to food, water, fuel and emergency response services:
  - a. Repair quay furniture including but not limited to structures, piling, fenders, bollards, ladders etc at the main ports;
  - b. Upgrade fencing, gates, lights, back-up generators, CCTV systems to comply with ISPS requirements;
  - c. Replace/upgrade Aids to Navigation - Based on a condition survey of existing Aids to Navigation, practical measures will be implemented to improve navigational safety. It is expected that Aids to Navigation would be repaired, installed and/or upgraded for all principal ports in the four states, including fixed, floating or virtual/electronic Aids to Navigation, and leading lights;
  - d. Spill Kits for the four principal ports and 150m containment boom system for Pohnpei Port;
  - e. Assess options and measures to counter trafficking in persons, including elevating awareness. This sub-component will review and assess options and measures to counter trafficking of persons and will propose steps FSM could take to comply with the minimum standards under the U.S. TVPA. As part of this sub-component, a gender assessment was undertaken, and this will lead into the implementation of the gender-based violence and trafficking prevention action plan; and
  - f. Provide Search and Rescue (SAR) equipment and safety devices. This would include: (i) financing of equipment and safety devices to enhance communications networks, both onshore and onboard, erecting durable pictorial signs with key water safety messages in the local language on key outer islands and waterways, data storage

- systems; and, (ii) support for initiatives to elevate public awareness about safe boating practices and provide basic safety devices, such as radar reflectors and safety gear (personal flotation devices, etc.), for small domestic fishing craft.
85. Component Three (3) will support technical assistance to strengthen oversight and management of port facilities, improve the coordination of emergency response systems, elevate awareness of SAR awareness and ISPS requirements, and implement project activities. The following sub-components are proposed:
- a. Prepare designs and supervise maritime infrastructure works. Prepare climate resilient designs and supervise maritime infrastructure works to be carried out under the project.
  - b. Maritime Sector Planning:
    - i. Review of institutional and governance structures including policies, legislation, institutional arrangements, and roles and responsibilities of principle stakeholders involved in the maritime sector, nationally and from state perspectives. The review will recommend ways to strengthen oversight and streamline coordination, particularly around key areas of concern including climate resilience, safety and security;
    - ii. Port strategic planning including developing strategic plans for each state's main port, considering both existing and long-term commercial opportunities and likely impacts of climate change and natural disasters. Optimal layouts and configurations of port/cargo yard activities will be identified, as well as key government responsibilities and services for improving operational efficiency and safety;
    - iii. Review of port operations based on analyses of current cargo and container handling facilities and equipment related to international and domestic vessels, including current practices related to security and compliance with ISPS requirements, as well as customs and immigration policies and practices. Forecast future cargo and containers volumes and passenger numbers, including possible commercial opportunities, and assess the financial and environmental sustainability of operations under different scenarios;
    - iv. Assess options to manage maritime waste at port facilities. A study would be carried out to assess options for better management of solid and liquid waste from vessels calling at key ports in FSM as well as waste generated as part of port operations. The study would include a review of handling and storage policies and of processing and recycling processes, to identify opportunities to improve waste management and the potential for developing and operating reception facilities;
    - v. Based on opportunities and needs, and taking into account likely impacts of climate change, prioritize investments and develop preliminary designs for works; and
    - vi. Identify standards and good practices to strengthen and maintain port and terminal infrastructure and assets.
  - c. Capacity Building Initiatives. Design and conduct training and specialized technical advisory services to develop local capacity to operate and regulate the sector under a revised governance structure, ensure compliance with ISPS requirements, and better manage SAR;
  - d. Outer Island Services and Chuuk Lagoon. Assess options to better organize and strengthen oversight of private vessels operating in Chuuk Lagoon;
  - e. Assess and develop employment opportunities for women in the local maritime sector;
  - f. Project Management. Provide funding for implementation of the project, including financial support to hire qualified staff to oversee technical aspects of the project, as well as support procurement, financial management, and safeguards. This would include short- or long-term technical and advisory support; and
  - g. Emerging Priority Issues which will provide swift response in the event of an Eligible Crisis or Emergency through a portion of the undisbursed project envelope to address immediate post-crisis and emergency financing needs. The Contingent Emergency Response Component may be used following natural disasters or other crises and emergencies, allowing funds to be reallocated from other components of the project.
86. Component Four (4) Contingent Emergency Response. Component 4 is designed to provide swift response in the event of an Eligible Crisis or Emergency by allowing a portion of undisbursed project funds to be reallocated to respond to natural disasters and/or other crises and emergencies. The CERC may be used following natural disasters or other crises and emergencies, allowing funds to be reallocated from other components of the FSMMIP.
87. Consumables such as aggregate, cement, steel and other infrastructure fittings will need to be transported to the sites – these materials will need to be imported. The FSMMIP will only use aggregate sourced from licensed quarries on the islands. The FSMMIP will not include the mining of aggregate from marine systems. All sites have reticulated water systems.



88. Accommodation is relatively limited on some of the islands (Yap and Kosrae), however, the current program of works are unlikely to require significant numbers of off-island workers, so the existing accommodation options (hotels, hostels and guesthouses) should be sufficient and is unlikely to represent an increase in impacts over and above those that already exist.
89. The activities will be undertaken over a five-year timeframe with activities one (1) through three (3) being undertaken over years 3 to 5, activity four (4) during years 1 and 2, activities five (4) through eight (8) during years 1 and 2; activities nine (9) and ten (10) over years 3 to 5; activities eleven (11); fourteen (14) and sixteen (16) through twenty (20) over the life of the project; while activities twelve (12) and fifteen (15) will occur during years 1 and 2 of the FSMMIP.

### 4.3 PROJECT ALTERNATIVES

90. As part of the development of this ESMF, consideration was given to potential alternatives. The below provides an overview of the current considered options and alternatives.

#### 4.3.1 Do Nothing Alternative

91. The FSMMIP activities are being proposed at the main ports of FSM. If nothing was to occur, there would be continued non-compliance with the ISPS Code, which would cause on-going health and safety impacts to the public as there would be easy access to the ports, port authority staff and users.
92. Non-compliance with the ISPS Code has a number of implications including but not limited to:
  - a. Potential contractual issues which includes damage to cargo, damage to ship and containers, injury to crew, delays to ships and possible fines at discharge ports could result in claims against Port Authorities;
  - b. General risk of terrorism has increased and therefore the traditional defenses for port operators against liability based on a third-party's act. The ISPS Code specifically requires a security assessment and security plan to be in place;
  - c. Ship operators are subject to international maritime conventions and could seek a recourse against a port authority that causes the ship operator to incur a liability under the relevant convention;
  - d. Illegal movement of people through ports can significantly increase including human trafficking and stowaways where there is limited security etc within a port;
  - e. Any vessels that might travel through a non-compliant ISPS port, need to undergo more intensive searches of cargos and this results in costly time delays for the vessel to enter the port. This can be used as a basis for terminating service to the respective port; and
  - f. Potential injuries to non-port users who can gain access to port areas and can walk around the port unsupervised.
93. The project proposes to provide subbase, drainage and pavement works at each port. If these activities were not undertaken, this would result in continue down time when storm events occur, thus causing yard flooding, it gives rise to potential environmental, health, safety and social issues through the potential for pathogens and parasitic disease carrying insects to be provided habitat. Further, without providing adequate substrates, there is the continued issue of sediment moving into the marine environment.
94. The project also proposed to repair and upgrade navigational aids. Navigational aids provide not only international ships access to the port, but they also provide direction and markers for local vessels that may be leaving and returning to the areas adjacent to the port. Without operational navigation aids, this could cause vessel incidents that could have a consequential impact on the marine environment though for example, oil spills. It could also cause the loss of life and assets.
95. As such, the do-nothing approach could have significant implications for the health and safety of the public, port users, and port authority staff and the local environment.

#### 4.3.2 Alternative Locations

96. The project is proposed at the major port used in each of the four States of FSM plus Tonoas which will be utilized by Chuuk Government entities, Government Owned Entities and other users. All five ports are classified as international ports which need to be ISPS compliant. There are no other major ports in FSM and as such, undertaking the activities at any other smaller wharf would be unrealistic as it would still leave the major ports non ISPS compliant. Further, there are the potential costs of building new ports.

#### 4.3.3 Alternate Infrastructure

97. The project proposes to install a range of infrastructure, including but not limited to buildings, warehouses, reefer connections, fence, gates, lighting etc that will allow for international compliance.
98. Lighting is a component of the FSMMIP. As discussed in Section 7.2, certain types of lighting that does not consider the potential impacts on the marine environment including for examples, turtles may cause environmental impacts. As such, when considering the placement and types of lighting, significant thought should go into the design, angle, location and type of lighting to be used to ensure that it does not impact fauna within the marine environment.

## 5 INSTITUTIONAL AND LEGAL FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL MATTERS

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### 5.1 INTRODUCTION

99. The following section provides an overview of the institutional and legal framework under which the FSMMIP will be undertaken.

### 5.2 FSM LEGISLATION, REGULATIONS AND POLICIES

#### 5.2.1 Introduction

100. The Government of FSM is modelled after the federal system similar to that of the United States with a national president and four state governors with respective legislatures and judiciaries. The government of Chuuk, Pohnpei and Yap has four levels of governance – National, State, municipal, and traditional. Kosrae does not have the fourth level of government, as it no longer has traditional leadership.
101. The four states where the FSMMIP will be implemented, have considerable degrees of autonomy. Each State Government has its own Constitutional Government, consisting of the three branches: Executive, Legislative and Judicial, typical of the Westminster system.
102. Each State also has its own set of environmental and social laws and regulations geared to protect the States from among other things, the effects of climate change. Under the Compact II, Article VI and section 161 of Title II, FSM is committed to applying the *National Environmental Policy Act 1969* (since repealed) and "to develop and implement standards and procedures to protect its environment."
103. The following pieces of legislation are relevant to the FSMMIP.

#### 5.2.2 National Legislation, Policies and Regulations

##### 5.2.2.1 Constitution

104. The Constitution, as the supreme law of FSM, establishes a system of national, state and municipal governance. Each State is required to have its own democratic constitution. The Constitution refers to traditional practice and custom as a guiding influence in all aspects of decision-making in FSM and seeks to preserve the role of tradition and custom in FSM life. To support this, a Council of Chiefs, consisting of traditional leaders and elected representatives, is provided for in the Constitution.
105. The Nation's executive powers are vested in the President who is elected by Congress for a four-year term and limited to no more than two consecutive terms. The President appoints judges, ambassadors and principal officers of government departments in the National Government.
106. The National Government's judicial power is vested in the Supreme Court, and subsidiary courts, established by statute. The Supreme Court consists of a Chief Justice, the chief administrator for the national judicial system. The Chief Justice may be supported by no more than five associates. Court decisions are constitutionally required to be consistent with Micronesian customs and traditions.
107. The legislative power of the National Government is vested in Congress. The Congress includes one member elected from each of the four States, an additional member elected from congressional districts in each State apportioned by population. Chuuk, Pohnpei and Yap may decide that one of its seats be reserved for a traditional leader in place of one of the elected representatives.
108. To enact a law, a Bill must pass the first reading with a two-thirds majority of all members and then pass the final reading on a two-thirds vote of all State delegations, each delegation having cast one vote. Congress can also override a Presidential veto by a >three-quarter vote of all State delegations, each casting a single vote.
109. Regulation development, as prescribed under the *Federated States of Micronesia Administrative Procedures Act*, requires the widespread publication and dissemination of proposed regulations before adoption, including radio announcements in English and indigenous languages. Opportunities for public comment and public hearings are incorporated in the Act.

110. In most instances, national legislation is supplemented, or even duplicated, by State legislation. This provisional review is confined to current national legislation based on the report prepared by Elizabeth Harding in 1992. That report recommends a thorough review of existing FSM environmental and natural resource legislation with the objective of rationalizing existing laws and regulations, providing a more effective mechanism for coordination at both National and State levels and removing outmoded law that was promulgated under the Trust Territory Arrangements. Apart from some specific areas of environmental and natural resources law, such as Title 24 directed at the administration of fishing within the exclusive economic zone, this need still exists.

#### 5.2.2.2 Environmental legislation

111. The *Environment Protection Act* (revised Code 2014) is a national government declaration of on-going commitment, in cooperation with State and municipal governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which the people of FSM man and nature can exist in productive harmony, and fulfil the social, economic, and other requirements of present and future generations of FSM.
112. The Act declares that it is the continuing responsibility of the FSM to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate governmental plans, functions, programs, and resources to the end that the inhabitants of the FSM may:
- a. fulfil the responsibilities for each generation as trustee of the environment for succeeding generations;
  - b. assure for all Micronesians safe, healthful, productive, and aesthetical and culturally pleasing surroundings;
  - c. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable or unintended consequences; and
  - d. preserve important historic, cultural, and natural aspects of our Micronesian heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.
113. The effort to protect and preserve the environment need to be carried forward in close cooperation with the States in the formulation of policy, enforcement, and other activities.
114. The FSM recognizes that each person has a responsibility to contribute to the preservation and enhancement of the environment. Section 302 of the *Environmental Impact Assessment Act* states that - 1) any person, prior to taking any action that may significantly affect the quality of the environment within the Exclusive Economic Zone of the Federated States of Micronesia, or within the boundaries of the National Capital Complex at Palikir, must submit an environmental impact statement to the Director, in accordance with regulations established by the Director. (2) The environmental impact statements required by subsection (1) of this section are public documents.
115. Building on the *Trust Territory Environmental Quality Protection Act* (Title 25 of the FSMC), the *FSM Environmental Protection Act 1984* (FSM EPA), and its subordinate instruments, seeks to provide the legislative basis for the protection of the environment, including cultural, historic and natural aspects of Micronesian heritage, throughout FSM. The Act acknowledges that close co-operation between the National and State Governments is required to support this objective.
116. The 1969 Act established the Environmental Protection Board within the Office of the President. The Board is composed of five members: "one member from each State and one member appointed by the President". In 1987, an Act to Reorganize the Government of the FSM redefined the Board to mean the Secretary for Human Resources.
117. The Act requires the Secretary to enter into written cooperative arrangements with the States or State agencies for the purposes of providing funds to the States, collecting data on local needs and transferring authority to the States to act as agents of the National Government in implementing environmental programs at the State level. Such delegation of functions may be withdrawn on written advice from the Secretary if the delegation results in termination of any financial grant.
118. The Secretary, as a result, has broad authority to protect health, welfare and safety and to implement policy and strategies, through the promulgation of regulations, to remedy pollution and contamination of air, land and water. Current regulations, which draws heavily on legislation in place during the Trust Territory arrangements include:
- a. Trust Territory Air Pollution Control Standards and Regulations 1980 -This Regulation sets air quality standards by preventing or controlling the emissions of air contaminants at their source. The Regulations incorporates USEPA National Emission Standards for Hazardous Air Pollutants;
  - b. Trust Territory Pesticides Regulations 1980 - this Regulations establishes a system of control for the importation, distribution, sale and use of pesticides. Systems of permits and certification are established under the Regulations;

- c. Public Water Supply Systems Regulations 1983 - The FSM EPA prescribes "drinking water regulations" as applying to public water systems and specifies contaminants, which may adversely impact on human health, safe levels of contaminants and describes procedures and criteria to secure safe drinking water supplies. The 1983 Regulation establishes minimum standards and requirements to ensure that water supply systems are protected against contamination and pollution and do not constitute a health hazard. The Secretary of Human Resources administers the Regulation;
- d. Marine and Freshwater Quality Standards Regulations 1986 - This Regulation identifies the uses for which waters of FSM shall be maintained and protected, to specify water quality standards required to maintain the designated use and to prescribe requirements to maintain specified water quality. Any entity responsible for a point source of discharge that threatens a breach of these standards, unless it has received a discharge permit under the National Pollutant Discharge Elimination System (NPDES) from the United States Environment Protection Agency, is in breach of these Regulations;
- e. Trust Territory Solid Waste Regulations 1979 - These Regulations establish minimum standards for the design, construction, installation, operation and maintenance of solid waste storage, collection and disposal systems. "Solid Waste" is defined as "garbage, refuse, and other discarded solid waste materials" not including substances in water sources, but including liquid waste such as waste oil, pesticides, paints, solvents and hazardous waste. A "disposal system" includes the entire process of storage, collection, transportation, processing and disposal of solid waste by any person or authority;
- f. Toilet Facilities and Sewerage Disposal Regulations 1977 - The purpose of these Regulations is to establish minimum standards for toilet facilities and sewerage disposal to reduce environmental pollution, health hazards, and public nuisance from such facilities. Standards are established for i) flush toilets connected to a sewerage system available to the public, ii) flush toilets connected to septic tanks and iii) a pit privy or outside banjo. All public and private buildings require toilet disposal facilities approved by the Secretary of Human Resources. The Regulations make it unlawful to dispose of treated or semi-treated sewerage into any body of water in FSM, unless it can be clearly demonstrated that such activity is necessary for the economic and social benefit or research and that the activity poses no public health hazard;
- g. FSM EPA Earthmoving Regulations 1988 - These Regulations provide that "no person shall release funds, equipment or materials or building permit to those engaged in earthmoving activities requiring a permit until a permit is issued by the Secretary of Human resources. Earthmoving is defined to include activities of a continuous nature such as dredging or quarrying which disturb or alter the surface of the land, including reefs and lagoons. Earthmoving also applies to the subdivision of land, and the moving, depositing or storing of soil, rock, coral or earth; and
- h. FSM EPA Environmental Impact Assessment Regulations 1989 - These Regulations require the National Government and its agencies to submit an Environmental Impact Statement (EIS) to the Secretary of Human Resources prior to taking any "major" action significantly effecting the quality of the human environment. "Effect" is defined to include indirect, direct and cumulative effects in areas such as land use, population density, air, water and natural systems including ecosystems. "Effects" may be ecological, aesthetic, cultural, historical, economic, social or health-related. "Significant Impacts", determined as a result of a preliminary assessment, require a Comprehensive EIA. Draft EIA statements are to be made available for public comment and review, including provision for a public hearing.

### 5.2.2.3 Resource Development, Management and Conservation

- 119. Marine species preservation is promoted under the FSMC Title 23 – Resource Conservation, Chapter 1, Marine Species Preservation, which is based on Trust Territory Code. This Chapter provides for the control of destructive fishing practices, prohibiting the catching, possession or sale of any fish or other marine life by means of explosives, poisons, chemicals or other noxious substances. The Code does not extend to the use of local plant used as stupeficients for fishing activity. The Chapter places limitations on the harvesting of turtles, sponges and pearl oyster.
- 120. Title 23 – Resource Conservation (Chapter 2) of the *Trust Territory Endangered Species Act 1975* provides for the protection of endangered fish, shellfish and game. The Act declares the indigenous plants and animals of the FSM to be of aesthetic, ecological, historical, recreational, scientific and economic value. The Act further states that the policy of FSM is to foster the well-being of these plants and animals including the prevention of the extinction of any species.
- 121. The Act is administered by the Director of the Department of Resources and Development and provides the Director with the authority to set up conservation and research programs aimed at conserving endangered and threatened species. It also provides authority to acquire land or aquatic habitats for the conservation resident endangered or threatened species. It is uncertain if any acquisitions or associated conservation programs have been established by the Department.

122. The Act, anticipating the FSM's ratification of the *Convention on International Trade in Endangered Species of Wild Flora and Fauna* (CITES), prohibits the importation of any species listed by CITES. A subsidiary to the *Endangered Species Act* is the Regulation, Title 45, Fish, Shellfish and Game: Chapter 5; Endangered Species which lists endangered species with FSM or pan-Micronesian ranges. The list includes the blue and sperm whale; the Chuuk Micronesian pigeon; the hawksbill and leatherback turtles; nightingale reed warbler; Chuuk greater white eye; Pohnpei great white eye; Pohnpei mountain starling (since pronounced as extinct); Chuuk Palm and the Chuuk poison tree. The Act provides for supporting regulations to be promulgated. None have been issued to date. Title 24, Marine Resources concerns promoting the conservation, management and development of the marine resources of the FSM, to generate maximum benefit for the Nation from foreign fishing and to promote the development of a domestic fishing industry.
123. Title 24 creates the Micronesian Maritime Authority, amended as the National Oceanic Resource Management Authority (NORMA), which is designated authority to regulate, manage and exploit marine resources within the 200-mile exclusive economic zone, negotiate and manage fisheries access agreements by establishing the terms and conditions for access, and establish and manage a foreign fishing permit system for commercial and non-commercial fishing.
124. The National Fisheries Corporation is also created under this Title, with powers to enter into joint-venture and other agreements in relation to fisheries and to develop the fishing industry by fostering economic activities and providing technical assistance for fisheries projects. The NFC is governed by a Board consisting of representatives of all four States and is the commercial arm of the National Government fisheries administration.

#### 5.2.2.4 Cultural Heritage

125. The FSM Code Title 26 – Historical Sites and Antiquities states that it is FSM policy to protect and preserve the diverse cultural heritage of the peoples of Micronesia and to identify and maintain areas, sites and objects of historical significance. “Cultural attribute” is defined to include: all aspects of local culture, tradition, arts, crafts, all social institutions, forms of expression and modes of social interaction. “Historical property” is defined to mean sites, structures, building, objects, and areas of significance to local history, archeology and culture. “Historical artefact” means an object 30 years or more in age.
126. Although the Act allows for the establishment of the Institute of Micronesian Culture and History, the Institute was never established and, in 1987, the relevant section of the Act was repealed. The administrative body charged with the preservation of cultural heritage is the Office of Administration Services, which established the Division of Historic Preservation in 1988. The Division is currently staffed by one Historic Preservation Officer. To promote liaison with the States, local staff are employed to assist with the work of the Division in the States.

#### 5.2.3 State Legislation, Policies and Regulations

127. The following sections provide a list of relevant Legislation, Policies and Regulations and the State level.

##### 5.2.3.1 Chuuk

128. The following Chuuk laws and policies that may apply to the FSMMIP:
  - a. Chuuk Constitution 1989;
  - b. Memorandum of Understanding between the State and National Governments delegating State power to administer, at State level, the Solid Waste Management Permit Program and the Solid Waste Management Permit Variance Program;
  - c. Memorandum of Understanding between the State and National Governments delegating State power to administer, at State level, the National Earthmoving Regulations;
  - d. Memorandum of Understanding between the State and National Governments delegating State power to administer, at State level, the Pesticides Applicator Certification Program and the Restricted Use Pesticide Dealer License Program; and
  - e. Chuuk State Historic Preservations Act – relating to wrecks in Chuuk lagoon.

##### 5.2.3.2 Kosrae

129. The following Kosrae laws and policies that may apply to the FSMMIP:
  - a. Constitution of the State of Kosrae;
  - b. Kosrae State Code, Title 7, Chapter 4 which establishes the Kosrae EPA;

- c. Kosrae State Code Title 9, which establishes the Kosrae Protected Areas System;
- d. Kosrae Island Resource Management Act;
- e. Kosrae Code Section 13.506 related to littering;
- f. Kosrae Code Section 13.514 related to water quality;
- g. Kosrae Code Section 11.201 related to land use and subsidiary regulations (draft) on Fill and Construction Below High-Water Mark;
- h. Kosrae Code, Section 11.1401 and 11.1402 (a regulation) concerning the impact review for the protection of antiquities and traditional culture;
- i. Kosrae Code, Section 11.1601 related to endangered species and supplementing regulations relating to four species of giant clam;
- j. Kosrae Code, Section 11.1602 related to Psittacine birds;
- k. Kosrae Code Section 13.1201 related to toilets and the disposal of human excreta;
- l. Kosrae Code, Section 13.523 related to unauthorized procuring of marine life concerning turtles, trochus and hawksbill and "sea" turtles;
- m. Kosrae Code, Section 13.524 – endangering a species;
- n. Kosrae Code, Section 14.1302 related to foreign fishing agreements; and
- o. Kosrae Code, Section 14.1303 related to fishing permits.

#### 5.2.4 Pohnpei

130. The following Pohnpei laws and policies that may apply to the FSMMIP:

- a. The Constitution of Pohnpei;
- b. Public Trust Lands Distribution Act 1980;
- c. Public Lands Act 1987;
- d. Deed of Trust Act 1987;
- e. Trust Territory Environmental Protection Act (preserved from the Trust Territory environmental law) and subordinate regulations relating to i) air pollution, ii) pesticides, iii) public water supply systems, iv) marine and freshwater quality, v) solid waste, vi) toilet facilities and sewerage disposal, and vii) earthmoving;
- f. Transportation Zone Act 1987;
- g. Conservation and Resource Enforcement Act 1982;
- h. Foreign Fishing in State Waters Act 1979;
- i. Prohibiting Harvesting and Use of Bait Fish Act 1971;
- j. Forest Management Act 1979;
- k. Pohnpei Watershed Forest Reserve and Mangrove Protection Act 1987 and subordinate regulations (draft) to both the Forest Management Act and Pohnpei Watershed Forest Reserve and Mangrove Protection Act 1987;
- l. Exportation of Certain Crabs and Lobsters Act 1971;
- m. Fresh Water Shrimp Harvesting Act 1972;
- n. Designation of State Bird Act; and
- o. Marine Resources Conservation Act 1981.

#### 5.2.5 Yap

131. The following Yap laws and policies that may apply to the FSMMIP:

- a. Constitution of the State of Yap;
- b. Environmental Quality Protection Act 1987 and subordinate draft pesticide regulations;

- c. Draft Water Supply Systems Regulations – based on the U.S. Trust Territory Public Water Supply Systems Regulations;
- d. Trust Territory Solid Waste Regulations 1979;
- e. Draft Toilet Facilities and Sewerage Disposal Regulations;
- f. Draft Earthmoving and Sedimentation Regulations;
- g. Yap State Code, Chapter 10, Section 1008 – wildlife conservation;
- h. Yap State Code, Title 11, Section 805 – oil spills;
- i. Yap State Code, Title 11, Section 815 – reef and environmental damage;
- j. Yap State Code, Chapter 18 - Fishing Authority Act 1979;
- k. Yap State Code, Title 18 - State Fishery Zone Act 1980);
- l. Yap State Code, Title 18, Chapter 4, Section 401 – disposal of petroleum products;
- m. Yap State Code, Title 18, Sections 404, 402 and 403 – relating to oil spills;
- n. Yap State Code, Title 18, Chapter 10, Section 1009 – trochus;
- o. Yap State Code, Title 18, Chapter 10, Section 1010 – cultured species;
- p. Yap State Code, Title 18, Chapter 10, Section 1011 – temporary protection of marine life;
- q. Yap State Code, Title 18, Chapter 10, Section 1101 – fruit bats; and
- r. Yap State Code, Title 20, Chapter 3 – building permits.

## 5.3 ENVIRONMENTAL IMPACT ASSESSMENT IN FSM

### 5.3.1 FSM Environmental Impact Assessment Regulations

- 132. The purpose of the EIA Regulations is to implement Section 13 of the *Federated States of Micronesia Environmental Protection Act* by establishing standard procedures for preparation of an environmental impact assessment statement prior to taking or funding any major action that may significantly affect the quality of the human environment.
- 133. Part I (l) defines Project Proponents as the FSM National Government or its agencies or the recipient of funding from the FSM National Government or its agencies, that propose to undertake any major action significantly affecting the quality of the human environment. Part II (2.1) requires project proponents *“to conduct an EIA itself or contracts for its conduct, and is responsible entirely for its adequacy, and timely completion.”*
- 134. Part II (2.2) empowers the Secretary of the Department of Human Resources to receive EIA Statements and to review them for compliance with 25 F.S.M.C. 702 and the regulations in terms of format, adequacy of information and objectivity. The Secretary shall only authorize commencement of projects or release of funds for the proposed project if s/he determines that the EIA Statement is sufficient. No permits shall be issued until approval of the EIA Statement by the Secretary.
- 135. Part III sets out the EIA process. Part IV elaborates on this process which is a two-step assessment process with the first step being the submission of an Initial Assessment using a checklist template. If following evaluation there are potentially severe environmental impacts, then a Comprehensive EIA is required. The contents of the Comprehensive EIA are set out in Part V.
- 136. The EIA process is intended to help the general public and government officials make decisions with the understanding of the environmental consequences of their decisions, and take actions consistent with the goal of protecting, restoring, and enhancing the environment. These regulations provide the directions to achieve this purpose. In addition, these regulations are designed to:
  - a. Integrate the EIA process into early planning of projects to insure timely consideration of environmental factors and to avoid delays; and
  - b. Identify at an early stage the significant environmental issues requiring further study and de-emphasize insignificant issues, thereby defining the scope of the EIA.



### 5.3.2 State EIA regulations

137. The four States of FSM each have their respective state level regulation elaborating on the National EIA Regulation and stipulating their specific requirements. The state level EIA Regulations are briefly discussed below:

#### 5.3.2.1 Chuuk State Environmental Protection Act 1994

138. The Chuuk State *Environmental Protection Act 1994* creates and empowers the Chuuk State EPA. Section 1005 defines the functions and powers of the Chuuk EPA, one of which (para f) is:

*"Establish and provide for the continuing administration of a permit system whereby a permit shall be required before the discharge by any person of any pollutant in the air, lands and water or for the conduct by any person of any activity, including but not limited to, the operation, construction, expansion, alteration of any facilities."*

139. Section 1006 of the Act states that "A person shall submit an environmental impact statement to the Agency, in accordance with regulations established by the Agency, prior to taking any major action which may substantially affect the quality of the environment."

140. There are penalties for any persons who violate the Act or any permits, orders etc issued under it. The Act is not clear regarding the process of applying for a permit, and the environmental assessment requirements to support such an application.

#### 5.3.2.2 Kosrae State Development Regulation 2014

141. The purpose of the *Kosrae State Development Regulation 2014* is to implement Title 7, Chapter 4 of the Kosrae Code by establishing the EIA process which is intended to help the general public and government officials make decisions *"with the understanding of the environmental consequences of their decisions, and take actions consistent with the goal of protecting, restoring, and enhancing the environment.* In addition, the regulations are intended to:

- c. Integrate the EIA process into the early planning of projects to insure timely consideration of environmental factors in order to avoid delays; and
- d. Identify at an early stage the significant environmental issues requiring further study and de-emphasize insignificant issues, thereby defining the scope of the Environmental Impact Statement ("EIS")."

142. The Regulation defines a "development project" to mean the construction, alteration, movement, fill, removal, disposal or any other modification to the land or coastal areas. A development project can include, but is not limited to the installation, placing, or building of surface structures, land reclamation, navigation channels, harbors, utility lines, piers, shopping centers, clearing land, causeways, golf courses, apartment complexes, hotels, schools, roads, parking areas, or any other similar activity. It also defines "Earthmoving" to mean any construction or other activity which disturbs or alters the surface of the land, a coral reef or bottom of a lagoon, including, but not limited to excavations, dredging, embankments, land reclamation in a lagoon, land development, subdivision development, mineral extraction, ocean disposal, and the moving, depositing or storing of soil, rock, coral or earth.

143. Section under Part III sets forth a Development Review Permit Process which among other things, requires the developer to conduct initial consultation with the Kosrae Island Resource Management Authority to explain the planned development and to determine if a Development Review Permit application is necessary. If necessary, the proponent then submits an application for a Development Review Permit including an EIA Checklist (and other attachments). The review of the application will involve a determination if an EIS is necessary, depending on the Technical Advisory Committee's assessment of the nature and severity of the potential impacts. A Development Review Permit will be granted by the Kosrae Island Resource Management Authority.

144. The DRC also determines if (under Section 3.7) the proposal requires a public information meeting "whenever it is reasonably foreseeable that a project will result in a significant impact to the environment. DRC will ensure that all affected persons will have the opportunity to provide input, written or oral, for the project."

#### 5.3.2.3 Pohnpei State Legislative Framework

145. Pohnpei's *Environmental Protection Act 1992* establishes a procedure for preparation of an environmental assessment statement prior to any action that may significantly affect the quality of the human environment. The degree of environmental assessment detail for a project depends upon the significance of its potential environmental impacts. Significance of the action is determined by the EPA on consideration of an Initial Assessment (with a prescribed checklist) submitted by a proponent.

146. The EPA receives the environmental assessment document and reviews it for compliance with S.L. No. 3L-26-92 and the regulations in terms of format, adequacy of information and objectivity. The EPA authorizes commencement of a project, through a permitting process, only if it determines that the assessment is sufficient. Once the completed assessment is presented to the EPA Board of Directors and upon the final deliberations of the EPA Board, a permit will be given to the project proponent with conditions for compliance of the project proponent as required by EPA regulations.
147. There is a range of potentially required permits and licenses for a major development in Pohnpei. These comprise:
  - a. EPA Earthmoving Permit;
  - b. Land Ownership documentation;
  - c. Forestry Clearance;
  - d. Marine Resources Assessment Report;
  - e. Municipal Government Clearance (planning approval);
  - f. Department of Lands approval; and
  - g. Historic Preservation clearance.
148. The proposed FSMMIP is on Pohnpei Port Authority land and is included in the Transportation Zone covered by the provisions of the *Pohnpei Port Authority Act 1991*, which establishes the overriding power of the PPA to undertake any development or activity to further the objective of the Pohnpei Port Authority and Act "with all powers thereto."
149. The Act also requires the active assistance of all government authorities to achieve its goals. The result, in practice, is that only the EPA Earthmoving Permit is required. This applies to projects with significant amounts of earthworks. Its focus is the management of soil and water conservation. Dredging is included under the earthworks' provisions.

#### 5.3.2.4 Yap - Regulations for Environmental Impact Assessment, Title II, Chapter I. 1995

150. Administered by the Yap State Environmental Protection Agency (YSEPA), the *Regulation for Environmental Impact Assessment 1995* implements the *Yap State Environmental Quality Protection Act* by establishing standard procedures for the preparation of an EIS prior to any action proposed to be undertaken in Yap State that may significantly affect the quality of the human or natural environment. In addition, these regulations are designed to:
  - a. Integrate the EIA process into early planning of projects to ensure timely consideration of environmental factors and to avoid delays; and
  - b. Identify at an early stage the significant environmental issues that may require further study thereby the, scope of the EIA.
151. The Regulation requires that all projects require a Preliminary Environmental Impact Statement (PEIS) (Part II; 2.1, 2.2) prior to and preferably early in the planning stages of the development proposal. The PEIS will comprise of the following information:
  - a. A brief description of the project;
  - b. A description of the environmental setting of the project;
  - c. A general description of the project's technical, economic, social, health, and environmental effects;
  - d. The further identification of possible environmental impacts by use of the checklist provided in the Regulation under Appendix A;
  - e. Possible alternatives to mitigate any adverse impacts;
  - f. A brief description of the need for the proposed project (e.g. community benefit, environmental benefit); and
  - g. The name of the person or persons who prepared or participated in preparing the PEIS.
152. There are exemptions from the preparation of a PEIS for activities that "will probably have minimal or no significant effects on the environment." Among those exempted activities are "(1) Operations, repairs, or maintenance of existing structures, facilities, equipment, or topographical features, involving negligible or no expansion or change of use beyond that previously existing; (2) Interior alterations involving things such as partitions, plumbing, and electrical conveyances."
153. Where the environmental impacts in the PEIS is assessed by the EPA Board to be have severe potential impacts, the proponent is required to prepare a more detailed environmental assessment report (Draft EIS) which will be reviewed and commented on by the EPA Board and others including the public, and these comments are send to the Proponent for review and incorporation into the Final EIS.

154. A process of public consultation and review of the Draft EIS is also provided in the Regulation (Section 3.4) with all written comments to be received by EPA after a specified period. The EPA Board makes a determination whether or not to approve the proposal, with or without conditions, or to decline, within 30 days of submission of the finalized EIS.

## 5.4 WORLD BANK SAFEGUARD POLICIES

155. Initial screening indicates that the World Bank Safeguard Policies Environmental Assessment (OP/BP4.01), Natural Habitats (OP/BP 4.04), Indigenous Peoples (OP/BP4.10) and Involuntary Resettlement (OP/BP 4.12) will be triggered as a result of the Project, requiring the Borrower to prepare the safeguards instruments to guide detailed planning once sub-projects are identified firmly at a later stage of Project planning.
156. The project is being assessed under the WB Safeguards Policies utilized prior to the introduction of the current World Bank Environmental and Social Framework in August 2018. There are a number of Safeguards Policies that are triggered and considered applicable to FSMMIP. Screening based on field investigations, stakeholder consultations and a review of potential options for implementation confirms an assessment of Category B for the Project. The screening finds that potential impacts are less significant, site specific, mostly reversible and that a range of potential measures for mitigation can be readily designed in the majority of cases.

### 5.4.1 OP/BP 4.01 Environmental Assessment

157. The purpose of Environmental Assessment is to help ensure the environmental and social soundness and sustainability of investment projects, and to support the integration of environmental and social aspects of FSMMIP into the decision-making process. The policy defines procedures to screen and assess potential impacts and mitigation, prepare safeguard instruments, ensure public consultation and transparency and that there are implementation and supervision of commitments relating to findings and recommendations of the environmental assessment.
158. OP/BP 4.01 was triggered at Concept Stage and an Environmental and Social Management Plan (ESMP) and an Environmental and Social Management Framework (ESMF) prepared for the project. Consultations were held during the environmental assessment and on the draft instruments. The project has been screened as Category B as the impacts are considered moderate and readily prevented and mitigated. The ESMP has been prepared for the activities identified during project preparation and mostly relate to the physical works to upgrade the various ports. The ESMF has been prepared to provide a screening and risk management process for sub-projects that are identified following the strategic management planning processes and to inform the safeguards approaches to technical advisory activities.
159. This ESMF is an integral part of compliance with this policy. All activities proposed for funding and implementation under the FSMMIP are subject to the provisions and stipulations within this document. This includes the physical investments and associated facilities, the advice provided under Technical Assistance, the management of environmental and social risks relating to port facilities, and in the design of the future port related projects.

### 5.4.2 OP/BP 4.04 Natural Habitats

160. The conservation of natural habitats is essential for long-term sustainable development. The World Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions. The World Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs.
161. Some components will not affect any natural habitats. Repairs and upgrades to channel markers have the potential to affect natural habitats. However ancillary activities may have direct and indirect impacts; aggregate mining for concrete production, shipping oil spills, and waste management on the atolls have the potential to impact local reef and marine benthic ecosystems. The FSMMIP will only use aggregate sourced from licensed quarries on the islands. The FSMMIP will not include the mining of aggregate from marine systems
162. The policy is also relevant for the preparation of future projects. Remnant coral habitats in all lagoons beyond the immediate port area may be affected in the short term from contaminated storm water from earthworks and construction activities if not adequately managed, and in the long term from contaminated storm water drainage from the ports or spill events. Mitigation measures in the ESMP address the design and operation of drainage and storm water treatment devices, erosion and sediment control measures, removal of waste, improved oil and fuel management procedures, and improved spill response skills and equipment, and ongoing monitoring, and are considered satisfactory for reducing short and long term risk to these habitats.
163. Limited land for contractor's use (laydown areas) may be required temporarily and land selection will avoid existing natural habitats. The ESMF and ESMP will guide contractors' activities accordingly.

#### 5.4.3 OP/BP 4.10 Indigenous Peoples

164. The Bank recognizes that the identities and cultures of Indigenous Peoples are inextricably linked to the lands on which they live and the natural resources on which they depend.
165. This policy contributes to the Bank's mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples. For all projects that are proposed for Bank financing and affect Indigenous Peoples, the Bank requires the borrower to engage in a process of free, prior, and informed consultation. The Bank provides project financing only where free, prior, and informed consultation results in broad community support to the project by the affected Indigenous Peoples.
166. This policy is triggered, however as the overwhelming majority of beneficiaries are indigenous, the elements of the policy or safeguard instrument are 'integrated into design' and no separate Indigenous People Plan is required.

#### 5.4.4 Physical Cultural Resources

167. The policy seeks to preserve physical cultural resources and avoid their destruction or damage. It encompasses resources of archaeological, paleontological, historical, architectural and religious (including grave yards and burial sites), aesthetic, or other cultural significance.
168. The environmental assessment has confirmed there are no physical cultural resources issues for the FSMMIP landside infrastructure. The sites are all within urban areas and heavily modified from decades of earlier development

#### 5.4.5 OP 4.12 Involuntary Resettlement

169. There will be no involuntary land acquisition. Compulsory acquisition of land in FSM, although legally possible, is very difficult and not supported by the cultural norms of land tenure. All projects will either be located on Government land (for example reclaimed land).

#### 5.4.6 World Bank General Environmental, Health and Safety Guidelines

170. The World Bank Group's General Environmental, Health, and Safety Guidelines (EHS Guidelines) (World Bank Group, 2007) represent good international practice for managing occupational health and safety (OH&S) risks. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs.
171. The fundamental premise for OH&S under the EHS Guidelines is that *"Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers"* and that *"Companies should hire contractors that have the technical capability to manage the occupational health and safety issues of their employees..."*.
172. The overall OH&S philosophy embodied in the EHS Guidelines is that preventive and protective measures should be introduced according to the following order of priority:
  - a. Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc.;
  - b. Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc.;
  - c. Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
  - d. Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.
173. The EHS Guidelines also require that prevention and control measures to minimize occupational hazards should be based on comprehensive job safety analyses (JSA). The EHS guidelines apply to the design, construction and operation of facilities that are part of the FSMMIP.
174. All workers engaged on the FSMMIP will need to be covered under the terms of the EHS Guidelines.

## 5.5 GAP ANALYSIS OF FSM LAWS AND REGULATIONS AND WB SAFEGUARDS POLICIES

175. Table 1 identifies requirements of the triggered WB Safeguard Polices (OP/BP 4.01, OP/BP 4.04 and OP/BP 4.10) alongside relevant FSM legislation and confirms compliance.

Bank Safeguards Policy Requirement	FSM Equivalent	Equivalence
<b>OP/BP 4.01 Environmental Assessment</b>		
Environmental Screening. Projects categorized as A, B or C.	The EIA Regulations at the national and state levels address a number of these matters (screening, mitigation, monitoring, and consultations) in regard to earthworks and infrastructure activities. If these activities are undertaken as part of the project, they will be subject to the EIA regulations.	The ESMF follows OP4.01. All sub-projects will be managed as per the ESMF, which integrates the requirements of FSM and state EIA regulations.
Category B projects require a 'limited' environmental assessment (which includes a social assessment) and requires a safeguards instrument (ESIA, ESMP etc.) depending on the nature and scale of impacts.		
An ESMP that includes mitigation measures, allocation of responsibilities, costs and reporting requirements.		
Monitoring is required that includes a monitoring framework that allocates location, frequency, costs and responsibilities.		
Public consultation required for Category A and B projects		
Disclosure is required		
Institutional capacity and training requirements are assessed.		
<b>OP/BP 4.04 Natural Habitats</b>		
Application of precautionary principle to natural resources to ensure environmentally sustainable development	The <i>Environment Protection Act</i> (revised Code 2014) and relevant FSM and State Acts and Codes contain elements that address aspects of natural resource management and protection.  Activities that have the potential to impact natural habitats will be subject to FSM legislation above.	The ESMF follows OP4.04. All sub-projects will be managed as per the ESMF, which integrates the requirements of FSM EIA regulations.
Identification of natural habitat issues and special needs for natural habitat conservation		
Measures for protecting natural areas in the context of country development strategies		
Mitigation measures		
<b>OP/BP 4.10 Indigenous Peoples</b>		
Screening to identify whether Indigenous Peoples are present	FSM law recognizes the heritage, traditional boundaries and cultural ties to the islands.	As the overwhelming majority of beneficiaries are indigenous, the elements of the policy are 'integrated into design' and no separate Indigenous People Plan is required.  The ESMF fulfils the intent of OP4.010. All sub-projects will be managed as per the ESMF, including recognition of cultural norms, land tenure, continuing consultation and participation and disclosure.
Social assessment to assess potential adverse impacts		
Consultation and participation		
Indigenous Peoples Plan (if required)		
Disclosure is required		

Table 1 Gap Analysis of FSM laws and regulations and WB Safeguards Policies

## 6 PROCEDURES TO ADDRESS ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

176. This ESMF was developed to ensure due diligence, to avoid causing harm or exacerbating risks or impacts. This section describes the procedures in place to determine: (i) the categorization of the project activity based on potential adverse environmental and social impacts of project activities, and (ii) how potential impacts will be addressed through the selection of appropriate mitigation and management plans.
177. The Project involves development of sub-projects or provision of Technical Assistance (“TA”), which are all collectively termed “sub-projects and associated elements” in this ESMF.
178. There are certain physical investments that are known, and the rest will be identified during project implementation. The activities (sub-projects) that are known are covered by the ESMP (Annexure C). The sub-projects that will be identified during project implementation need to go through the screening process, described below, to identify the nature and scale of potential impacts, the OPO4.01 categorization and the safeguard instrument that will be required. The safeguard instrument will either be:
- The existing ESMP;
  - a new ESMP;
  - a new ESIA and ESMP;
  - something else like a guideline, standard operating procedure, etc.; or
  - no instrument required.
179. Contractors must prepare a Construction Environmental Management Plan (CEMP) – and ESMP specifically focused on construction related issues. The Contractor can use the resources included in the ESMF/ESMP (e.g. Annexures with plan outlines) to prepare the CEMP. The CEMP must be cleared by the DoTCI and WB prior to works starting.

### 6.1 APPLICABLE SAFEGUARD INSTRUMENTS

180. Table 2 outlines the various safeguard instruments.

Safeguard Policy	Type of sub-project	Applicable Instrument
OP4.01 Environmental Assessment	All sub-projects or activities	An ESMF has been prepared as the project comprises a series of activities, and the impacts of some activities cannot be determined until the details have been identified during implementation. All subprojects require completion of the Safeguard Screening Form.
	Category A - Broad, diverse, potentially irreversible impacts; major resettlement; conversion of natural habitats; hazardous materials	Any sub-projects screened as Category A will be ineligible for financing. As most sub-projects will involve rehabilitation of existing infrastructure, Cat A sub-projects are unlikely. Exceptions could include sub-projects that require dredging or removal of areas of coral, or activities that have the potential (perhaps as a secondary impact) to result in significant contaminant production e.g. as produced during careening.  Cat A projects will require new ESIA's and ESMPs. Cat A projects are not financeable under the FSMMIP.
	Category B – Geographically - limited, readily identified impacts that can be mitigated	An EIA is undertaken for Category B sub-projects to provide sub-project-specific data/information and further analysis including site assessment, and analysis of alternatives / environmental and technical constraints to determine the full extent of environmental and social impacts. It may also involve an environmental audit, hazard

		assessment, etc. An ESMP will be prepared to manage potential environmental and social risks. Cat B sub-projects are permissible under the FSMMIP.
	Category C - Negligible or minimal potential impacts that are easily mitigated	Category C projects do not require any safeguard instrument beyond screening. Cat C sub-projects are permissible under the FSMMIP.
Natural Habitats OP/BP 4.04	Marine works	Safeguard Screening Form. EIA/ESMP requirements as for OP4.01. Cat B and C sub-projects are permissible under FSMMIP.
Indigenous Peoples OP/BP 4.10		Almost the entire population of the country are indigenous Marshallese and their rights are represented through administrative system of the country. Municipal Council is the key administrative body for representation at the local level and therefore consultations with the Council members should be included at each sub-project development step.  A Stakeholder Engagement Plan has been developed and must be applied.  No Indigenous Peoples Plan is required for the FSMMIP

Table 2 Safeguards Instruments

## 6.2 ENVIRONMENTAL AND SOCIAL SAFEGUARD PROCEDURES

181. This section sets out a process for screening sub-projects and associated elements during project implementation. Any sub-project and associated elements developed during the Project should be evaluated according to the screening process described below to determine the potential risk of associated environmental and social impacts, and associated mitigation options. The process consists of the following steps:

- a. Step1: at the time of preparing Terms of Reference for each sub-project or associated element (TA or services delivery component), each sub-project or associated element shall be screened and categorized, with a decision made to proceed or modify the proposal to ensure it remains within Category B or C, and identify relevant safeguards instruments;
- b. Step 2: Preparation of required safeguards instruments (ESMP) including stakeholder consultations as necessary;
- c. Step 3: Review of prepared safeguards instruments as per FSM and WB safeguards policies; additional stakeholder consultations as deemed necessary (DoTCI and WB);
- d. Step 4: Submit prepared safeguards instruments to WB for no objection. Disclosure of approved instruments locally and on WB's website (DoTCI); and
- e. Step 5: Implementation – monitoring, reporting and remedial measures as per approved ESMP etc. Ongoing consultations and community engagement (DoTCI and relevant Port Authority).

### 6.2.1 Step 1: Screening Review and Determination of Safeguard Instruments

182. Activities associated with each sub-project and associated elements will be screened by the DoTCI Safeguards Specialist to assess whether the sub-project will create any of the environmental and social risks identified in the Screening Form.

183. This screening shall be undertaken at the point at which ToR are being prepared for the sub-project or associated element. This will ensure all relevant matters can be taken into account when ToR are finalized.

184. Each sub-project or associated element is screened for Categorization (A, B, C), since the detailed nature and scale of subprojects are not known at the time of project preparation. If screening indicates Category A then that element will not be eligible for funding, since the risks are higher than what was appraised at project preparation. The ToR for that element will need to be modified to ensure compliance with Category B and C which are eligible for funding.
185. Reference should be made in each case to the mitigation measures identified in Section 8 – Environmental and Social Impact Mitigation Strategies. Any new impacts shall be noted, and associated mitigation measures shall be developed. Any new mitigation measures should also be added to the ESMF as part of the review/update process.
186. This is an adaptive management project, and consequently there is the possibility that the project could diverge away from what has been screened in this ESMF. The ESMF recognizes a need for such flexibility, but “sub-project and associated element categorization” ensures that all projects/programs etc. under the project will meet WB safeguards requirements, including preparation of an ESMP as necessary or inclusion of standard environmental/social clauses in contracts/ToR. For TA, the minimum requirement will be that compliance with WB policies and the project ESMF is included in the ToR.

#### 6.2.2 Step 2: Preparation of safeguards instruments

187. After each element is assessed in Step 1 relevant safeguard instruments are prepared as appropriate.
188. For sub-projects involving physical works, potential risks should be assessed against those presented in Section 8 and appropriate mitigation strategies selected. An ESMP will then be developed using the template EMSP.
189. For TA: a clause should be inserted in the ToR requiring (as a minimum) compliance with ESMF and policies. Specific clauses may be required to ensure mitigation measures from Table 2 are included in the outputs / recommendations or approaches.
190. The DoTCI will be responsible for preparing relevant safeguards documentation and undertaking stakeholder consultations as necessary.

#### 6.2.3 Step 3: Review of prepared safeguards instruments as per WB Safeguards Policies

191. The WB Safeguards Team will review all prepared safeguards instruments to determine their adequacy vis-à-vis the Bank’s safeguards policies. The review will ensure that the ESMP is consistent with WB’s requirements. Apply for any necessary FSM Environmental Permit at this time if relevant.

#### 6.2.4 Step 4: Submit prepared safeguards instruments to WB for no objection and Disclosure.

192. The DoTCI will submit the prepared instruments to the WB once reviewed and finalized, for a WB no objections letter (NOL). On receipt of the ‘NOL’, the CIU will proceed with disclosing the instruments locally. Disclosure is intended to support the decision making by FSM and the WB by allowing the public access to information on the environment and social aspects of projects.
193. The WB will also disclose the same safeguards instruments on its website.

#### 6.2.5 Step 5: Implementation and Monitoring

194. Projects are implemented according to ESMP (if required), including ensuring Contractor’s bid documents include the ESMP, Standard Environmental and Social Contract Clauses, roles and responsibilities are clearly explained, and suitable budgets are allocated. DoTCI will provide support for development and implementation of the ESMP as relevant.
195. During project implementation, DoTCI monitors progress and reports on:
  - a. compliance with measures agreed with the WB on the basis of the findings and results of the EA, including implementation of any ESMP, as set out in the project documents;
  - b. the status of mitigation measures; and
  - c. the findings of monitoring programs.

### 6.3 CONTINGENT EMERGENCY RESPONSE COMPONENT

196. A Contingent Emergency Response Component (CERC) is also included within to enable FSMMIP funds to quickly be reallocated to respond to emergency events. Component 4 is designed to provide swift response in the event of an



Eligible Crisis or Emergency<sup>3</sup> by allowing a portion of undisbursed project funds to be reallocated to respond to natural disasters and/or other crises and emergencies. The CERC may be used following natural disasters or other crises and emergencies, allowing funds to be reallocated from other components of the project.

197. Activities under Component 4 will be governed by the World Bank Directive *Contingent Emergency Response Components (CERC)* (October, 2017). Disbursement of emergency financing under the CERC will be contingent upon:
  - a) the recipient establishing a nexus between the disaster event and the need to access funds to support recovery and reconstruction activities (an "eligible event"); and
  - b) submission to and no objection granted by the World Bank of an Emergency Action Plan (EAP). The EAP will include a list of activities, procurement methodology and safeguards procedures.
198. The EAP will require consideration of safeguard implications for any proposed emergency supplies procurement or reconstruction activities. The World Bank, through the no objection process, will closely examine the nature of the proposed activities, particularly those involving civil works, to ensure (i) that they are not prohibited under the negative list and (ii) that the recipient is aware of the required safeguard compliance documentation before initiating the process by which the proposed works will be prepared and implemented.
199. Emergency activities financed under the CERC will involve financing provision of critical goods or emergency recovery and reconstruction works and it is likely these will fall into Category B or C. Activities that fall under Category C could involve procurement of emergency supplies such as medicine and water and do not require the application of safeguard instruments, post-screening or assessment. Other emergency supplies, such as fuel products, will require safeguard instruments (such as Environmental Codes of Practice or EMPs) to ensure procurement, storage and dispensing procedures are adequate.
200. Preparation of the EAP will have regard to this ESMF and safeguard instruments will require World Bank approval prior to commencement of activities. Importantly, the EAP will need to include procedures for:
  - a. Consultation and disclosure;
  - b. Integration of mitigation measures and performance standards into contracts; and
  - c. Supervision/monitoring and reporting measures to ensure compliance.
201. In order to ensure that CERC subproject activities comply with the requirements of the Bank's Safeguard Policies, a positive and negative list has been developed to provide guidance on critical imports and/or for emergency works, goods or services which may be eligible for financing. The negative list and screening process will be retained, but will need to allow for a degree of flexibility and efficiency in processing potential sub-projects. Further guidance will be detailed in the Finance Agreement (FA) and CERC Operations Manual.

### 6.3.1 CERC Positive List

202. The purpose of the positive list is to indicate the types of critical imports and emergency works following a loss and needs assessment that would be acceptable to the Bank to be financed under Component 4 (CERC). Project funds allocated to the CERC Disbursement Category may be used to finance any expenditure of the Recipient that is consistent with the FA provisions.
203. The following subproject or activities will be deemed eligible under the CERC:
  - a. Critical Imports: Eligible expenditures on critical imports required by the public/private sectors (imported or locally manufactured) under the CERC include:
    - b. Construction materials, equipment and industrial machinery
    - c. Water, air, land transport equipment, including spare parts
    - d. Purchase of petroleum and other fuel products;
    - e. Any other item agreed to between the World Bank and the Recipient (as documented in an Aide-Memoire or other appropriate Project document)
  - f. Emergency Sub-projects: Eligible expenditures for emergency sub-projects initiated following the Declaration of a National Emergency/Disaster in response to damage, losses and needs caused by an event are as follows:

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<sup>3</sup> Defined as "an event that has caused, or is likely to imminently cause, a major adverse economic and/or social impact associated with natural or man-made crises or disasters", Paragraph 12, Bank Policy: Investment Project Financing, *Projects in Situations of Urgent Need of Assistance or Capacity Constraints*.

- g. Repair or reconstruct streets, roads, bridges, transportation and other infrastructure damaged by the event;
- h. Reestablish telecommunications infrastructure damaged by the event;
- i. Reestablish drainage systems damaged by the event;
- j. Remove and dispose of debris associated with any eligible activity;
- k. Stabilize heavy erosion along waterfronts.

### 6.3.2 CERC Negative List

204. Sub-projects with the following potential impacts will not be eligible for financing under the CERC component or the parent project:
- a. involve the significant conversion, clearance or degradation of critical natural habitats, forests, environmentally sensitive areas, significant biodiversity and/or protected conservation zones;
  - b. will cause, or have the potential to result in, permanent and/or significantly damage to nonreplicable cultural property, irreplaceable cultural relics, historical buildings and/or archaeological sites;
  - c. will negatively affect rare or endangered species;
  - d. will result in involuntary land acquisition or physical displacement of affected communities, or relocation of Indigenous Peoples that would restrict or cease their access to traditional lands or resources;
  - e. do not meet minimum design standards with poor design or construction quality, particularly if located in vulnerable areas;
205. The subprojects will also not require or involve:
- a. purchase, application or storage of pesticides or hazardous materials (e.g. asbestos);
  - b. building structures that will alter coastal process or disrupt breeding sites such as retaining walls or seawalls;
  - c. sand/aggregate mining or land reclamation, particularly with material from the marine environment;
  - d. land that has disputed ownership, tenure or user rights;
  - e. land that is considered dangerous due to presence of UXO;
  - f. political campaign materials or donations in any form;
  - g. weapons;
  - h. any activity that supports drug crop production, processing or distribution; and
  - i. a higher proportion of funding than is available

## 7 SIGNIFICANT POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

### 7.1 BASELINE CONDITIONS

- 206. General national environmental and social baseline information is provided in
- 207. The project will undertake activities across five ports in FSM. The activities will be undertaken in locations that are not natural in that they are all on reclaimed land and are significantly disturbed both natural and anthropogenic. The environmental and social impacts envisaged for the project are predominantly temporary in nature and are associated with construction and upgrading activities.

### 7.2 COMPONENTS/ACTIVITIES

#### 7.2.1 Component 1 Maritime Infrastructure Investments

- 208. Component 1 will enhance the resilience of maritime structures to natural disasters and climate change impacts through the integration of planning, design, construction, rehabilitation and operation of facilities. Examples are repairs to existing berth and apron facilities including the underwater quay structure, improvement in drainage systems to avoid pooling of water in cargo handling area and container yards, and the provision of floating pontoons for passenger transport.
- 209. There are a number of potential impacts associated with the works including but not limited to the potential erosion and sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of trucks and excavators, the potential leakage of chemicals and oils, and other potential impacts. There is also the potential for the construction activities to generate sediment that may increase silt load through overland flow to other environments. The likelihood of these impacts is moderate and the impacts are considered to also be moderate.
- 210. Give the FSM states are larger islands, there is the potential for local options for the sustainable sourcing of large volumes of aggregate needed for concreting of large areas of hardstand (container yards). The FSMMIP will only use aggregate sourced from licensed quarries on the islands. The FSMMIP will not include the mining of aggregate from marine systems.
- 211. The construction works involve in the building of the levelling, subbase, drainage and payment works will result in the movement of sediment to install the pipe and channel works. It is anticipated that some of the material to be used for the construction of the channel works will where possible, be pre-fabricated and purchased in FSM although that will be very dependent on specific activities. The proper handling of this material, and where possible, recycling and reuse of any local materials should be considered. The likelihood of these impacts is moderate and the impacts are considered to also be moderate.
- 212. The construction activities could also result in changes to people's ability and particularly port user's ability to use the port. The likelihood of these impacts are moderate and the impacts are considered to also be moderate and particular care should be undertaken to ensure operations can continue uninterrupted.
- 213. All construction and operation activities have the potential to cause noise nuisance. Vibration disturbance to nearby residents and sensitive habitats is likely to be caused through the use of vibrating equipment, machinery and the like particularly when undertaken container yard works. Blasting is not required to be undertaken as part of the FSMMIP.
- 214. Heavy machinery and haul trucks can generate high noise levels within and along the FSMMIP area and route. All machinery and vehicles used will be restricted to 7am to 5pm. The likelihood of these impacts are moderate and the impacts are considered to also be moderate.
- 215. Air quality is unlikely to be affected due to the limited exhaust emissions from construction vehicles and machinery such as plant for excavating foundations, concrete mixers, water tankers, small cranes, dumpers, forklift for the block work and fugitive emissions from aggregates, dust from exposed soils and stock piles. The likelihood of these impacts are slight and the impacts are considered to also be negligible.
- 216. The FSMMIP is unlikely to result in significant waste, notwithstanding that waste is already a significant issue for the five ports. There may be the potential for sediment waste during substrate levelling etc. activities. Where possible, any extra sediment will be used on site, or in the alternative, provided to local users. The likelihood of these impacts are moderate and the impacts are considered to also be minor.
- 217. There is unlikely to be any significant impacts on both terrestrial and marine ecology (see note below for Tonoas). Terrestrially, the sites are all highly disturbed. As such, the likelihood of any impacts are considered to slight with

negligible impact. The FSMMIP is also unlikely to have a significant impact on marine environments. The FSMMIP will not construct any new structures that will reduce fish movement and/or alter existing benthic environments and moreover, will not undertake in water activities, unless there is the need to change existing superstructure for the aids for navigation. The likelihood of these impacts are moderate and the impacts are considered to also be moderate.

218. Access to port facilities are critical for the loading and re-provisioning of both the domestic and international purse-seine and longline fisheries. The use of the port by these vessels makes an economic contribution to the local and regional economies. During the construction phase, there may be delays and disruptions to port activities, however from available information it is not possible to determine the duration and extent of any such delays or disruptions. If all operational efforts are made to reduce disruptions and delays, the potential impacts overall should be moderate (moderately likely impacts of minor magnitude). It should be recognized that this is a precautionary categorization only.
219. The FSMMIP could allow additional vessels to utilize the ports. Particularly at Kosrae Port, there was a substantial amount of fisheries waste (large dead fish) discarded straight off the dock and onto the reef flat area to the west of the port and also into benthic habitat of the port main operational area. While some discards of this nature are probably inevitable, it should be noted that a sustained practice and/or continuing large events of this type of disposal could lead to undesirable consequences, such as microbial outbreaks that may affect the wider ecosystem around the port. This is of particular interest in Kosrae given the marine protected area close (to the east along the channel) to the port and the adverse consequences this may have to wildlife, not to mention human amenity (it was noted that families picnic at huts along the Kosrae coastline of this channel on the weekend). Further, the discarded fish could give rise to changes in trophic ecological systems and change the behavior of different species of marine animals.
220. An impact that continued to be raised during our stakeholder consultations was the potential influx during construction of overseas workforce and the potential impacts on gender-based violence. Materials will be required to be imported and waste exported. The additional shipping movements, although not significant in number, still represent potential for illegal movement of people e.g. human trafficking and/or the contribution to prostitution, harassment and violence. The Assistant Attorney General (AG) of Yap indicated to us during our first stakeholder engagement session (we had about 30 extremely proactive participants) that FSM have laws in place with respect to local engagement and this is strongly preferred as the best option by all stakeholders that we have engaged. From a social (and somewhat environmental) perspective, this should be seriously considered during procurement.

### 7.2.2 Component 2 Maritime Security and Safety Equipment

221. Component 2 will enhance the climate resilience of communities by strengthening security and safety of maritime transport.
222. The replacement of quay furniture, fences, navigation aids etc. could result in waste creation through the need to dispose of the old infrastructure, along with packaging for new materials. The waste materials is expected to be mostly benign.
223. Some port users may object to increased security and more restricted access. This is likely to be temporary until users get used to the new arrangements and stakeholders better understand the benefits that improved security and safety bring.
224. The FSMMIP will involve the erection of security fences and lighting around the ports. Light pollution can affect wildlife e.g. turtles and birds. These effects may include adverse effects to marine zooplankton behavior, adverse effects from fish aggregations at artificial light sources, potential effects on invertebrate spawning behavior where lunar phase is used as a cue and displacement and/or disorientation of some marine wildlife (particularly marine turtles [hatchlings and adults] and marine birds).<sup>4</sup> Despite this, the impacts from the new lighting in the proposed project are expected to be negligible, particularly given the extensive existing artificial lighting already in the area, and the fact that there does not appear to be any sea turtle nesting habitat or significant seabird nesting areas in the coastal vicinity of the port.
225. The project will increase awareness of the issues and provide services for nearby communities to access. The increased community awareness and capacity building with respect to human trafficking and prostitution will also have positive impacts outside the maritime sector.
226. Provision of spill kits and search and rescue equipment will certainly have positive environmental and social impacts, although training and ongoing maintenance of the equipment will be needed. Also, disposal of any used spill kits will require handling of contaminated material. A Waste Management Plan will need to be developed in conjunction to the provision of the spill kits.

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<sup>4</sup> Davies, T.W., Duffy, J.P., Bennie, J. and Gaston, K.J., 2014. The nature, extent, and ecological implications of marine light pollution, *Frontiers in Ecology and the Environment*, 12(6), pp.347-355

### 7.2.3 Component 3 Technical Assistance and Project Management

227. Component 3 will enhance the climate resilience of maritime transport and local communities through Technical Assistance designed to strengthen the planning and management of port facilities, improve coordination of emergency response systems, elevate awareness of SAR and ISPS requirements, and implement FSMMIP activities.
228. Port Master Plans will have positive impacts in terms of facilitating logical and orderly development of ports in a way that best responds to predicted current and future needs. Few ports in FSM have Master Plans. Port Master Plans will require updating, say approximately every 10 years.
229. FSMMIP has the potential to assist in the empowerment of women through the promotion of female employment in the maritime sector.
230. World Bank safeguards policies also apply to technical assistance delivered under the project. Several key pieces of work funded by the project are under Component 3:
  - a. Prepare strategic development plans (Port Master Plans)
  - b. Prepare designs that consider climate resilient measures and supervise works
  - c. Review institutional and governance arrangements for port/dock management
  - d. Capacity building initiatives.
231. Each Terms of Reference will include relevant scope of work to ensure that environmental and social safeguards are integrated into the methodology and outputs of each technical assistance contract. The Terms of Reference will indicate the specific safeguards expertise required in the team and the level of effort required by the specialist(s). Standard clauses are provided below.
232. The FSMMIP also includes an assessment of options to better organize and strengthen oversight of private vessels operating in Chuuk Lagoon. There are currently about 800 vessels using a small area immediately south of the main port on Weno. The vessels are currently unregulated with respect to their movements, particularly when a larger vessel is entering the port. Changes could impact smaller vessels and cause delays or changes to vessel traffic movement paths during these times.
233. The Terms of Reference for any Technical Advisory projects should contain the following clauses as a minimum:
  - a. Analysis should include the environmental and social aspects and impacts, consistent with the safeguard policies of the World Bank and the Environmental and Social Management Framework, and FSM's National Infrastructure Plan and Coastal Management Framework.
  - b. Reviews, plans and designs should take into consideration IPCC predicted climate change impacts.
  - c. Outcomes and outputs (including, but not limited to, ESIA, ESMPs, concept designs and detailed designs) should be consistent with the safeguard policies of the Environmental and Social Management Framework.

### 7.2.4 Component 4 Contingent Emergency Response

234. Component 4 is designed to provide swift response in the event of an Eligible Crisis or Emergency by allowing a portion of undisbursed project funds to be reallocated to respond to natural disasters and/or other crises and emergencies. The CERC may be used following natural disasters or other crises and emergencies, allowing funds to be reallocated from other components of the FSMMIP.

### 7.3 ASSESSMENT OF ENVIRONMENTAL AND SOCIAL IMPACTS

Component / Sub-component	Positive Impacts		Negative Impacts	
	Positive	Enhancement	Negative	Mitigation
<b>Component 1: Maritime Infrastructure Investments</b>				
Leveling, subbase, drainage and hardening of primary terminal storage areas	<p>Improved maritime infrastructure, leading to enhanced port operations and efficiency and increased safety.</p> <p>Improved drainage and interception of pollutants</p> <p>Improved user safety</p> <p>Enhanced connectivity through improved climate resilience of maritime infrastructure</p> <p>Improved climate resilience of maritime infrastructure</p>	<p>Inclusion of gross pollutant traps and oil separators into drainage system. Consider ease of maintenance in design.</p> <p>Mapping of utility infrastructure and marking of same on-ground (improved safety and maintainability)</p> <p>Stakeholder engagement to ensure that user needs are considered / met</p>	<p>Hazardous substances and waste management</p> <p>Source of aggregates for construction (sand and gravel).</p> <p>Construction impacts (noise and dust, and disruption) to port users and nearby communities</p> <p>Some port users may object to increased security and more restricted access</p> <p>Occupational injuries or loss of life.</p>	<p>Development of waste management plans</p> <p>Removal and export of all solid and hazardous waste to permitted landfills.</p> <p>The FSMMIP will only use aggregate sourced from licensed quarries on the islands. The FSMMIP will not include the mining of aggregate from marine systems. If any aggregate is imported, where possible, it will be from Part 1 countries, no further due diligence required; If from Part 2 countries<sup>5</sup>, conduct due diligence on sources to ensure compliance with source government laws and regulations.</p> <p>Constrain working hours and provide adequate warning of works to affected people.</p> <p>Consult widely to ensure limited impacts</p> <p>Implement ESMP to mitigate risks</p>

<sup>5</sup> Part II Countries – Developing Countries including potential source PICs such as Palau, Nauru, Solomon Is., Fiji, Kiribati etc.

Rehabilitate utilities related to water supply, sewerage and power supply in container storage areas, as required	Enhanced port operations and efficiency. Improved safety	Inclusion of gross pollutant traps and oil separators into drainage system. Consider ease of maintenance in design.  Mapping of utility infrastructure and marking of same on-ground (improved safety and maintainability)  Stakeholder engagement to ensure that user needs are considered / met	Hazardous substances and waste management  Construction impacts (noise and dust, and disruption) to port users and nearby communities  Some port users may object to increased security and more restricted access	Develop an O&M plan  Development of waste management plans  Constrain working hours and provide adequate warning of works to affected people  Consult widely to ensure limited impacts  Implement ESMP to mitigate risks
Upgrade terminal superstructure, such as buildings and facilities in the primary cargo handling area, warehousing, reefer connections, incorporating environmental protective measures in works, and increasing energy efficiency.	Enhanced port operations and efficiency. Improved safety	Stakeholder engagement to ensure that user needs are considered / met  Ensure locations are convenient for all port users	Construction impacts (noise and dust, and disruption) to port users and nearby communities  Some port users may object to increased security and more restricted access	Development of waste management plans  Constrain working hours and provide adequate warning of works to affected people  Consult widely to ensure limited impacts  Implement ESMP to mitigate risks
<b>Component 2: Maritime Security and Safety Equipment</b>				
Repair quay wall structures, replace quay furniture (fenders, bollards, ladders, curbs) in principal ports	Enhanced port operations and efficiency. Improved safety	Consider sustainability in selection of materials and design/installation.	Waste management  Occupational injuries or loss of life  Potential to impact marine environment during construction	Contractors are required to prepare and implement Contractors ESMP, which includes an OHS/JSA manual.  All staff must be adequately trained and resourced for the job.  Provide barriers to exclude the public from work sites.  Implement ESMP to mitigate risks
Upgrade/provide fencing, gates and terminal lighting to ensure compliance with ISPS requirements	Increase port security. Increase in number of ports fully	Design to minimize light spill to reduce impacts to receptors (humans and fauna)	Waste production  Construction impacts (noise, dust, erosion)  Increased power use through lighting	Develop waste management plans  Implement ESMP to manage

	<p>compliant with ISPS requirements</p> <p>Reduced opportunities for human trafficking</p> <p>Increase safety for port workers and visitors</p>			<p>construction impacts</p> <p>Select power efficient lighting, design to optimise efficiency</p>
<p>Replace/upgrade Aids to Navigation</p>	<p>Navigation safety improved</p>	<p>Reinforce community awareness of importance and value of navigation aids to minimize vandalism / theft</p>	<p>Potential for environmental impacts during installation</p> <p>Occupational injuries or loss of life</p>	<p>Utilize existing markers / foundations if possible.</p> <p>Ecological survey of marker locations to identify presence of any sensitive habitats.</p> <p>Contractors are required to prepare and implement Contractors ESMP, which includes an OHS/JSA manual.</p> <p>All staff must be adequately trained and resourced for the job.</p>
<p>Spill Kits for principal ports and 150m containment boom system for Pohnpei Port</p>	<p>Oil spill kits available (currently none)</p> <p>Minimize and reduce the nature and scale of oil spills and associated impacts on ecosystems and wildlife</p>	<p>Provide training and develop program for scenario drills</p> <p>Develop Spill Contingency Plans that include communication and cooperation protocols (including non-DoTCI entities e.g. EPA Police to assist in rapid and effective deployment)</p> <p>Increase awareness of port users of potential for spills, how to avoid them and what to do in the event of a spill.</p> <p>Signage for port users to assist in detection and response to spills</p>	<p>Ongoing storage, maintenance and training in use of equipment required.</p>	<p>Develop O&amp;M plans. Training programs (including train the trainers)</p> <p>Used spill material is contaminated – waste management plan required</p>
<p>Gender-based Violence and Trafficking Prevention</p>	<p>Enhanced GBV, VAC and trafficking prevention training and support in the maritime sector</p>	<p>Social services accessible to project-adjointing communities</p> <p>Increase in proportion of community who are</p>	<p>Cultural resistance to discussing GBV and HT</p>	<p>Design gender sensitive, popular, and culturally appropriate IEC materials</p>



	Increase likelihood of GBV/HT survivors seeking assistance	<p>aware of available GBV and HT trafficking services</p> <p>Raise the awareness of mariners and build capacity of vessel owners on issues related to human trafficking.</p> <p>Set up processes and train potential enumerators for on-going Human Trafficking Assessment</p>		<p>Hold workshops to raise awareness</p> <p>Adopt culturally appropriate communication and teaching methods</p>
Provide Search and Rescue (SAR) equipment and safety devices	<p>SAR recommendations implemented (equipment available)</p> <p>Improved maritime safety</p>	Community awareness program – safety at sea	Need for O&M and ongoing training	<p>Develop O&amp;M plan</p> <p>Develop training program and undertake SAR drills.</p>
<b>Component 3: Technical Assistance and Project Management</b>				
Prepare designs and supervise maritime infrastructure works	Improved delivery of program	Nominate deputy or assistant PM to provide both support and redundancy (in event of sickness or accident) as well as a capacity building opportunity	<p>Lack of skilled resources</p> <p>Lack of safeguards experience</p>	<p>Recruit and include mentoring component in role.</p> <p>Safeguards Specialist to provide support and capacity building</p>
Review institutional and governance arrangements	Improved understanding of roles and responsibilities	Seek opportunities to involve CBOs and NGOs		
Review port operations	Opportunities to optimize port operations identified	Involve vessel operators and dockside workers in review	Existing poor practices	Identify poor practices, provide training and rectify
Maritime sector planning	Planning documents (e.g. design reports, strategic plans) completed	Involve wide range of port users	<p>Lack of local experience in Port Master Planning</p> <p>Enables future developments that may require land reclamation, dredging, coral destruction, land acquisition and other activities that could affect marine ecosystems and social wellbeing</p>	<p>Recruit consultant and include capacity building role</p> <p>Involve local agencies in process</p> <p>Ensure local 'ownership' in process and outcomes</p>

Capacity building initiatives	<p>Consultants hired and training delivered to fill capacity gaps</p> <p>Improved capacity for oversight, planning and management of the maritime sector and operations</p> <p>Reduced risk of environmental incidents, pollution discharges and the associated impacts on marine ecosystems and human health and safety</p>	<p>Opportunities to partner with non-government organizations (NGO) and civil society organizations (CSOs) to be involved in the entire project cycle</p>	<p>DoTCI and the relevant Port Authorities have limited safeguards capacity</p>	<p>Strengthen capacity of DoTCI and the relevant Port Authorities personnel to undertake safeguard activities.</p> <p>Safeguards Specialist to provide support and act as mentor</p>
Assessment of options to better organize and strengthen oversight of private vessels operating in Chuuk Lagoon.	<p>There are currently about 800 vessels using a small area immediately south of the main port on Weno. The vessels are currently unregulated with respect to their movements, particularly when a larger vessel is entering the port. The management of these vessels will improve marine safety for all users.</p>	<p>Opportunities to ensure all users have increased safety around the port and inlet.</p>	<p>Changes could impact smaller vessels and cause delays or changes to vessel traffic movement paths during these times</p>	<p>Strengthen capacity of DoTCI and the relevant Chuuk Department of Transport and users in relation to marine transport safety.</p>
Encourage employment opportunities for women	<p>Strengthened capacity across government to deliver gender-responsive programs and services</p> <p>Enabling environment for equitable participation in, and benefit from, economic development</p>	<p>Increase numbers of women in decision making positions within the maritime sector and related government agencies</p> <p>Set targets for women at different technical and management levels</p>	<p>Potential for exploitation</p> <p>Existing gender bias</p>	<p>Ensure compliance with FSM labor and OHS laws and good international industry practice</p> <p>Raise community awareness</p>
Project management	<p>Introduction of project management rigor</p>	<p>Recruitment of capable PM.</p> <p>PM to mentor one or more agency staff to improve PM skills</p>	<p>Added demands on low capacity offices and ministries involved in the</p>	<p>Strengthen capacity of designated ministry and/or local government personnel to</p>

	Schedule and budget management improved	Establish mechanism of coordination such as an inter-agency coordination committee with clear roles and responsibilities of each member, plan of action, and milestones	implementation of the project	undertake project activities.
Emerging priority issues	Flexibility to deal with new / emerging issues	Seek to complete a comprehensive Port Master Plan early to assist in identifying priority issues	Issues currently unknown Some priorities may have significant impacts	Identify as early as possible Screen potential sub-projects as per ESMF
<b>Component 4: Contingent Emergency Response</b>	Improved emergency response  Reduced nature and scale of risk to social wellbeing and environmental impact	Coordinate with NDMO	Emergencies unknown  By nature, emergencies severe  Potential for environmental and social impacts associated with responses	Review needs  Liaise with all levels of Government  Comply with ESMF, in particular screening of projects and reference to CERC negative list

## 8 ENVIRONMENTAL AND SOCIAL IMPACT MITIGATION STRATEGIES

235. This section of the ESMF identifies the key environmental and social indicators identified for the MIMIP and outlines respective management objectives, potential impacts, control activities and the environmental and social performance criteria against which these indicators will be evaluated (e.g. audited).
236. This section also addresses monitoring and reporting of environmental and social performance with the aim of communicating the success and failures of control procedures, distinguishing issues that require rectification and identifying measures that will allow continuous improvement in the processes by which the projects are managed.
237. The strategies below will help identify the likely issues and mitigation measures for inclusion in sub-project ESMPs and CEMPs.
238. As previously indicated, Contractors must prepare a Construction Environmental Management Plan (CEMP) and general ESMP specifically focused on construction related issues. The Contractor can use the resources included in the ESMF/ESMP (e.g. Annexures with plan outlines) to prepare the CEMP. The CEMP must be cleared by the DoTCI and WB prior to works starting.

### 8.1 SEDIMENT AND SOIL EROSION CONTROL

239. Soil erosion depends on several parameters such as type of soil, slope, vegetation, the nature of topography and rainfall intensity. The loss of soil stability and soil erosion can take place due to the removal of vegetation cover, and numerous construction activities. It can cause the loss of soil fertility and induce slope instability. Land preparation for the project could result in blockage or alteration of natural flow paths causing changes in the drainage patterns in the area. Effective and efficient mitigation measures cannot only reduce but could improve the conditions over the existing conditions.
240. Activities that have the potential to cause erosion should be undertaken with the likely weather conditions in mind.

#### 8.1.1 Performance Criteria

241. The following performance criteria are set for the projects:
- no build-up of sediment in the aquatic environments and/or surface and/or groundwater as a result of construction and operation activities;
  - no degradation of water quality on or off site of all projects;
  - all water exiting the project site and/or into groundwater systems is to have passed through best practice erosion, drainage and sediment controls; and
  - effective implementation of site-specific EDSCP.
242. By following the management measures set out in the ESMF, construction and operation activities of the projects will not have a significant impact as a result of sedimentation across the broader area.

#### 8.1.2 Monitoring

243. A standardized sediment control monitoring program has been developed for the projects (Table 3). The program is subject to review and update at least every two months from the date of issue. The Contractor will be required to:
- conduct site inspections on a weekly basis or after rainfall events exceeding 20mm in a 24-hour period;
  - develop a site-specific checklist to document non-conformances to this ESMF or any applicable EDSCPs; and
  - communicate the results of inspections and/or water quality testing and ensure that any issues associated with control failures are rapidly rectified and processes are put in place to ensure that similar failures are not repeated.

#### 8.1.3 Reporting

244. All sediment and erosion control monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The DoTCI and relevant Port Authority must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to erosion and sediment control is exceeded.

Table 3 Erosion, Drainage and Sediment Control Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities	E1.1: Develop and implement an EDSCP for any surface works, embankments and excavation work, water crossings and stormwater pathways.	Construction phase	All Personnel	Maintain records
	E1.2: Ensure that erosion and sediment control devices are installed, inspected and maintained as required.	Construction phase	All Personnel	Maintain records
	E1.3: Schedule/stage works to minimize cleared areas and exposed soils at all times.	Pre and during construction	Contractor	Maintain records
	E1.4: Incorporate the design and location of temporary and permanent EDSC measures for all exposed areas and drainage lines. These shall be implemented prior to pre-construction activities and shall remain onsite during work	Pre and during construction	Contractor	Maintain records
	E1.5: Strip and stockpile topsoil for beneficial use of soils.	Pre and during construction	Contractor	Maintain records
	E1.6: Schedule/stage works to minimize the duration of stockpiling topsoil material. Vegetate stockpiles if storage required for long periods.	During construction	All Personnel	Maintain records
	E1.7: Locate stockpile areas away from drainage pathways, waterways and sensitive locations.	Pre and during construction	Contractor	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities	E1.8: Design stormwater management measures to reduce flow velocities and avoid concentrating runoff.	Pre and during construction	Contractor	Maintain records
	E1.9: Include check dams in drainage lines where necessary to reduce flow velocities and provide some filtration of sediment. Regularly inspect and maintain check dams.	Pre and during construction	Contractor	Maintain records
	E1.10: Mulching shall be used as a form of erosion and sediment control and where used on any slopes (dependent on-site selection), include extra sediment fencing during high rainfall.	During construction	All Personnel	Maintain records
	E1.11: Bunding shall be used either within watercourses or around sensitive/dangerous goods as necessary.	During construction	All Personnel	Maintain records
	E1.12: Grassed buffer strips shall be incorporated where necessary during construction to reduce water velocity.	During construction	Contractor	Maintain records
	E1.13: Silt fences or similar structures to be installed to protect from increased sediment loads.	During construction	Contractors	Maintain records
	E1.14: Excess sediment in all erosion and sediment control structures (e.g. sediment basins, check dams) shall be removed when necessary to allow for adequate holding capacity.	During construction	Contractors	Maintain records
E2: Soil Contamination	E2.1: If contamination is uncovered or suspected (outside of the project footprints), undertake a Stage 1 preliminary site contamination investigation. The contractor should cease work if previously unidentified contamination is encountered and activate management procedures and obtain advice/permits/approval (as required).	Construction phase	All Personnel	Daily and maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
	E2.2: Drainage control measures to ensure runoff does not contact contaminated areas (including contaminated material within the project footprints) and is directed/diverted to stable areas for release.	Construction phase	All Personnel	Daily and maintain records
	E2.3: Avoid importing fill that may result in site contamination and lacks accompanying certification/documentation. Where fill is not available through on-site cut, it must be tested in accordance with geotechnical specifications.	Construction phase	All Personnel	Maintain records
E3. Poor maintenance of ESCs	E3.1: regularly check and clear debris from trash racks/drain grates E3.2: regularly inspect all pits and oil/sediment traps for sediment accumulation and remove as necessary.	Construction and Operation phase	Contractor / DoTCI and relevant Port Authority	Maintain records

## 8.2 UNEXPLODED ORDINANCE (UXO)

### 8.2.1 Background

245. FSM is known to have UXO as a result of actions in WWII. While much UXO has been either cleared or used for illegal fishing, some UXO remains undiscovered.
246. Due to the materials used at the time of manufacture and the passage of time, most UXO is now corroding and in an unstable state.
247. UXO is extremely dangerous and should be treated as such.

### 8.2.2 Performance Criteria

248. The following performance criteria are set for the construction of the projects:
  - a. No workers or public are exposed to UXO hazards; and
  - b. Chance UXO finds are disposed of without any injuries.

### 8.2.3 Monitoring

249. Job safety hazard analyses are to be undertaken prior to the commencement of any works. This is particularly important for any works involving earthworks. Permits are to be obtained prior to the commencement of any earthworks.
250. An excavation observer should be present throughout earthworks operations to watch for UXO as well as provide general safety support to machinery operators.
251. Management needs to comply with Table 4.

### 8.2.4 Reporting

252. Any UXO finds are to be reported to the Port Authority and Police immediately.



Table 4 Unexploded Ordinance

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
UXO.1 Chance discovery of UXO	UXO1.1: Undertake risk assessment prior to any works that could result in unearthing UXO. If risk considered high, then ensure a survey is done by qualified professionals	Pre and during construction	All Personnel	Daily and maintain records
	UXO1.2: Ensure workers are aware of potential for UXO and of procedures to deal with it. Stop work immediately if possible UXO identified.	Pre and during construction	Contractor	Daily and maintain records
	UXO1.3 Notify authorities immediately and evacuate immediate area and surrounds as appropriate.	During construction	Contractor	Daily and maintain records

## 8.3 AIR QUALITY

### 8.3.1 Background

- 253. All construction activities have the potential to cause air quality nuisance.
- 254. The project areas are predominantly village or rural in character. Existing air quality reflects those environments, with dust being the main air quality nuisance.
- 255. Workers involved in construction and operation activities should be familiar with methods minimizing the impacts of deleterious air quality and alternative construction procedures as contained in FSM legislation or good international industry practice.

### 8.3.2 Performance Criteria

- 256. The following performance criteria are set for the construction of the projects:
  - a. release of dust/particle matter must not cause an environmental nuisance;
  - b. undertake measures at all times to assist in minimizing the air quality impacts associated with construction and operation activities; and
  - c. corrective action to respond to complaints and/or grievances is to occur within 48 hours.

### 8.3.3 Monitoring

- 257. A standardized air monitoring program has been developed for the projects (Table 5). The program is subject to review and update at least every two months from the date of issue. Importantly:
  - a. the requirement for dust suppression will be visually observed by site personnel daily and by DoTCI and relevant Port Authority when undertaking routine site inspections; and
  - b. Vehicles and machinery emissions – visual monitoring and measured when deemed excessive.

### 8.3.4 Reporting

- 258. All air quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The DoTCI and relevant Port Authority must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to air quality is exceeded.

Table 5 Air Quality Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
A.1 Increase in dust levels at sensitive receptors	A1.1: Implement effective dust management measures in all areas during design, construction and operation.	Pre and during construction	All Personnel	Daily and maintain records
	A1.2: Restrict speeds on roads and access tracks.	During construction	Contractor	Daily and maintain records
	A1.3: Manage dust/particulate matter generating activities to ensure that emissions do not cause an environmental nuisance at any sensitive locations.	During construction	Contractor	Daily and maintain records
	A1.4: Construction activities should minimize risks associated with climatic events (check forecasts).	During construction	Contractor	Daily and maintain records
	A1.5: Implement scheduling/staging of proposed works to ensure major earthworks are minimized.	Entire construction	Contractor	Daily and maintain records
	A1.6: Locate material stockpile areas as far as practicable from sensitive receptors. Cover if appropriate.	During construction	Contractor	Daily and maintain records
	A1.7: Source sufficient water of a suitable quality for dust suppression activities complying with any water restrictions.	During construction	Contractor	Daily and maintain records
	A1.8: Rubbish receptacles should be covered and located as far as practicable from sensitive locations as required.	During construction	Contractor	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring reporting &
A2. Increase in vehicle / machinery emissions	A2.1 Ensure vehicles/machines are switched off when not in use.	During construction	Contractor	Daily and maintain records
	A2.2 Ensure only vehicles required to undertake works are operated onsite.	During construction	Contractor	Daily and maintain records
	A2.3 Ensure all construction vehicles, plant and machinery are maintained and operated in accordance with design standards and specifications.	During construction	Contractor	Daily and maintain records
	A2.4 Develop and implement an induction program for all site personnel, which includes as a minimum an outline of the minimum requirements for environmental management relating to the site.	Pre and during construction	Contractor	Maintain records
	A2.5 Locate construction vehicle/plant/equipment storage areas as far as practicable from sensitive locations.	During construction	Contractor	Daily and maintain records
	A2.6 Direct exhaust emissions of mobile plant away from the ground.	During construction	Contractor	Daily and maintain records
	A2.7: Mount protective canvasses (covers) on all trucks which transport material that could generate dust	During construction	Contractor	Daily and maintain records
A3: Odor	A3.1: Ensure waste and other potential odor sources do not cause nuisance to port users or nearby receptors	Operation	DoTCI and relevant Port Authority	Maintain records

## 8.4 NOISE AND VIBRATION

### 8.4.1 Background

259. All construction and operation activities have the potential to cause noise nuisance. Vibration disturbance to nearby residents and sensitive habitats is likely to be caused through the use of vibrating equipment. Blasting is not required to be undertaken as part of this project.
260. The use of machinery or introduction of noise generating facilities could have an adverse effect on the environment and residents if not appropriately managed.
261. Contractors involved in construction activities should be familiar with methods of controlling noisy machines and alternative construction procedures as contained within specific FSM legislation or in its absence, good international industry practice may be used if the legislation has not been enacted.
262. Potential noise sources during construction may include:
- a. heavy construction machinery;
  - b. power tools and compressors;
  - c. delivery vehicles;

### 8.4.2 Performance Criteria

263. The following performance criteria are set for the construction of the projects:
- a. noise from construction and operational activities must not cause an environmental nuisance at any noise sensitive place;
  - b. undertake measures at all times to assist in minimizing the noise associated with construction activities;
  - c. no damage to off-site property caused by vibration from construction and operation activities; and
  - d. corrective action to respond to complaints and/or grievances is to occur within 48 hours.

### 8.4.3 Monitoring

264. A standardized noise monitoring program has been developed for the projects (Table 6). The program is subject to review and update at least every two months from the date of issue. Importantly, the site supervisor will:
- a. ensure equipment and machinery is regularly maintained and appropriately operated; and
  - b. carry out potentially noisy construction activities during 'daytime' hours only.

### 8.4.4 Reporting

265. All noise monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The DoTCI and relevant Port Authority must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to noise is exceeded

Table 6 Noise and Vibration Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
N1: Increased noise levels	N1.1: Select plant and equipment and specific design work practices to ensure that noise emissions are minimized during construction and operation including all pumping equipment.	All phases	Contractor	Maintain records
	N1.2: Specific noise reduction devices such as silencers and mufflers shall be installed as appropriate to site plant and equipment.	Pre and during construction	Contractor	Maintain records
	N1.3 Minimize the need for and limit the emissions as far as practicable if noise generating construction works are to be carried out outside of the hours: 7am-5.30pm	Construction phase	All Personnel	Daily and maintain records
	N1.4: Consultation with nearby residents in advance of construction activities particularly if noise generating construction activities are to be carried out outside of 'daytime' hours: 7am-5.30pm.	Construction phase	All Personnel	Daily and maintain records
	N1.5 The use of substitution control strategies shall be implemented, whereby excessive noise generating equipment items onsite are replaced with other alternatives.	Construction phase	All Personnel	Daily and maintain records
	N1.6 Provide temporary construction noise barriers in the form of solid hoardings where there may be an impact on specific residents.	Construction phase	Contractor	Daily and maintain records
	N1.7 All incidents complaints and non-compliances related to noise shall be reported in accordance with the site incident reporting procedures and summarized in the register.	Construction phase	Contractor	Maintain records
	N1.8 The contractor should conduct employee and operator training to improve awareness of the need to minimize excessive noise in work practices through implementation of measures.	Pre and during construction	Contractor	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
N2. Vibration due to construction	N2.1: Identify properties, structures and habitat locations that will be sensitive to vibration impacts resulting from construction and operation of the project.	Pre and during construction	Contractor	Maintain records
	N2.2: Design to give due regard to temporary and permanent mitigation measures for noise and vibration from construction and operational vibration impacts.	Pre-construction	Contractor	Maintain records
	N2.3: All incidents, complaints and non-compliances related to vibration shall be reported in accordance with the site incident reporting procedures and summarized in the register.	Construction phase	Contractor	Maintain records
	N2.4: During construction, standard measure shall be taken to locate and protect underground services from construction and operational vibration impacts.	Construction phase	Contractor	Maintain records

## 8.5 SURFACE WATER

### 8.5.1 Background

266. Water is a valuable resource, particularly in FSM where surface water is often limited. Concentrated flows from buildings and hardstands/container yards can result in the movement of sediments and other contaminants. Construction activities have the potential to divert or contaminate surface water. Similarly, many of the activities carried out within ports have the potential to release contaminants that can impact waterways.

### 8.5.2 Performance Criteria

267. The following performance criteria are set for the construction of the projects:

- a. no significant decrease in water quality as a result of construction and operational activities;
- b. water quality shall conform to any approval conditions stipulated by DoTCI and relevant Port Authority and/or other government departments, or in the absence of such conditions follow a 'no worsening' methodology; and
- c. effective implementation of site-specific EDSCPs.

### 8.5.3 Monitoring

268. Having water of a quality that is fit for purpose is important. Water quality can affect plant growth, livestock health, soil quality, farm equipment and domestic use. The quality of a water source is also variable depending upon weather and external inputs.

269. Evaporation increases the concentrations of salts while a flush of water dilutes salts but may increase sediment and fertilizers, and manure or nutrient runoff. Monitoring should be done regularly and more frequently in summer or in periods of prolonged moisture stress.

270. Table 7 outlines the monitoring required.

### 8.5.4 Reporting

271. All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The DoTCI and relevant Port Authority must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.



Table 7 Water Quality Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
W1: Elevated suspended solids and other contaminants in surface water systems.	W1.1: Develop and implement a site-specific Erosion, Drainage and Sediment Control Plan (EDSCP) to address drainage control, sediment and erosion controls and stockpiling of materials including soil during construction of all components of the projects. EDSCP measures to be inspected regularly to ensure all devices are functioning effectively.	Pre-Earthworks	Contractor	Initial set up and then as required with reporting to DoTCI and relevant Port Authority
	W1.2: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refueling to be undertaken in areas away from water systems.	Entire construction and operation phase	All Personnel	Weekly with reporting to DoTCI and relevant Port Authority
	W1.3: Conduct regular surface and groundwater quality monitoring in location where the groundwater is likely to be impacted including assessing the changes to groundwater quality.	Entire construction and operation phase	Contractor	Weekly and as required with reporting to DoTCI and relevant Port Authority
	W1.4: Schedule works in stages to ensure that disturbed areas are revegetated and stabilized progressively and as soon as practicable after completion of works.	Avoid undertaking bulk earthworks during wet season	Contractor and Port Authority	Maintain records
	W1.5: Construction materials will not be stockpiled in proximity to aquatic environment that may allow for release into the environment. Construction equipment will be removed from in proximity to the aquatic environment at the end of each working day or if heavy rainfall is predicted	Entire construction and operation phase	Contractor	Maintain daily records

## 8.6 GROUNDWATER

### 8.6.1 Background

272. Groundwater conditions vary across each State, however, for many islands' groundwater is an important resource. Activities carried out at ports (e.g. fuel and other hazardous goods handling, workshops and earthworks) have the potential to contaminate groundwater supplies if not appropriately managed.

### 8.6.2 Performance Criteria

273. The following performance criteria are set for the project:

- a. no significant decrease in the quality and quantity of groundwater as a result of construction and operational activities in proximity to the projects;
- b. effective implementation of site-specific EDSCPs and other measures to protect groundwater; and
- c. Standard Operating Procedures (SOPs) for handling and storage of fuels and hazardous goods

274. By following the management measures set out in the ESMF the project will not have a significant impact on water quality across the broader area.

### 8.6.3 Monitoring

275. Refer to Table 8 for the monitoring requirements for groundwater.

276. Baseline condition of groundwater should be assessed prior to commencement of works. Monitoring of groundwater should be undertaken where works pose a potential risk to groundwater.

### 8.6.4 Reporting

277. All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The DoTCI and relevant Port Authority must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.

Table 8 Groundwater management measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
GW 1: Increase of gross pollutants, hydrocarbons, metals and other chemical pollutants into the groundwater and/or surface water environment.	GW1.1: Conduct regular surface and groundwater quality monitoring in locations where the groundwater is likely to be impacted, including assessing the changes to groundwater quality.	Construction and operation phase	Contractor	Weekly and as required with reporting to DoTCI and relevant Port Authority
	GW1.2: Prevent contaminated surface water from entering aquifers via boreholes and wells - protect from runoff and flooding and keep surrounds clean.	All phases	All Personnel	Weekly
	GW1.3: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refueling to be undertaken in areas away from water systems.	Entire construction and operation phase	All Personnel	Weekly with reporting to DoTCI and relevant Port Authority
	GW1.4: Check all vehicles, equipment and material storage areas daily for possible fuel, oil and chemical leaks. Undertake refueling at designated places away from water systems.	All phases	All Personnel	Daily and maintain records
	GW 1.5: Minimize the use of herbicides, pesticides and other chemicals and use only biodegradable herbicides that have minimal impact on water quality and fauna. Use only as per directions	All phases	All Personnel	Weekly reporting to DoTCI and relevant Port Authority

## 8.7 TERRESTRIAL AND AQUATIC FLORA AND FAUNA

### 8.7.1 Background

278. The port areas are heavily disturbed and modified and therefore represent limited habitat for terrestrial flora and fauna.

### 8.7.2 Performance Criteria

279. The following performance criteria are set for the construction of the projects:

- a. no clearance of vegetation outside of the designated clearing boundaries;
- b. no deleterious impacts on aquatic environments and terrestrial habitats;
- c. no introduction of new weed species as a result of construction activities; and
- d. no increase in existing weed proliferation within or outside of any project footprint as a result of construction activities.

### 8.7.3 Monitoring

280. A flora and fauna monitoring program will be implemented (Table 9).

281. Weed and pest monitoring will be undertaken, and appropriate action taken in the event of alien or noxious species being identified.

282. The delivery organization will when be undertaking works, compile a weekly report to DoTCI Safeguards Specialist outlining:

- a. any non-conformances to this ESMF;
- b. the areas that have been rehabilitated during the preceding week; and
- c. details of the corrective action undertaken.

### 8.7.4 Reporting

All flora and fauna monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The DoTCI Safeguards Specialist must be notified in the event of any suspected instances of death to native fauna and where vegetation is detrimentally impacted

Table 9 Flora and Fauna Management Measures

Issue	Control Activity (and Source)	Action Timing	Responsibility	Monitoring and Reporting
FF1. Habitat loss and disturbance of fauna	FF1.1 Limit vegetation clearing and minimize habitat disturbance through adequate protection and management of retained vegetation.	During construction	Contractor	Daily and maintain records
	FF1.2: Minimize noise levels and lighting intrusion throughout construction and operation in the vicinity of any sensitive locations.	During construction	Contractor	Daily and maintain records
	FF1.3: Ensure that all site personnel are made aware of sensitive fauna/habitat areas and the requirements for the protection of these areas.	During construction	Contractor	Daily and maintain records
	FF1.4 Minimize disturbance to on-site fauna and recover and rescue any injured or orphaned fauna during construction and operation.	During construction	Contractor	Daily and maintain records, report
FF2. Introduced flora and weed species	FF2.1: Implement an ESCP to reduce the spread of weeds through erosion and sediment entering any waterways and therefore spreading.	Pre and during construction	Contractor	Maintain records
	FF2.2: Revegetate disturbed areas using native and locally endemic species that have high habitat value.	During construction	Contractor	As required and maintain records
	FF2.3: Minimize disturbance to mature remnant vegetation, particularly canopy trees.	During construction	Contractor	Daily and maintain records
	FF2.4: Environmental weeds and pests within the project footprints shall be controlled	Operation	Contractor	Maintain records

## 8.8 MARINE FLORA AND FAUNA

### 8.8.1 Background

283. The marine environment of FSM is high in biodiversity and is of critical importance in terms of economy. Ports by their nature have a direct impact on the marine environment, therefore vigilance in terms of minimizing impacts to the marine environment are critical.

### 8.8.2 Performance Criteria

284. The following performance criteria are set for the construction of the projects:

- a. no deleterious impacts on aquatic environments and terrestrial habitats;
- b. no introduction of new species as a result of construction activities.

### 8.8.3 Monitoring

285. A flora and fauna monitoring program will be implemented (Table 9).

286. The delivery organization will when undertaking works, compile a weekly report to DoTCI and relevant Port Authority outlining:

- a. any non-conformances to this ESMF;
- b. the areas that have been rehabilitated during the preceding week; and
- c. details of the corrective action undertaken.

### 8.8.4 Reporting

287. All marine flora and fauna monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF. The DoTCI and relevant Port Authority must be notified in the event of any suspected instances of death to native fauna and where vegetation is detrimentally impacted.

Table 10 Flora and Fauna Management Measures

Issue	Control Activity (and Source)	Action Timing	Res
MFF1. Habitat loss and disturbance of fauna	MFF1.1 Sensitive marine habitat is to be protected.	Construction operation	and Cor Ope
	MFF1.2: Minimize noise levels and lighting intrusion throughout construction and operation in the vicinity of any sensitive locations.	During construction	Cor
	MFF1.3: Ensure that all site personnel are made aware of sensitive fauna/habitat areas and the requirements for the protection of these areas.	During construction	Cor
	MFF1.4 Minimize disturbance to on-site fauna and recover and rescue any injured or orphaned fauna during construction and operation.	During construction	Cor
	MFF1.5 In relation to navigation aids-related works on the seabed, consider the temporary relocation of coral heads/benthos for replacement when work is completed, propagation of corals that may be damaged for return to the environment; propagation of corals for later return and hardening of the impacted area to allow proper recolonization	During construction	Cor
	MFF1.6 Ensure that an Oil Spill Contingency Plan is in place. Personnel to be trained in its implementation and equipment to be available.	Construction operation	and Cor Aut

## 8.9 SOCIAL MANAGEMENT AND POPULATION

### 8.9.1 Background

288. FSM's economy is highly dependent on marine resources for international, inter-state and inter-island trade. Citizens of outer islands depend on marine resources for travel to main and other outlying islands, and for access to education, markets and health services.
289. None the less, construction activities and operations at ports can have a negative impact on communities if not managed appropriately.

### 8.9.2 Performance Criteria

290. The following performance criteria are set for the project:
- a. the community has been consulted and project elements have been designed with their informed consultation and participation throughout the project;
  - b. all stakeholders are appropriately represented;
  - c. avoid adverse impacts to local community during construction and operations and where not possible, minimize, restore or compensate for these impacts;
  - d. cultural heritage is not adversely impacted;
  - e. community health and safety is protected and overall well-being benefits derived from the project;
  - f. complaint and grievance mechanisms are put in place and proactively managed; and
  - g. long-term social benefits are achieved.
291. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.
292. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.
293. The DoTCI and relevant Port Authority will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

### 8.9.3 Reporting

294. Records of all consultations are to be kept and reported on monthly basis.
295. The DoTCI and relevant Port Authority must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.



Table 11: Social Management and Population Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
SM1: Community Consultation	SM1.1: Carry out community consultation on the purpose and benefits of making changes to land use	Pre-construction	The DoTCI and relevant Port Authority	Maintain records
	SM1.2: Get community buy-in on any change of land use	Pre-construction	The DoTCI and relevant Port Authority	Maintain records
	SM1.3: Ensure compliance with the Grievance Redress Mechanism process	Entire construction and operation phase	The DoTCI and relevant Port Authority	Maintain records
SM2: Damage or disturbance to significant important Archaeological, Indigenous and/or Cultural Heritage during the earth disturbances and land clearing activities	SM2.1: Should any important Archaeological, Indigenous and/or Cultural Heritage sites, immediately cease work within the area that the site has been observed and consult with the relevant Museum/traditional owner groups, DoTCI, relevant Port Authority, EPA and archaeologist available for implementation during construction.	Pre and during construction	Contractor	Daily, maintain records and immediately notify DoTCI, relevant Port Authority and EPA of any find
SM3: Public nuisance caused by construction/operation activities (eg noise, dust etc)	SM3.1: Carry out community consultation prior to undertaking activities	Pre-construction	The DoTCI and relevant Port Authority	Maintain records
	SM3.2: Implement appropriate management plans (refer to Noise, Air, ESCP, and Waste sections of the ESMF and ESMP)	Construction and operation	The DoTCI, relevant Port Authority and Contractor	Daily and maintain records
	SM3.3: Ensure compliance with the GRM process	All phases	The DoTCI and relevant Port Authority	Maintain records

## 8.10 LAND OWNERSHIP AND CUSTOMARY TENURE

### 8.10.1 Background

- 296. FSM has complex arrangements with respect to land ownership and customary tenure.
- 297. All the ports are existing facilities and are on government land (reclaimed land is not subject to traditional ownership).
- 298. All stakeholders, including the communities who host or use the docks, are entitled to be fully informed about the project and engaged in design, mitigation and operations of the docks. No person should be resettled from their land as a consequence of this work.

### 8.10.2 Performance Criteria

- 299. The following performance criteria are set for the project:
  - a. the community has been consulted and project elements have been designed with their informed consultation and participation throughout the project;
  - b. all stakeholders are appropriately represented;
  - c. avoid adverse impacts to local community during construction and operations and where not possible, minimize, restore or compensate for these impacts;
  - d. cultural heritage is not adversely impacted;
  - e. community health and safety is protected and overall well-being benefits derived from the project;
  - f. complaint and grievance mechanisms are put in place and proactively managed; and
  - g. long-term social benefits are achieved.
- 300. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.
- 301. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.
- 302. The DoTCI and relevant Port Authority will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of activities.

### 8.10.3 Reporting

- 303. Records of all consultations are to be kept and reported on monthly basis.
- 304. The DoTCI and relevant Port Authority must be notified in the event of any individual or community complaint or dissatisfaction and ensure the GRM is complied with.

Table 12: Land Ownership Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
LO1: Ensure no impact on Land Ownership	LO1.1: Carry out community consultation and with relevant Councils on the purpose and benefits of making changes to land use.	Pre-construction	The DoTCI and relevant Authority	Maintain records
	LO1.1: Ensure all works are carried out within the existing footprint of the ports, navigation aids or other Government-leased land	Pre-construction	The DoTCI and relevant Authority	Maintain records
	LO1.3: Ensure full compliance with the World Bank Standards on Displacement and Resettlement.	Entire construction and operation phase	The DoTCI and relevant Authority	Maintain records
	LO1.4: All activities will be undertaken in full compliance with the FSM laws and World Bank Standards, with the most stringent requirements being complied with.	Entire construction and operation phase	The DoTCI and relevant Authority	Maintain records
	LO1.5: Ensure compliance with the SEP and GRM process.	Entire construction and operation phase	The DoTCI and relevant Authority	Maintain records

## 8.11 GENDER, GENDER BASED VIOLENCE AND HUMAN TRAFFICKING

### 8.11.1 Background

305. FSM is a source of, and a destination for, human trafficking for commercial sexual exploitation linked to the fishing industry. Women and girls represent the greater share of victims of human trafficking for commercial sexual exploitation and are therefore considered a particularly vulnerable group.

### 8.11.2 Performance Criteria

306. The following performance criteria are set for the project:

- a. Increased opportunities and employment of women in the maritime sector;
- b. Manage the labor workforce to avoid behavior that could lead to gender based violence or involvement in illegal behavior;
- c. Reduction in gender-based violence (zero target);
- d. Increased representation of women and vulnerable groups in decision making processes;
- e. Immigration/customs/police facilities and/or presence at each port;
- f. Human trafficking is reduced (zero target); and
- g. long-term social benefits are achieved.

307. The FSM Department of Justice and relevant Port Authority will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of activities.

### 8.11.3 Reporting

308. Records of all consultations/reports/incidents are to be kept and reported on monthly basis.

309. The FSM Department of Justice and relevant Port Authority must be notified in the event of any individual or community report.

Table 13: Gender and Human Trafficking Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
GE1: Gender Equality and Women Empowerment	GE1.1: Ensure the project has gender equality and women empowerment within all activities.	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	GE1.2: Ensure the project does not have any gender-based discrimination and/or inequalities.	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	GE1.3: Where practicable, preference should be given to women for any employment.	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	GE1.4: Ports to be safe for women – improve lighting, shelters, toilets, security.	Entire construction and operation phase	Relevant Port Authority	Maintain records
GE2: Human Trafficking	GE2.1: Raise the capacity of agencies to deal with the HT issues - immigration officers at ports and airports to receive regular capacity building and strengthen Labor Section of the Department of Immigration and Labor	Construction and Operation	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	GE2.2: Raise the awareness of mariners and build capacity of vessel owners on issues related to human trafficking.	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	GE2.3: Raise human trafficking awareness of communities.	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	GE2.4: Improve port security eg fencing, lighting and identity requirements.	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
GE3: Gender based violence	GE3.1: Improve port security e.g. fencing, lighting and identity requirements	Operation	DoTCI and relevant Port Authority	Maintain records
	GE3.1: Raise community awareness.	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	GE3.2: Improve facilities for women e.g. shelter, security, lighting.	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	GE3.3: Increase police/security presence. Ensure that police/security have had adequate training	Entire construction and operation phase	FSM Department of Justice, DoTCI and relevant Port Authority	Maintain records
	<p>GE3.5: The Contractor will prepare a specific Code of Conduct to describe the expected behaviors of their project worker in relation to the local communities and their social sensitivities. This is to avoid creating demand for illegal sex work, avoid gender-based violence and violence against children, manage alcohol consumption and avoid the use of illegal substances, and abide by cultural and social norms of the host community.</p> <p>h. The Contractor is to ensure that all overseas project staff undergo a cultural familiarization session as part of their induction training. The purpose of this induction will be to introduce the project staff to the cultural sensitivities of the local communities and the expected behaviors of the staff in their interactions with these communities. Gender based violence and HIV Aids and communicable disease awareness raising and resources shall be provided to all workers. The client shall provide to the Contractor a list of approved service providers which shall include recognized NGOs and others for conducting this training;</p> <p>i. The Contractor is to stipulate the conditions under which visitors may attend the workers accommodation, including curfews; and</p>	Construction	Contractor	Maintain records

- j. The Contractor shall ensure that basic social/collective rest and recreation spaces and activities within the workers accommodation to help minimize the impact that the workers would have on the leisure and recreational facilities of the nearby communities.

## 8.12 EMPLOYMENT, LABOR AND WORKING CONDITIONS

### 8.12.1 Background

310. The project has been designed with the assistance of stakeholders and aims to provide benefits to the broader community who will be involved in the construction of project interventions. Notwithstanding, as with any project that involves construction, some dissatisfaction can occur and conflicts may arise where individuals are unable to be provided employment. It is important that potential areas of tension are recognized early, and appropriate actions taken to avoid or minimize conflict.

### 8.12.2 Performance Criteria

311. The following performance criteria are set for the project:

- a. ensure compliance with any FSM labor and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labor Organization fundamental conventions, including freedom of association, elimination of discrimination in employment and occupation, elimination of forced or compulsory labor and Good International Industry Practice with respect to labor and occupational health and safety, and
- b. ensure no forms of child labor
- c. where possible, local residents will be employed first for all construction activities;
- d. all employees and contractors will be paid equally;
- e. where practicable, preference should be given to women for any employment;
- f. ensure workers' health and safety is protected and overall well-being benefits derived from the project;
- g. ensure workers are trained in occupational health and safety (OH and S);
- h. ensure workers are provided appropriate personal protective equipment suitable for their duties; and
- i. complaint and grievance mechanisms are put in place and proactively managed.

312. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project and therefore preference should be given to them with respect to employment with respect to the relevant Codes.

313. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

314. The DoTCI and relevant Port Authority will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of activities.

### 8.12.3 Reporting

315. Records of all consultations are to be kept and reported on monthly basis.

316. The DoTCI and relevant Port Authority must be notified in the event of any individual or community complaint or dissatisfaction and ensure the GRM is complied with.



Table 14: Social Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WC1: Employment, Labor and Working Conditions	WC1.1: Ensure compliance with FSM labor and occupational health and safety laws and Good International Industry Practice with respect to labor and occupational health and safety.	Entire construction and operation phase	The DoTCI relevant Port Authority and Contractor	Maintain records
	WC1.2: Employ local residents and women first where practicable.	Entire construction and operation phase	The DoTCI and relevant Port Authority	Maintain records
	WC1.3: Ensure workers' health and safety is protected and overall well-being benefits derived from the project.	Entire construction and operation phase	Contractor	Maintain records
	WC1.4: Ensure workers are trained in occupational health and safety in compliance with FSM laws and Good International Industry Practice.	Entire construction and operation phase	Contractor	Maintain records
	WC1.5: Ensure workers are provided appropriate personal protective equipment suitable for their duties, adequate accommodation and recreational facilities for overseas / off island workers.	Entire construction and operation phase	Contractor	Maintain records

## 8.13 WASTE MANAGEMENT

### 8.13.1 Background

317. As the implementing agency, the DoTCI and relevant Port Authority aim to advocate good waste management practice, although implementation can be challenging. The preferred waste management hierarchy and principles for achieving good waste management is as follows:
- a. waste avoidance (avoid using unnecessary material on the projects);
  - b. waste re-use (re-use material and reduce disposing);
  - c. waste recycling (recycle material such as cans, bottles, etc.); and
  - d. solid waste disposal (all putrescible and/or contaminated waste to be exported for disposal at a licensed and engineered landfill).
318. The key waste streams generated during construction are likely to include residual sediment and construction wastes such as:
- a. the excavation wastes unsuitable for reuse during earthworks;
  - b. wastes from construction and drilling equipment maintenance. Various heavy vehicles and construction equipment will be utilized for the duration of the construction phase. Liquid hazardous wastes from cleaning, repairing and maintenance of this equipment may be generated. Likewise, leakage or spillage of fuels/oils within the site needs to be managed and disposed of appropriately;
  - c. non-hazardous liquid wastes will be generated through the use of workers' facilities such as toilets; and
  - d. general wastes including scrap materials and biodegradable wastes.
319. Key waste streams generated during operations are likely to include:
- a. excavated sediment (primarily sand and coral, which can be used for concrete or spread on suitable areas);
  - b. general waste;
  - c. packaging; and
  - d. used oil and machinery parts.
320. Workers involved in construction and operational activities should be familiar with methods minimizing the impacts of clearing vegetation to minimize the footprint to that essential for the works and rehabilitate disturbed areas. By doing these activities, the projects should minimize the impact of waste generated by the project.

### 8.13.2 Performance Criteria

321. The following performance criteria are set for the construction of the projects:
- a. waste generation is minimized through the implementation of the waste hierarchy (avoidance, reduce, reuse, recycle);
  - b. no litter will be observed within the project area or surrounds as a result of activities by site personnel;
  - c. no complaints received regarding waste generation and management;
  - d. any waste from on-site portable sanitary facilities will be sent off site for disposal by a waste licensed contractor; and
  - e. waste oils will be collected and disposed or recycled off-site, local oil companies or shipped for recycling at a licensed facility.

### 8.13.3 Monitoring

322. A waste management monitoring program has been developed for the projects (Table 15). The program is subject to review and update at least every two months from the date of issue.

#### 8.13.4 Reporting

323. The DoTCI and relevant Port Authority as implementing agency must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to waste is exceeded.

Table 15 Waste Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WT1: Production of wastes and excessive use of resources	WT1.1: Preference shall be given to materials that can be used to construct the project that would reduce the direct and indirect waste generated.	Pre and during construction	Contractor	Maintain records
	WT1.2: Daily waste practices shall be carried out unless these are delegated to the activities of external waste management bodies.	During construction	Contractor	Daily and maintain records
	WT1.3: The use of construction materials shall be optimized and where possible a recycling policy adopted.	During construction	Contractor	Weekly and maintain records
	WT1.4: Separate waste streams shall be maintained at all times i.e. general domestic waste, construction and contaminated waste. Specific areas on site shall be designated for the temporary management of the various waste streams.	During construction	Contractor	Weekly and maintain records
	WT1.5: Any contaminated waste shall be disposed of at an approved facility.	During construction	Contractor	Weekly and maintain records
	WT1.6: Recyclable waste (including oil and some construction waste) shall be collected separately and disposed of correctly.	During construction	Contractor	Weekly and maintain records
	WT1.7: Waste sites shall be sufficiently covered to ensure that wildlife does not have access.	During construction	Contractor	Daily
	WT1.8: Disposal of waste shall be carried out in accordance with the FSM requirements.	During construction	Contractor	Weekly and maintain records
	WT1.9: Fuel and lubricant leakages from vehicles and plant shall be immediately rectified.	During construction	Contractor	Daily and maintain records
WM2: Management and disposal of waste	WM2.1: Develop and implement a Waste Management Plan	Pre-construction	Construction Site Supervisor	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WM2: Management and disposal of waste	WM2.2: Provide bins for use by both staff and visitors	All phases	RMIPA	Weekly
	WM2.3: All solid waste is transported off-island for recycling or disposal at a licensed and engineered landfill, with appropriate permits and approvals under international treaties such as Waigani.	During construction	Contractor	Weekly and maintain records
	WM2.4: Any non-hazardous or contaminated waste shall be disposed of at an approved facility at a licensed and engineered landfill, with appropriate permits and approvals under international treaties such as Waigani. All hazardous waste must be exported for recycling/disposal at licensed facilities	All phases	Contractor, DoTCI and relevant Port Authority	Weekly and maintain records
	WT2.5: Fuel and lubricant leakages from vehicles and plant shall be immediately rectified.	All phases	Contractor, DoTCI and relevant Port Authority	Daily and maintain records
WM3: Asbestos	WM3.1: Where there is a risk of asbestos being present (e.g. lagging on pipes, building materials, insulation etc.), an assessment should be carried out by a qualified professional. All work in areas where there may be an asbestos risk is to stop until an assessment has been carried out.	Pre-construction	Contractor, DoTCI and relevant Port Authority	Maintain records
	WM3.2: Asbestos management plan is to be prepared by a qualified person. Removal and disposal is to be undertaken as per plan, by suitably trained personnel.	Pre-construction	The DoTCI and relevant Port Authority	Maintain records
	WM3.3: Asbestos material is to be contained and disposed of off-island (WM3.2 is to identify approved disposal location)	Construction	Construction Site Supervisor	Maintain records
WM4: Contaminated Waste	WM4.1 Develop a Contaminated Waste Management Plan	Pre-construction	Contractor, DoTCI and relevant Port Authority	Maintain records

## 8.14 EMERGENCY MANAGEMENT MEASURES

324. In the event of actions occurring, which may result in serious health, safety and environmental (catastrophic) damage, emergency response or contingency actions will be implemented as soon as possible to limit the extent of environmental damage.
325. The delivery organization will need to incorporate emergency responses into the project complying with the requirements under the Occupational, Health and Safety Policy of the delivery organization and the relevant FSM legislation.

### 8.14.1 Performance Criteria

326. The following performance criteria are set for the construction of the projects:
  - a. no incident of fire outbreak;
  - b. no failure of water retaining structures;
  - c. no major chemical or fuel spills;
  - d. no preventable industrial or work-related accidents;
  - e. provide an immediate and effective response to incidents that represent a risk to public health, safety or the environment; and
  - f. minimize environmental harm due to unforeseen incidents.

### 8.14.2 Monitoring

327. An emergency response monitoring program has been developed for the projects (Table 16). The program is subject to review and update at least every two months from the date of issue. Importantly, visual inspections will be conducted by Contractor daily with reporting to DoTCI and relevant Port Authority staff on a weekly basis (minimum) noting any non-conformances to this ESMF.

### 8.14.3 Reporting

328. The DoTCI and relevant Port Authority staff must be notified immediately in the event of any emergency, including fire or health related matter including those that have resulted in serious environmental harm.

Table 16 Emergency Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1. Fire and Emergency management and prevention strategies implemented	E1.1: Flammable and combustible liquids bunding/storage areas to be designed in accordance with appropriate international standards.	Pre and during construction	Contractor	Daily and maintain records
	E1.2: Fire extinguishers are to be available on site.	During construction	Contractor	Daily and maintain records
	E1.3: No open fires are permitted within the project area.	During construction	Contractor	Daily and maintain records
	E1.4: Communication equipment and emergency protocols to be established prior to commencement of construction activities.	During construction	Contractor	Daily and maintain records
	E1.5: Train all staff in emergency preparedness and response (cover health and safety at the work site).	During construction	Contractor	Daily and maintain records
	E1.6: Check and replenish First Aid Kits.	During construction	Contractor	Daily and maintain records
	E1.7: Use of Personal Protection Equipment.	During construction	All Personnel	Daily and maintain records

## 9 CONSULTATION

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329. Consultation is mandated by OP/BP 4.01 Environment Assessment. Consultation required for is a two-way process in which beneficiaries provide advice and input on the design of proposed projects that affect their lives and environment.

### 9.1 STAKEHOLDER ENGAGEMENT DURING PROJECT PREPARATION

330. During Project preparation, discussions were held between the implementing agencies and various stakeholder FSM Government agencies, along with and the World Bank team. Refer Section 9.3.2.

### 9.2 STAKEHOLDER ENGAGEMENT DURING IMPLEMENTATION

331. The FSMMIP is designed to incorporate adaptive learning, which will inform modifications to Project activities during the life of the Project and scale up of successful interventions.

332. Adaptive learning involves close monitoring of issues and outcomes associated with early stages of the project, analysis of issues and patterns emerging and refinement to project protocols to avoid or minimize future adverse impacts.

333. The stakeholder engagement process is a critical component of this adaptive learning element, providing a formal monitoring component.

334. During Project implementation, monitoring systems will be setup and used to identify successes and issues related to Project activities, and will include the GRM, together providing a useful platform for citizen/beneficiary input into adaptation of the Project as it progresses.

### 9.3 STAKEHOLDER ENGAGEMENT PLAN

#### 9.3.1 Introduction

335. The FSMMIP was discussed with a wide range of stakeholders including relevant government departments, industry groups, NGOs, and individual community members and approved by Government. On-ground consultation has been undertaken during the design of the FSMMIP and it is expected that consultation with stakeholders and any affected communities will continue throughout the FSMMIP.

#### 9.3.2 Stakeholders

336. Key stakeholders identified in the project so far are:

1. DoFA;
2. DTCL;
3. Department of Environment, Climate Change and Emergency Management;
4. Central Implementation Unit;
5. Public Information Office;
6. Division of Social and Health Service;
7. The World Bank regional office;
8. Kosrae Port Authority;
9. Kosrae Department of Transport and Infrastructure;
10. Yap Department of Public Works & Transportation;
11. Chuuk Department of Transport;
12. Pohnpei Port Authority;
13. Ministry of Labor;
14. Department of Youth and Civil Affairs;



15. Department of Justice - Human Trafficking Unit;
16. Attorney General's Office;
17. National Oceanic Resource Management Authority;
18. Development agencies;
19. Department of Health and Social Services;
20. Department of Resources and Development;
21. Office of Environment and Emergency Management;
22. Pacific Adaptation to Climate Change;
23. FSM Customs and Tax;
24. Conservation Trust;
25. Maritime Institute;
26. VOAA;
27. Attorney General's Office - Human Trafficking Taskforce;
28. Tonos and Weno municipal government;
29. Catholic Church;
30. Tafunsak Municipal Government;
31. Walung Community;
32. Sokehs Municipal Government;
33. Nett District Government;
34. Chuuk Traditional Clan leaders;
35. Council of Pilung (Yap Main Island Chief Council);
36. Council of Tamol (Outer Island Chief Council);
37. Yela Environmental Landowners Authority;
38. Council of Chiefs;
39. Sustainable Fishers Group;
40. Menin Katengesed;
41. TRANSCO;
42. Pacific Coast;
43. Seaventure;
44. Vitol (Petrol);
45. CPUC (public utility);
46. Mariana Express Lines;
47. Matson Lines;
48. Kyowa Lines;
49. Luen Thai Fishing Venture;
50. Tayang Fishing Company;
51. Kutkut Wo (Recycling);
52. Fishing Companies; and
53. Tayang Fishing Company.

### 9.3.3 Plan Content

337. A Stakeholder Engagement Plan (SEP) has been prepared (Annexure Q). Features of the SEP include:
- a. A list of stakeholders;
  - b. Identification of ways to engage the stakeholders in the key outputs of the project;
  - c. An Stakeholder Action Plan;
  - d. Identification of roles and responsibilities for stakeholder engagement;
  - e. Mechanisms for regular monitoring and evaluation of project issues, outcomes and feedback;
  - f. Proposed engagement techniques for meaningful engagement and encouraging participation;
  - g. A summary of consultations undertaken during formulation of the ESMF; and
  - h. Inclusion of the GRM.
338. The DoTCI and relevant State Port Authority will develop and release updates on the FSMMIP on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media e.g. print, radio, social media or formal reports. A publicized telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concern, complaints and/or grievances. All enquiries, concern, complaints and/or grievances will be recorded on a register and the appropriate manager will be informed.
339. Where there is a community issue raised, the following information will be recorded:
- a. time, date and nature of enquiry, concern, complaints and/or grievances;
  - b. type of communication (e.g. telephone, letter, personal contact);
  - c. name, contact address and contact number;
  - d. response and investigation undertaken as a result of the enquiry, concern, complaints and/or grievances; and
  - e. actions taken and name of the person taking action.
340. Some enquiries, concern, complaints and/or grievances may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, concerns, complaints and/or grievances will be investigated, and a response given to the complainant in a timely manner. A GRM has been included in the ESMF and ESMP to address any complaints that may not be able to be resolved quickly.
341. A nominated DoTCI, relevant Port Authority and contractor staff will be responsible for undertaking a review of all enquiries, concern, complaints and/or grievances and ensuring progress toward resolution of each matter.

## 10 GRIEVANCE REDRESS MECHANISM

### 10.1 INTRODUCTION

342. During the construction and implementation phases of any FSMMIP, a person or group of people can be adversely affected, directly or indirectly due to the FSMMIP activities. The grievances that may arise can be related to social issues such as eligibility criteria and entitlements, disruption of services, temporary or permanent loss of livelihoods and other social and cultural issues. Grievances may also be related to environmental issues such as excessive dust or noise generation, damages to infrastructure due to construction related vibrations or transportation of raw material, noise, traffic congestions, changes to access etc.
343. Should such a situation arise, there must be a mechanism through which affected parties can resolve such issues in a cordial manner with the FSMMIP personnel in an efficient, unbiased, transparent, timely and cost-effective manner. To achieve this objective, a grievance redress mechanism has been included in the ESMF for the FSMMIP

### 10.2 FSM JUDICIARY LEVEL GRIEVANCES

- The project level process will not impede affected persons access to the FSM legal system. At any time, a complainant may take the matter to the appropriate legal or judicial authority as per the laws of the FSM.

### 10.3 GRIEVANCE REDRESS MECHANISM

#### 10.3.1 Introduction

344. The FSMMIP allows those that have a complaint or that feel aggrieved by the FSMMIP to be able to communicate their concerns and/or grievances through an appropriate process. The GRM set out in this ESMF is to be used as part of the FSMMIP and will provide an accessible, rapid, fair and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes.
345. While recognizing that many complaints may be resolved immediately, the Complaints Register and Grievance Redress Mechanism set out in this ESMF/ESMP encourages mutually acceptable resolution of issues as they arise. The Complaints Register and Grievance Redress Mechanism set out in this ESMF/ESMP has been designed to:
- be a legitimate process that allows for trust to be built between stakeholder groups and assures stakeholders that their concerns will be assessed in a fair and transparent manner;
  - allow simple and streamlined access to the Complaints Register and Grievance Redress Mechanism for all stakeholders and provide adequate assistance for those that may have faced barriers in the past to be able to raise their concerns;
  - provide clear and known procedures for each stage of the Grievance Redress Mechanism process, and provides clarity on the types of outcomes available to individuals and groups;
  - ensure equitable treatment to all concerned and aggrieved individuals and groups through a consistent, formal approach that, is fair, informed and respectful to a complaint and/or concern;
  - to provide a transparent approach, by keeping any aggrieved individual/group informed of the progress of their complaint, the information that was used when assessing their complaint and information about the mechanisms that will be used to address it; and
  - enable continuous learning and improvements to the GRM. Through continued assessment, the learnings may reduce potential complaints and grievances.
346. Eligibility criteria for the GRM include:
- Perceived negative economic, social or environmental impact on an individual and/or group, or concern about the potential to cause an impact;
  - clearly specified kind of impact that has occurred or has the potential to occur; and explanation of how the project caused or may cause such impact; and

- c. individual and/or group filing of a complaint and/or grievance is impacted, or at risk of being impacted; or the individual and/or group filing a complaint and/or grievance demonstrates that it has authority from an individual and or group that have been or may potentially be impacted on to represent their interest.
347. Local communities and other interested stakeholders may raise a grievance/complaint at all times to the Ombudsman. Affected local communities should be informed about the ESMF/ESMP provisions, including its grievance mechanism and how to make a complaint.

### 10.3.2 Grievance Mechanism

348. The GRM has been designed to be problem-solving mechanism with voluntary good-faith efforts. The GRM is not a substitute for the legal process. The GRM will as far as practicable, try to resolve complaints and/or grievances on terms that are mutually acceptable to all parties. When making a complaint and/or grievance, all parties must act at all times, in good faith and should not attempt to delay and or hinder any mutually acceptable resolution.
349. The process for the GRM is as follows:
- a. The Aggrieved Party takes their grievance to the DoTCI, relevant Port Authority of Contractor. In the pre-construction period, there will be no contractor and the DoTCI is the appropriate entity. Once construction commences, the contractor becomes the initial focal point for information;
  - b. During both pre and post-construction period, DoTCI and/or relevant Port Authority will endeavor to resolve it immediately. Where the Aggrieved Person is not satisfied, the DoTCI and/or relevant Port Authority will refer the Aggrieved Person to the FSMMIP Project Manager. For complaints that were satisfactorily resolved by the Aggrieved Person, the incident and resultant resolution will be logged and reported to the FSMMIP Project Manager. For complaints that were satisfactorily resolved by the contractor, the incident and resultant resolution will be logged and reported to the FSMMIP Project Manager;
  - c. If unsuccessful, the DoTCI and/or relevant Port Authority, and/or contractor notifies the FSMMIP Project Manager;
  - d. The FSMMIP Project Manager endeavors to address and resolve the complaint and inform the Aggrieved Party. For complaints that were satisfactorily resolved by the FSFSMMIP Project Manager, the incident and resultant resolution will be logged by the FSFSMMIP Project Manager. Where the complaint has not been resolved, the FSMMIP Project Manager will refer to the relevant Port Authority General Manager and Secretary of DoTCI for his/her action/resolution;
  - e. If the matter remains unresolved, or the Aggrieved Person is not satisfied with the outcome, the Secretary of DoTCI refers the matter to the Project Steering Committee for a resolution. The FSMMIP Project Manager will log details of issue and resultant resolution status; and
  - f. If it remains unresolved or the complainant is dissatisfied with the outcome proposed by the Project Steering Committee, the Aggrieved Person may refer the matter to the appropriate legal or judicial authority. A decision of the Court will be final.
350. Steps a through e should be undertaken immediately. Where the matter is referred to the FSMMIP Project Manager, a resolution should be sought within two weeks. If unsuccessful and the matter is referred to the Project Steering Committee, this should occur within a month
351. Each record is allocated a unique number reflecting year and sequence of received complaint (for example 2019-01, 2019-02 etc.). Complaint records (letter, email, record of conversation) should be stored together, electronically or in hard copy.
352. Any grievance related to corruption or any unethical practice should be referred immediately to the Ombudsman of the FSM Supreme Court.

### 10.3.3 Complaints Register

353. A complaints register will be established as part of the FSMMIP to record any concerns raised by the community during construction. Any serious complaint will be advised to the World Bank and DoTCI within 24 hours of receiving the complaint. The complaint will be screened. Following the screening, complaints regarding corrupt practices will be referred to the World Bank for commentary and/or advice along with the Ombudsman.
354. Wherever possible, the project team will seek to resolve the complaint as soon as possible, and thus avoid escalation of issues. However, where a complaint cannot be readily resolved, then it must be escalated.

355. A summary list of complaints received, and their disposition must be published in a report produced every six months by DoTCI and the relevant Port Authority.

#### 10.3.4 World Bank Complaints Framework

356. In addition to the project-level and national GRM, complainants have the option to access the World Bank's Grievance Redress Service, with both compliance and grievance functions. The World Bank Integrity Vice Presidency and Grievance Redress Service investigates allegations that World Bank's Standards, screening procedure or other World Bank social and environmental commitments are not being implemented adequately, and that harm may result to people or the environment. A compliance review is available to any community or individual with concerns about the impacts of a World Bank program or project. The Grievance Redress Service is mandated to independently and impartially investigate valid requests from locally impacted people, and to report its findings and recommendations publicly.
357. The Grievance Redress Service offers locally affected people an opportunity to work with other stakeholders to resolve concerns about the social and environmental impacts of a World Bank project. The Grievance Redress Service is intended to supplement the proactive stakeholder engagement that is required of World Bank and its Implementing Partners throughout the project cycle. Communities and individuals may request a Grievance Redress Service process when they have used standard channels for project management and quality assurance and are not satisfied with the response (in this case the project level grievance redress mechanism). When a valid Grievance Redress Service request is submitted, World Bank focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Information can be found at <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service> for more details. For information on how to submit complaints to the World Bank Inspection Panel, visit [www.inspectionpanel.org](http://www.inspectionpanel.org).

# 11 INSTITUTIONAL ARRANGEMENTS FOR THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

## 11.1 PROJECT INSTITUTIONAL AND IMPLEMENTATION ARRANGEMENTS

- 358. Chapter 5 of this ESMF describes the broader legal and policy framework relating to FSMMIP. Operational relationships are set out as follows.
- 359. The DoTCI and relevant State Port Authority will be the implementing agency and will be responsible for the implementation and compliance with the ESMF and ESMP via the collaborating partners and contractors. The ESMF and ESMP will be part of any tender documentation.
- 360. The Project Manager will supervise the contractor, while the DoTCI and relevant State Port Authority will be responsible for environment and social issues.
- 361. DoTCI will help streamline FSMMIP implementation. DoFA which assist as the entity for fiduciary functions, including procurement, financial management and safeguards support for projects financed by international donors and will provide an oversight function on FSMMIP implementation with support in areas of procurement, finance and safeguards.
- 362. The FSM team will be supported by a team from the World Bank. The World Bank will be represented by a Task Team Leader and Co-Task Team Leader, who will lead a team of people with different technical specializations

**Proposed Implementation Arrangements, FSMMIP**

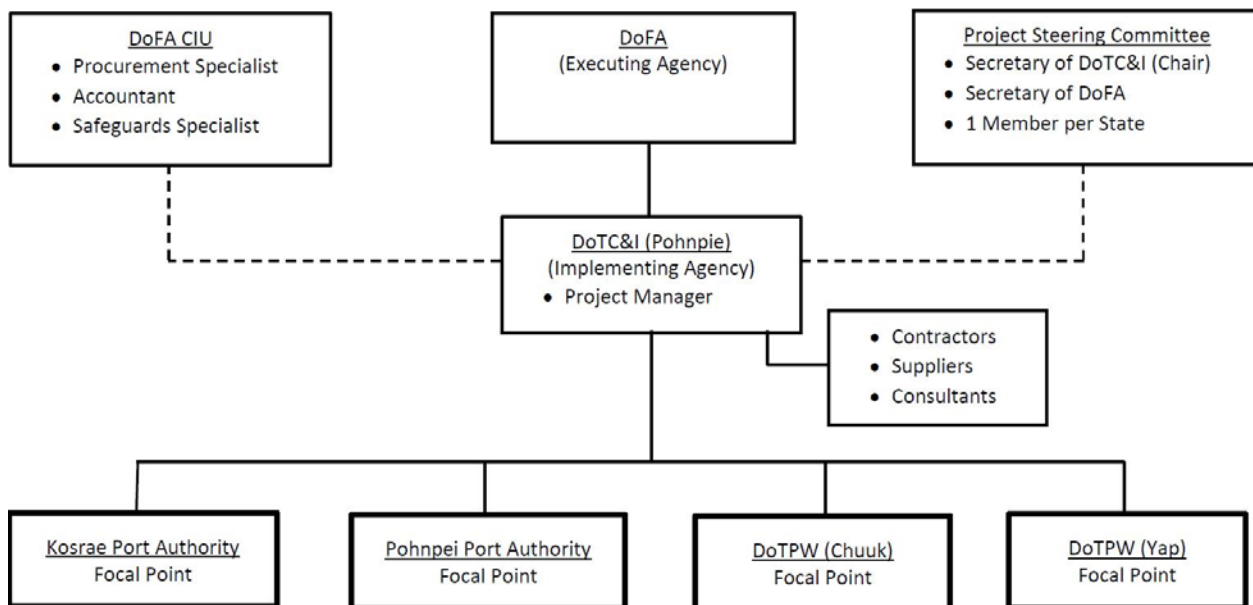


Figure 14 FSMMIP Implementation Arrangements

### 11.1.1 Administration

- 363. The ESMF will be assessed for each sub-project by DoTCI, with periodic review by WB as necessary, prior to any works being undertaken. The ESMF identifies potential risks to the environment and social matters from the projects and outlines strategies for managing those risks and minimizing undesirable environmental and social impacts. Further, the ESMF provides a GRM for those that may be potentially impacted by the projects that do not consider their views have been heard.
- 364. The DoTCI, DoFA and relevant State Port Authority will be responsible for the supervision of the ESMF and activity specific ESMP. The DoTCI will ensure timely remedial actions are taken by the contractor where necessary.
- 365. The DoTCI and relevant State Port Authority will be responsible for the revision or updates of the ESMP and activity specific ESMPs during the course of FSMMIP.

- 366. The DoTCI and relevant State Port Authority are accountable for the provision of specialist advice on environmental and social issues to the delivery organizations (e.g. contractors and/or NGOs) and for environmental and social monitoring and reporting. The DoTCI and State Port Authorities or its delegate will assess the environmental and social performance of the delivery organizations (e.g. contractors) in charge of delivering each component throughout the project and ensure compliance with the ESMF and ESMP. During operations the delivery organizations will be accountable for implementation of the ESMF and ESMP. Personnel working on the projects have accountability for preventing and/or minimizing environmental and social impacts.
- 367. The DoTCI Safeguards Officer will be responsible for daily environmental inspections of the project/construction site. The DoTCI and relevant State Port Authority will cross check these inspections by undertaking monthly audits.
- 368. The contractor undertake specific physical activities will maintain and keep all administrative and environmental records which would include a log of complaint/s together with records of any measures taken to mitigate the cause of the complaints. Further, the contractor will be responsible for the day to day compliance of the ESMF and ESMP.

## 11.2 SAFEGUARDS IMPLEMENTATION ARRANGEMENTS

- 369. DoTCI will be responsible for the ESMF and integrating the requirements into the Program. The relevant Port Authorities will have responsibility for the day-to-day implementation of all safeguard requirements.
- 370. A Safeguards Advisor will be attached to the Central Implementation Unit (CIU) within the DoTCI and will ensure the effective implementation of the Project ESMF and ESMP. The Safeguard Specialist's functions include the supervision of relevant Port Authority's safeguards activities, implementation of the Stakeholder Engagement Plan, and for the overall record keeping and reporting of safeguards for the project.
- 371. Table 17 outlines the key responsibilities for safeguards implementation. The responsibilities will

	Tasks	Responsible Party
Scoping	Review and clearance of ESMF	WB
	Disclosure of ESMF	DoTCI / WB
	Eliminate all activities that are excluded by Screening Form or listed on the CERC Negative List (refer Chapter 6)	Relevant Port Authority / DoTCI Safeguards Officer
	Confirm consultations are adequate	WB
Screening	Screen all proposed activities for adverse environmental and social impacts based on scoping exercise with Safeguard Screening Form and categorize sub-projects	Relevant Port Authority / DoTCI Safeguards Officer
	Screening records filed for review	Relevant Port Authority / DoTCI Safeguards Officer
	Review screening process	WB
Sub-project preparation and design	Undertake field surveys to inform sub-project design and EA and ESMP as required	Relevant Port Authority / DoTCI Safeguards Officer / Consultant
	Design subproject and activities in accordance with national and international standards and environmental/social practices.	Relevant Port Authority / DoTCI Safeguards Officer
	Prepare documentation or arrange/organize for preparation of documentation (i.e. EAs, ESMPs etc.) for each sub-project, in accordance with ESMF and national legislation and agreements	Relevant Port Authority / DoTCI Safeguards Officer
	Support review process and documentation	WB

	Approve local permits	FSM and State EPA
	Disclose draft documents in country	Relevant Port Authority / DoTCI
	Undertake consultation with stakeholders and affected peoples as required.	Relevant Port Authority / DoTCI Safeguards Officer
Monitoring	Project monitoring, construction compliance management, oversight of Contractors, enforcement of Contractor behaviour, incident management etc.	Relevant Port Authority / DoTCI
	Enforce compliance and undertake enforcement of contracts and construction	DoTCI and National and State EPA

Table 17 Key Responsibilities for Safeguards Implementation



## 12 DISCLOSURE

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372. As part of the requirements of World Bank policy OP/BP 4.01 (Environmental Assessment), the ESMF is to be publicly disclosed by DoTCI. A newspaper advertisement will alert the public to the disclosure of the instruments. Likewise, DoTCI and relevant State Port Authority will ensure that copies of all prepared safeguard instruments are available locally at the DoTCI and relevant State Port Authority office, easily accessible to interested and affected groups and local NGOs.
373. The ESMF is a dynamic document and will be reviewed, updated and approved as necessary throughout the implementation of the FSMMIP. For each approved updated version of this ESMF, DoTCI will be responsible for disclosure through the above channels.
374. Other project disclosure activities will happen as part of the stakeholder engagement plan.

## 13 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK MONITORING, EVALUATION AND REPORTING

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375. DoTCI and relevant State Port Authority through the DoTCI Safeguards Specialist will have coordination responsibility for ESMF monitoring and evaluation of progress. Regular reports will be prepared by the DoTCI and relevant State Port Authority in regard to implementation progress, for review by the Safeguards Specialist. Reporting to the World Bank will be undertaken in accordance with Project reporting process.

## 14 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK CAPACITY BUILDING

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### 14.1 CAPACITY DEVELOPMENT

376. DoTCI and relevant State Port Authority do not have in-house safeguards specialists, therefore the DoTCI Safeguards Specialist will fulfill the FSMMIP safeguards role on a part time basis for the duration of the FSMMIP.
377. As part of the Safeguards Specialist role, under Component 3 they will undertake a safeguards capacity gap assessment, the current terminal operator and the FSM and State EPA with the goal of supporting the operationalization of safeguards into their standard operating procedures (SOP). This includes, in full consultation with key stakeholders, developing the outline of a Waste Management Code of Practice for the Ports in this ESMP into a functional Code of Practice to be adopted by DoTCI and relevant State Port Authority.
378. They will contribute to capacity building of DoTCI and relevant State Port Authority through the technical support and advisory role delivered during the preparation and implementation of sub-projects, the review of safeguards instruments, and in ESMP monitoring and reporting.
379. Other short-term consultants may be engaged from time to time to perform specific tasks including, as necessary, the preparation of safeguards instruments for sub-projects, monitoring and evaluation, external monitoring of implementation.

#### 14.1.1 Training

380. The DoTCI Safeguards Specialist shall have the skills and expertise to train and mentor local counter-part staff and others.
381. Areas recommended for DoTCI and relevant State Port Authority training include the following –
  - a. World Bank's Safeguards Policies, in particular those triggered and relevant to the FSMMIP;
  - b. Roles and responsibilities of different key agencies in safeguards implementation.
  - c. How to effectively review WB safeguards instruments and to integrate the ESMF/ESMPs and SEP into FSMMIP management and implementation.
382. Training in the above areas is recommended to be held within three months of FSMMIP initiation.
383. On-going support will be provided by the World Bank team for the duration of the FSMMIP, including during environmental and social screening of sub-projects and review of prepared safeguards instruments.
384. Delivery organizations have the responsibility for ensuring systems are in place so that relevant employees, contractors and other workers are aware of the environmental and social requirements for construction, including the ESMF/ESMP.
385. All FSMMIP personnel will attend an induction that covers health, safety, environment and cultural requirements.
386. All workers engaged in any activity with the potential to cause serious environmental harm (e.g. handling of hazardous materials) will receive task specific environmental training.

## 16 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK BUDGET

387. A budget has been prepared for the implementation of the ESMF and ESMP. These items are over and above those considered to be covered by normal operations.

Item	Cost
ESMF and ESMP Updating and Auditing	\$10,000
General ESMP Expenses	\$20,000
Ecological Monitoring (50 sites - two assessments/year over five years)	\$170,000
Water Quality Monitoring (purchase of four WQ probes, calibration fluids and servicing)	\$100,000
Sediment Sample Field Testing (monitoring to be undertaken over five years)	\$90,000
Sediment Sample Laboratory Analysis (monitoring to be undertaken over five years)	\$90,000
Erosion, Drainage and Sediment Control (includes silt curtains etc)	\$100,000
Stakeholder Engagement Workshop	\$50,000
Grievance Redress Mechanism	\$50,000
Gender Based Violence / Human Trafficking Training - training by local organizations	\$20,000
Additional services	\$100,000
Total	\$800,000

## Annexure One: Existing Port Infrastructure Details for All Ports

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	Pohnpei	Chuuk	Tonoas	Kosrae	Yap
Area of Berths					LOA 253 m
Number of Berths	3	4		1	A1,A2 A3,A4
Length of Berths	328 meters	478 meters		167 m	253m
Depths of Berth	9-12 meters	5-9 meters		9 m dockside, 30 m harbor	10m
Width of Apron	20-25 meters	20-40 meters		18.1 m	19 m
Number of Vessel Calls/Year (2017/2018)	(2017) 713 (2018) 794	2018/69		104/112	61
Number of Cargo Vessels using Port (2017-2018)	(2017) 51 (2018) 49	2 Kyowa 1 Tanker		Kyowa 21, PIL 14/ Kyowa 22, PIL 16	61
Number of Fuel Vessels using Port (2017-2018)	36	17		4/4	12
Number of Fishing Vessels using Port (2017-2018)	1,100	2 Emergency		54/66	4
Number of Domestic Vessels using Port (2017-2018)	2	0		4/3	4
Number of Other Vessels using Port (2017-2018)	4	3		5/6	3
Type of Cargo Vessels using Port (2017-2018)	General Cargo, containers, break-bulk, roll on/roll off	Cargo, Container, Break bulk		containerized and roro	0
Type of Fuel Vessels using Port (2017-2018)	Tanker	Tanker		Tanker: MT Akri, 4202 GRT	class 3 vessel type
Type of Fishing Vessels using Port (2017-2018)	Purse Seiner, Fish Reefer Carrier, Longliner	None		Purse Seine and Longliner	pleasure yacht/fishing carrier
Type of Domestic Vessels using Port (2017-2018)	Passenger/Cargo	Passenger/Cargo		Dual Purpose Cargo Passenger	cargo/passengers vessels
Type of Other Vessels using Port (2017-2018)	Military, Research, Cruise, Yacht	Military,Research, Cruise, Yacht		Military and Law Enforcement	pleasure yacht
Normal Turn Around Times	27 hours average	27 hours average		Kyowa 8 hours, MEL 48 hours	10
Area of Yard	20,204 m²	11,379.5 m²		8,100 sm	6,851sq.m
Common Cargo	Containerized General Cargo	Container, Cargo		General Merchandise, Construction Materials, Vehicles, Frozen & Dry Food	store goods/construction material
Stevedores servicing	Federated Shipping Company (FSCO)	Transco		Yes	waab trans company
Terminal Handling Charge	Terminal handling charges provided by FSCO	Transco		To Be Submitted When Received	\$8.00 per ton per move
Dockage	depend on GRT/LOA of a vessel, which is greater	Depend on ship particulars		\$0.14 per R/T/Day	.16per GRT
Anchorage	50% of dockage	07 per GRT		\$0.10 per R/T	.03 per GRT
Line Handling	\$100.00	\$157.50		\$100 per line service	\$200.00
Navigational Aid Fee	\$40.00	None		\$15 per voyage	.03 cents per GRT
Fuel Transfer		\$1.75/Ton		\$0.50/ MT	
Passenger Fee		Based on Distance		\$3.00 per person	
Transshipment Fee		None		\$1.25/R/T	
Wharfage	\$2.75per r/ton (incoming) \$2.25per r/ton(outgoing)	\$1.75/Ton		\$1.25 per R/T	1.25 per ton
Pilotage	\$300.00minimum per move depend on loa of a vessel	.18 per GRT		\$0.18 per GR/T	.16 per GRT per move
Container Yard Surface	Gravel	Gravel		Gravel	6,851sq.m
Shipping Companies Servicing Port	Kyowa, Matson	Kyowa/Matson		Kyowa Lines and Pacific International Lines	palau shipping,micronesian forwarder,waab shipping agency
Number of Container that can be stored	105	450		Unknown	400 or more
Cargo by Weight (metric tonnes)	91,122	97,896.13		43,400 R/T	30 tons per container
Number of TEUs/Year (2017/2018)	(2017) 3,182 TEU, (2018) 2,558 TEU	2017-4645 2018-6540		737 Discharge, Loaded 452 Empty, 274 full	794 TEUs
Refridgerator Container Storage	50	None		None	10 units
Number of Reefer Stations	5	None		1 station, capacity 12 containers	5 stations
Existing Infrastructure		2 Ware house		Fisheries Operations Bldg: 78 x 45 meters, Cargo Warehouse 200 ft x 20 feet.	old ware house
Oil Storage	Off-site	None		Yes, outside port	N/A
Petroleum Product Storage	Off-site	None		Dual Purpose Kerosene, Motor Gasoline, Automotive Diesel Oil	N/A outside port
Oil Seperators	Off-site	None		Yes, outside port	N/A
Gross Pollution Traps	Off-site	None		None	N/A
Existing Gates	3	2		Yes	2 gates
Existing Fencing	Fencing covered entire port	Front side		Yes	fence all around the port
Number of Tugs	0	0		None	No tug service available
Dockside Cranes	None	None		None	N/A
Container Gantry	None	None		None	N/A
Mobile Cranes	None	None		None	1 each
Rech Slaker	None	None		None	N/A
RoRo Ability	Yes	yes		Yes	Yes available
Number of Forklifts	3	1 T/upper 1.2x Ton 5 Second		1 owned by port, others privately owned	one small and one big
Other Equipment	5	None		None	1 tractor
Number of Staff Employed	26	53		15 (KPA only)	16 stevedoring personnels
Port Security	PPA Seaport	Transco		Yes	6 personnels
Current ISPS Compliance Level	1	None Compliance		Non Compliance	level 1
Police Boats	3	None		None	N/A
Fire Engines	3, shared with airport	None		None	N/A
Office Space	5	1		None	56'x62'

Number of Intl Passengers	Varies	Varies		Varies, only one small pax vessel visited in 2018	500 passengers for 2017/2018
Number of Domestic Passengers	Varies	Varies			900 passengers
Number of Passengers Incidents	0	2		None	N/A
Frequency (e.g., once every # years) of Passenger Incidents		3-5 yrs		None	N/A
Number of Fatalities		2		None	N/A
Number of Injuries		None		None	N/A
Number of Shipping Incident Reports	None	2		None	N/A
Type of Ship Damage		Fire /Grounded		None	N/A
Value of Ship Damage		\$150,000.00		None	N/A
Number of Fuel Spills (2017-2018) (provide details)	None	None		2016:1, 2017:3, 2018: 1	N/A
Number of Other Environmental Incidents (provide detail)	None	None		None	N/A
Annual Maintenance Budget	\$50,000	\$4,000.00		\$5,000	8,000
Annual Budget for Environmental Issues	None	None		None	0

## Annexure Two: Existing Environmental and Social Impacts for All Ports

The existing environmental and social impacts and risks associated with the current operations of the five ports in FSM was identified during the mission. It is acknowledged that all the ports in FSM are acting as a normal industrial area operating with detrimental environmental and social impacts as part of their normal operation.

### Oil Spills

Numerous ports indicated that an existing impact is alleged illegal oil disposal and bilge dumping from ships especially at night at the anchorage. While this is an existing impact, the FSMMIP could exacerbate this. Leaking oil was also observed in all ports associated with the port workshops, and moreover, the waste that was observed throughout all ports. While the oil leaks within the port areas are not significant, stakeholders advised that it was an existing risk; and will have contaminated the sites. Depending on the substrate, these oil leaks could both wash off into the marine environment, and/or be leaking through the substrate that could then impact groundwater. A few examples are provided in Figure 15.

The Government of FSM is not currently a party to MARPOL and has not signed MARPOL. Discussions on potential management measures are described in Section 11.1.



Oil leakage at Weno Port



Oils and Batteries at Okat Port



Oils slime at Dekehtik Port



Oil leak from machinery at Yap Port

Figure 15 Example Oil Issues at FSM Ports

### Waste

All ports in FSM had waste issues in varying scales. Common waste was dumped/scrap cars, trucks and other machinery, tires, fuel drums, old containers that were no longer useable, batteries, and other items. This waste can cause environmental, health and safety risks for port users and the environment.

Port land is very valuable and therefore the storage of waste becomes an issue insofar as the land is no longer available and cannot be used for normal port activities. Secondly, as with oil spills, the waste can result in the release of lubricants etc that could both wash off into the marine environment, and/or be leaking through the substrate that could then impact groundwater.



The waste also becomes a significant health and safety issue where port users; and in some cases, the public when accessing the ports.

It is acknowledged that the project will develop waste management strategies for the five ports as part of the FSMMIP. Examples of port waste are shown in Figure 16.



Waste at Weno Port



Waste at Tonoas Port



Waste at Tonoas Port



Waste at Okat Port



Old Machinery at Dekehtik Port



Oil Drums and Tires at Yap Port



Derelict Vessel at Yap Port

Figure 16 Examples of Waste at FSM Ports

### Prostitution and Human Trafficking

There is an existing potential risk at both Pohnpei and Kosrae of prostitution and human trafficking near the port. There is anecdotal evidence of sexual activity both in accommodation blocks and girls being taken onto to vessels while alongside and at the anchorages although there is currently no evidence to suggest that this is anything other than prostitution.

There are a number of ways this could be occurring. During site inspections, access to secure port areas was sometimes less than expected. This access could allow people to be moved in and around the ports. During the field mission, a car with tinted windows was observed to allowed access into port areas without the guard even opening the window etc of her/his guard house and without producing identification. Increased security at ports should reduce incidences.

Secondly, there are accommodation blocks utilized by fishers and others in proximity to Okat and Dekehtik Ports that could be being used for both legal and illegal activities.

During stakeholder consultation in Pohnpei, stakeholders raised the issue but indicated they could not openly discuss the topic because of customary reasons. There were concerns raised about no windows in the accommodation blocks in Kosrae. This should continue to be assessed during implementations of the FSMMIP.

## Annexure Three: Description of Bio-Physical Environment

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The following section provides an overview of the bio-physical environment of the five ports.

### Geology, Topography and Soils

#### National

The geology of Micronesia is complex, comprising six distinct geological subregions varying in age from about 97 million years in the Marshall Islands, the oldest coral atolls on earth, to relatively young islands with active volcanoes in the Northern Marianas. Yap is formed from upraised continental crust.

There are four types of island these being:

- a. Volcanic 'High islands' which can be highly rugged in their basalt interiors and typically surrounded by fringing or barrier reefs;
- b. Low lying atolls;
- c. Raised coral islands; and
- d. Low coral islands.

#### Chuuk

Chuuk is a large archipelago with mountainous volcanic islands surrounded by a string of coral islets on a barrier reef. There are 19 high volcanic islands within Chuuk Lagoon. The coastal lowlands consist largely of mangrove swamps, freshwater marshes, beaches and raised beach deposits. The uplands make up approximately 73% of the islands, and the coastal lowlands about 27%.

Soil scientists determined that there are about 13 different kinds of soils in Chuuk<sup>6</sup>. The soils in the mountainous areas, except those that are too steep, are moderately deep to very deep and are well drained. These upland soils are generally well suited to subsistence farming and woodland. Most of the soils of the coastal lowlands are limited for agriculture due to wetness.

Soils at the port are heavily compacted and made up of gravels, significant amounts of sand and other aggregate.

#### Kosrae

The island of Kosrae is characterized by steep, rugged mountains, and dense jungle in the interior. Several mountain peaks are about 600 m above sea level. Adjacent to the steep mountains and extending in some areas to the shoreline are nearly level to gently sloping foot slopes, alluvial fans and bottom lands. Mangrove swamps and sandy coastal strands surround much of the island. The mountainous areas make up approximately 70% of the island, foot slopes, alluvial fans and bottom lands about 15% and the remainder mangroves and coastal beaches.

It has been determined that there are about 17 different kinds of soil on Kosrae. The soils in the mountainous areas are generally moderately deep to shallow, well drained, and gravelly or cobbly, derived dominantly from basic igneous rock. The soils in the bottom lands are level to nearly level, very deep and somewhat poorly drained to very poorly drained. They formed in alluvium derived dominantly from basic igneous rock and inorganic deposits. The soils on the coastal strands and in coastal tidal marshes are level and nearly level, moderately deep and very deep, and are somewhat excessively drained and very poorly drained. They formed in alluvium derived dominantly from basic igneous rock, water- and wind- deposited sand derived dominantly from coral, and organic deposits.

Soils at the port are heavily compacted and consist of hydraulically dredged coral placed in layers on the reef flat. Other types of soil have been used in some areas for leveling and grading.

#### Pohnpei

Pohnpei is a high volcanic island, having a rugged, mountainous interior with peaks as high as 798 m above sea level. The mountains of Pohnpei are the highest in the FSM. Pohnpei consists of one main island surrounded by an inner coral reef, 23 small basaltic islets, a number of inshore deposit islet, and an outer encircling barrier reef with about 15 low coral islets. The

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<sup>6</sup> Laird, W. E., (1980) Soil Survey of Islands of Truk, Federated States of Micronesia. US Department of Agriculture, Soil Conservation Service.

outer reef and the inner fringing reefs are separated by a deep lagoon ranging from 1.5 to 8 km across. Within the lagoon are the basaltic and inshore deposit islets. In the southeastern section, there is no lagoon, as the outer barrier and inner fringing reefs have been joined together.

Both the outer barrier reef and the main volcanic island are roughly pentagonal in shape. Pohnpei is about 21 km in diameter and 112km in circumference. Including lagoon islands, the land of Pohnpei covers approximately 340km<sup>2</sup>. The soils of the island of Pohnpei are grouped into 18 different types<sup>7</sup>

Dekehtik Island, where the port is located, is a low-lying coral island, which at one time was completely covered by mangroves. Surrounding most of Dekehtik are alluvial deposits of silty soil cover ranging in depths from 150mm to 300mm (UH Technical Report No. 189). An extensive and frequently impassable mangrove swamp has developed in this area. Much of the swamp is exposed at low tide and covered with about 1m of water during high tide.

The soil in the vicinity of the port area of Dekehtik consists of two types: very deep, very poorly drained, level and nearly level soils in coastal tidal marshes; moderately deep to very deep, moderately well drained and somewhat poorly drained, nearly level to sloping soils on old lava flows, terraces and benches.

## Yap

The Yap Islands comprise an island arc system on the eastern convergent margin of Philippine Plate. They are composed of continental crust and consist of two distinct sequences: ancient weathered volcanic rock and weathered metamorphic schists, accompanied by coral sand and mangrove mud. The islands are surrounded by a broad fringing barrier reef. Yap has a gentle topography, rising to a maximum elevation of about 175m on Mt. Matade. Strong hydrothermal alteration is observed everywhere and might have played a role in producing poor soils for vegetation or for other agriculture.

The soils in the southern part of the island of Yap are mainly nearly level, they are on a dissected bench and are underlain by very soft volcanic breccia. The soils in the northern part are hilly and mountainous. They are underlain mainly by green, chlorite, and talc schist and amphibolite that are very hard to soft, but in a few areas, they are underlain by weathered volcanic breccia. Soil scientists have determined that there are about 16 different soil kinds on the islands of Yap. The soils range widely in texture, natural drainage, depth, fertility and other characteristics.

The soils on the coral limestone islands are nearly level, somewhat excessively drained, very deep and sandy or are steep, well drained, shallow and loamy and are associated with rock outcroppings. The upland soils are mostly nearly level to steep, well drained or somewhat poorly drained, and fine textured. Most areas of these soils are well suited to agricultural forest crops.

The soils on bottom lands are level to nearly level, somewhat excessively drained to very poorly drained and sandy, clayey, or mucky. They are mostly in small areas adjacent to the coast. The very poorly drained soils are well suited to the production of taro.

Soils at the port are heavily compacted and made up of gravels and other aggregate.

## Seismic Activity

Most of the islands in FSM are situated in a relatively quiet seismic area (for example, Pohnpei is located in a seismic Zone 1 as classified by the Trust Territories of the Pacific Islands Design Criteria 1970). The exception is the island of Yap, which is situated close to the Pacific "ring of fire" (Figure 17) These tectonic plate boundaries are extremely active seismic zones capable of generating large earthquakes and, in some cases, major tsunamis that can travel great distances.

While significantly damaging earthquakes have not been observed in recent times, FSM is subject to large tsunamis, as evident by the large tsunami run-ups of 1837, 1849 and 1899, which caused death and destruction in the Caroline Islands. Pohnpei island has not been affected the serious damage by earthquake since 1971.

Yap has a 40% chance in the next 50 years of experiencing, at least once, light to moderate levels of ground shaking. These levels of shaking are expected to cause minor damage to well-engineered buildings. Much lower levels of shaking are expected in the other main islands of FSM. In terms of expected annual economic-social wealth (EWS) loss risk due to earthquakes, FSM sits in the second lowest zone

<sup>7</sup> M. Onjo, T. Kitagaki, N. Miyauchi, S. Tominaga and M. Hayashi (1995) Preliminary Report on Soil Conditions in Pohnpei Island. Kagoshima Univ. Res. Center S. Pac, Occasional Papers, No. 26, 5-7.

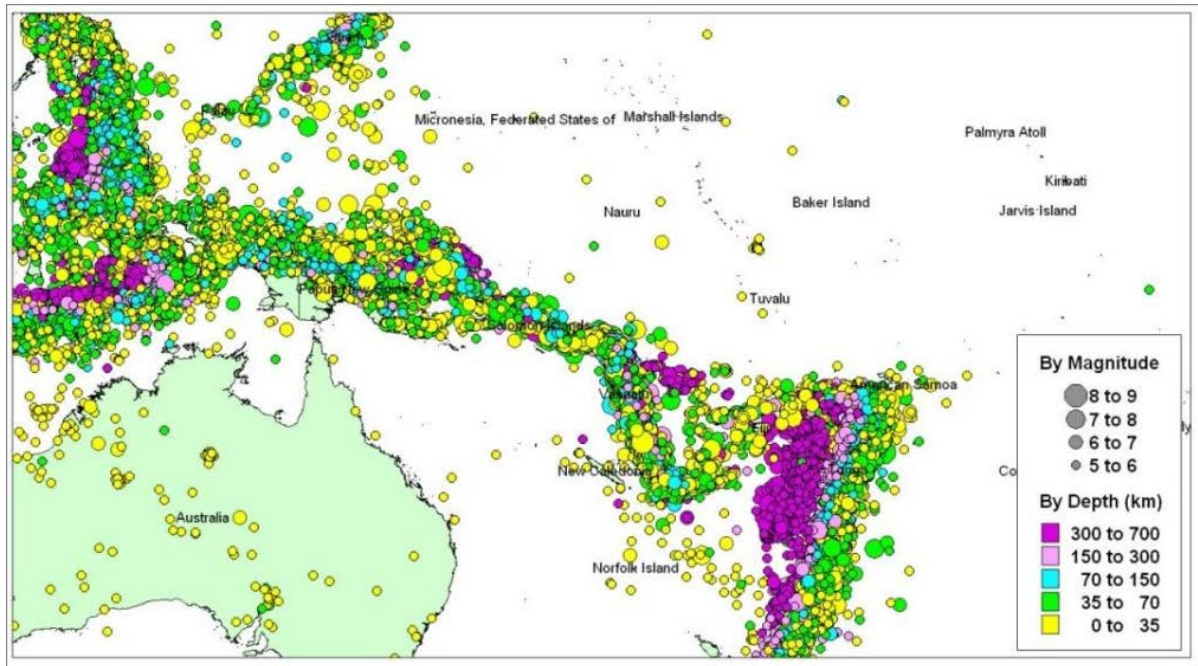


Figure 17 Epicenters of earthquakes in the west Pacific Islands region<sup>8</sup>

## Unexploded Ordinances

FSM has a slight problem with unexploded ordinances (UXO) dating back to the Japanese occupation of the islands during World War II.<sup>9</sup> There is anecdotal evidence of UXOs in Yap ports channel; however, no UXO's were observed during the site inspection. It is noted that all ports are built on reclaimed land and there will be no disturbance to the seabed.

## Climate

FSM lies near the Equator in an immense ocean, therefore the climate is generally tropical (warm and humid). Temperatures vary little, with yearly temperatures averaging 27°C, with the difference between the warmest and coolest month being only a few degrees. The country has two seasons – a dry season from November to April and a wet season from May to October. Figure 18 shows the monthly maximum, mean and low temperatures for Pohnpei and Yap.

The islands are subject to typhoons and get frequent heavy rains from May through November. Micronesia can be affected by tropical cyclones of the North Pacific Ocean, known in this area as typhoons. Typically, typhoons occur from April to December, although they are more frequent between August and November. However, since the sea is always warm, sometimes they can also occur from January to March, although usually during this period tropical depressions not intense are formed.

Rainfall in the FSM is affected by the movement of the Intertropical Convergence Zone. This band of heavy rainfall is caused by air rising over warm water where winds converge, resulting in thunderstorm activity. It extends across the Pacific just north of the equator (Figure 18). The wet season occurs when the Intertropical Convergence Zone strengthens and moves north close to the Federated States of Micronesia. The West Pacific Monsoon also impacts rainfall, bringing additional rain during the wet season. The Monsoon is driven by large differences in temperature between the land and the ocean, and its seasonal arrival usually brings a switch from very dry to very wet conditions.

The Federated States of Micronesia's climate varies considerably from year to year due to the El Niño-Southern Oscillation. This is a natural climate pattern that occurs across the tropical Pacific Ocean and affects weather around the world. In Pohnpei, El Niño tends to result in drier conditions during the dry season, but higher than average rainfall during the wet season. La Niña tends to bring above average rainfall in the dry season. The West Pacific Monsoon affects the western states of Chuuk and especially Yap more than the eastern states of Pohnpei and Kosrae. It tends to be farther east during El Niño, bringing higher rainfall, and in a more western position during La Niña, resulting in less rainfall. The Intertropical Convergence Zone results in less rainfall during El Niño events and more during La Niña.

<sup>8</sup> Rong, Park, Duggan, Hahdyiar and Bauzzurro (2012) Probabilistic Seismic Hazard Assessment for Pacific Island Countries. 15 WCEE Lisboa 2012.

<sup>9</sup> Landmine Monitor Report 1999: Toward a Mine-free World by International Campaign to Ban Landmines

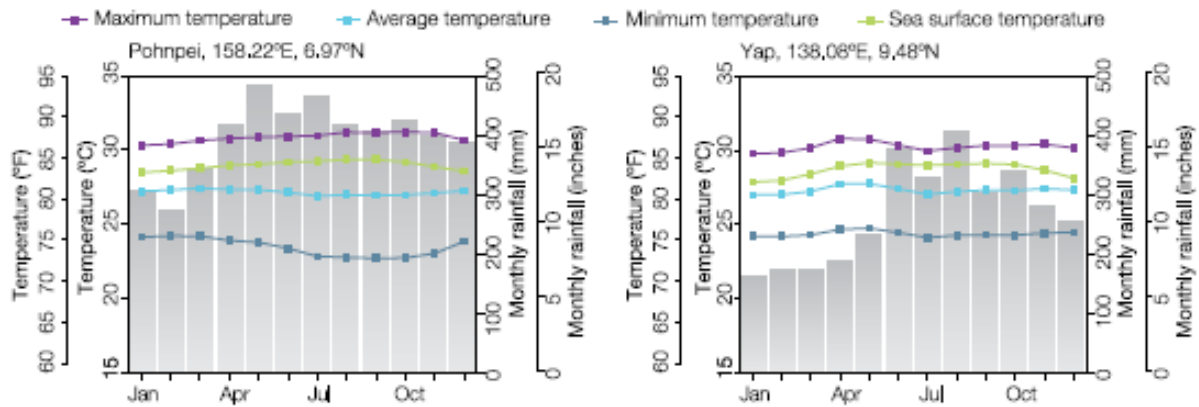


Figure 18 Monthly air temperatures for Pohnpei and Yap<sup>10</sup>

## Air Quality

Outdoor air pollution is a mix of chemicals, particulate matter, and biological materials that react with each other to form tiny hazardous particles. It contributes to breathing problems, chronic diseases, increased hospitalization, and premature mortality.

The concentration of particulate matter (PM) is a key air quality indicator since it is the most common air pollutant that affects short term and long-term health. Two sizes of particulate matter are used to analyze air quality; fine particles with a diameter of less than 2.5 microns ( $\mu\text{m}$ ) or PM2.5 and coarse particles with a diameter of less than 10  $\mu\text{m}$  or PM10. PM2.5 particles are more concerning because their small size allows them to travel deeper into the cardiopulmonary system.

The World Health Organization's (WHO) air quality guidelines recommend that the annual mean concentrations of PM2.5 should not exceed 10  $\mu\text{m}/\text{m}^3$  and 20  $\mu\text{m}/\text{m}^3$  for PM10.

No data for ambient air quality for FSM was found. The small size of the islands and prevalence of strong maritime winds ensure that any air emissions from vehicles, stationary sources or fires is quickly mixed with clean maritime air and no pockets of lower air quality are likely to exist.

Pohnpei EPA Air Pollution Control Standards and Regulations S.L. No. 2L-12-80 have set air quality standards which are the desirable levels of air quality for the State of Pohnpei. At these levels, air pollutants are not expected to produce health hazard or impairment, injury to agriculture crops and livestock, damage to or deterioration of property, and hazards to air and ground transportation, or in any manner, interfere with the protection of the public welfare.

## Visual Amenity and Ambient Light

The ports in FSM are all located within the developed urban/industrial areas. Public access is generally limited. View sheds vary depending upon whether the island is flat or hilly. Due to security perimeters and the location of buildings such as offices, warehouses, processing plants, and container yards, ports do not generally provide uninterrupted views. The visual landscape is one of maritime industry consisting of ships, wharves and supporting infrastructure.

Most ports are surrounded by industrial or other transport facilities rather than housing, therefore sensitive receptors to immediate light spill are generally limited. However, security lighting at the ports and deck lights used by vessels at anchor or alongside wharves has the potential to impact sensitive receptors.

The ports are existing facilities and the proposed new or updated infrastructure is of a type and scale that is in keeping with that already in place

## Ambient Noise

Ports are industrial sites and therefore are a source of noise, particularly ship engine and operating machinery noise. Loading and unloading of cargo also creates some noise. Environmental Health and Safety (EHS) guideline levels for ambient noise

<sup>10</sup> Australian Bureau of Meteorology

levels for urban areas are 55 dBA (day) and 45 dBA (night). Noise monitoring undertaken for the Pohnpei Port Development Project<sup>11</sup> gives an indication of the typical ambient noise for urban areas in FSM (Table 18).

Sampling Location	Noise Level (dBA)	
	Day	Night
Kolonia Town area (urban)	48.2	34.7
PPA Admin carpark	54.7	45.8

Table 18 Ambient noise levels in Pohnpei (ADB 2013)

The ports are existing facilities, therefore any impacts to surrounding sensitive receptors are already occurring.

## Terrestrial Ecology

The FSM has in general high levels of species diversity and endemism considering its small size. The oceanic islands of the FSM are critical storehouses of biodiversity. Major vegetation types in the FSM are: cloud forest, native upland forest, palm forest, agroforest, secondary vegetation, savanna grass and fern lands, freshwater marsh, swamp forest, mangroves, atoll forest, limestone forest of rocky coasts and beach strand. The country forms part of two Global 200 World Wildlife Fund (WWF) ecoregions, namely the Yap Tropical Dry Forest and the Caroline Tropical Moist Forest Ecoregion, and forms part of the Polynesia/Micronesia Hotspot.

Over 1,239 species of ferns and flowering plants have been described in the FSM. Approximately 782 species are native, including about 145 species of ferns, 267 species of monocots and 370 species of dicots. Approximately 175 of these plants are considered endemic to the FSM. Micronesia as a bioregion is considered to have amongst the highest density of endemic plants in the world with each State in the FSM characterized by its own suite of endemic plant species (Yap 9, Chuuk 16, Pohnpei 47 and Kosrae 18 endemic plant species).

Terrestrial ecosystems are also home to many unique avian, mammalian, reptilian and other species, including owls, flying foxes, parrots, giant geckos, skinks, dragonflies, freshwater gobies and land snails: 27 species of reptiles and amphibians (four endemic); four species of fruit bats (flying foxes) of the genus *Pteropus* (*P. molosinnus*, *P. insularis*, *P. phaeocephalus*, and *P. ualrus*) and a single endemic sheath-tailed bat of the genus *Emballonura*; and, 234 species of birds including 19 endemics, 20 threatened, 2 extinct and 13 introduced<sup>12</sup>. Endemic species include 2 monarchs (Truk *Metabolus rugensis* and Yap *Monarcha godeffroyi*), 2 flycatchers (Pohnpei *Myiagra pluto* and Oceanic *Myiagra oceanica*), Pohnpei fantail (*Rhipidura kubaryi*), Pohnpei flycatcher (*Myiagra pluto*), long-billed white-eye (*Rukia longirostra*), Pohnpei lorry (*Trichoglossus rubiginosus*), Caroline Islands Ground-Dove (*Gallicolumba kubaryi*), Mariana Fruit-Dove (*Ptilinopus roseicapilla*), and the Critically Endangered Pohnpei mountain starling (*Aplonis pelzeni*). The current status of most of these species is unknown due to lack of ongoing or systemic monitoring, and lack of understanding of species habitat and ecological requirements<sup>13</sup>. There are also indications that the invertebrate fauna of the FSM is also rich and interesting, however data is still limited

As the ports are mostly developed spaces of an industrial nature, often on reclaimed land, and comprise mostly hardened surfaces, buildings, roads, wharves and dredged basins, they do not provide significant habitat for terrestrial species, other than some introduced species.

## Invasive species

Invasive alien species (IAS) are the greatest threat to biodiversity in the Pacific Islands, contributing to the loss of native species including endemics and traditional varieties of crops, and impacting on food security and tourism. Moreover, the threat has increased as island nations develop, resulting in greater mobility among people, goods, and supplies.

FSM is no exception and in the last 150 years over 457 new plants have been introduced to the FSM, which amounts to 37% of the 1,239 described species of terrestrial flowering plants and ferns. Introduced species account for 22% of plants in Kosrae, 40% in Pohnpei, 37% in Chuuk and 39% in Yap. Native terrestrial mammals are limited to six taxa of fruit bats, of which five are endemic, and the rest are introduced: three rat species, mouse, Philippine deer, and domesticated animals including

<sup>11</sup> ADB (2013) FSM Pohnpei Port Development Project, Initial Environmental Examination. Project No. TA 8143-FSM

<sup>12</sup> <http://avibase.bsc-eoc.org>

<sup>13</sup> FSM Department of Resources and Development Division of Resource and Development, Agriculture Program and Marine Program. Ridge to Reef Project Document R2R5517

livestock. Thirteen introduced bird species have been recorded, including pheasants, doves, parrots, munias and the Eurasian Tree Sparrow (*Passer montanus*). Amphibians are not native to FSM and the only species is the introduced marine/cane toad (*Rhinella marina* syn: *Bufo marinus*). Of the 27 species of reptiles, five are endemic and two are likely to have been introduced.

A number of the invasive species entered Micronesia as a result of World War II. More recently, invasive species have been spread by equipment used in road construction, and through western style agricultural projects. The Giant African Snail is likely to have been introduced via port activities. As an example, Okat port has a Coconut Rhinoceros Beetle trap at the east end of the warehouse as a detection mechanism (Figure 19).



Figure 19 Coconut Rhinoceros Beetle trap at Okat Port



## Marine Environment

The following provides an overview of the benthic ecology study undertaken as part of the work. Full details are included in Annexure Five.

### Methodology

A number of factors dictated the methods used to describe the benthic marine environment within and adjacent to the areas of the proposed physical investments.<sup>14</sup> Because of the extremely tight timelines for the work (both in terms of field work, and also reporting) and the fact that associates of various levels of professional ability were engaged locally, a simple photographic technique to document benthic environments, that employs easy to use waterproof cameras (most GoPro Hero 7) taking unframed quadrat photographs along randomly placed 30m transects at within and adjacent to Ports was used. These photos are then analyzed using 'random point count' methodology, which is a common method to enumerate community/habitat statistics in a variety of fields of biology,<sup>15</sup> and is commonly used for coral reef habitats.<sup>16</sup> This method allowed many sites to be assessed using basic habitat descriptors. The broad overview of marine benthic habitats this method produces is by no means a comprehensive biological/ecological inventory and should only be used for semi-quantitative descriptive purposes rather than representing a current biological baseline dataset.

At each port (except Tonoas) the site was assessed both from satellite photographs and in situ. Survey sites were selected for data collection to assess the benthic environment based on both proximity to the physical investments (directly around ports) and adjacent to ports, based on the variety of habitats present (i.e. deep channels, fringing reef slopes, reef flats, intertidal areas etc). At each site up to four divers (or a single snorkeler) were deployed. The diver/snorkeler randomly placed the start of a 50m surveyors measuring tape on the bottom and deployed 30m of tape in a random direction. The diver (or a second diver) then swam along the transect length, taking 8-15 photographs of the seafloor from directly above the transect tape with the transect tape in-shot. This was performed 4-8 times per site, depending on the number of personnel available. At Yap different cameras to the GoPro's were used, which resulted in higher resolution photography, but a more limited field of view. Hence at this site, more photos were taken and analyzed than at other sites, but ultimately less benthic habitat was sampling due to the field-of-view restriction.

Photos were analyzed using the program CPCe,<sup>17</sup> which allows users to correctly spatially scale photographs according to known measures (in this case the surveyors tape). The program then has an algorithm to place random points within a pre-defined area, and database functions that allow the user to catalog the benthic habitat category/taxonomic group under that datapoint. For this study, photographs had a quadrat (square area of predefined dimension) defined based on as large an area as practical given the field of view of the photograph (for YAP, usually around 40 – 70 cm<sup>2</sup>, for all other ports usually 1 m<sup>2</sup>). Within each quadrat a point was placed at random in each 10cm column of the quadrat, and the user then recorded the benthic habitat category/taxonomic group at this point. Habitat categories and taxonomic groupings used to record data for this report are provided below in Annexure 3.

After data was collected for each site, data were summarized per transect such that descriptive statistics (means, standard deviations, standard errors) were generated across transects. Benthic habitat data is presented in graph and table form however all data (photographs, CPCe outputs) is available in electronic appendices.

### Weno

The existing benthic habitat at the port of Weno, Chuuk, is predominately abiotic in the macro-sense, consisting mostly of fine and coarse sands with sparse visible epiflora or fauna. The area immediately to the west of the port dock recedes into deeper lagoonal sandy bottom habitat with sparse hard substrate and macroalgae present. The area immediately north consists of shallow fringing reef habitat abutting the northern shoreline, dominated by mostly calcareous macroalgae, turf algae on hard substrate with some hard-coral cover and other sessile benthic invertebrates recorded. To the south there is a sandy bottom channel of 9-11m depth, which after ≈100m transitions into fringing reef abutting the southern shoreline. This southern fringing reef consists of mainly turf algae on hard substrate and macroalgae habitat, with the highest recorded hard coral cover around the port vicinity of approximately 10% at 6-8m depth rising from the sandy bottom channel. The reef flat of the southern fringing reef is dominated by fleshy macroalgae cover with some algal turf on hard substrate and hard coral cover (both ≈<10%). A quantitative description of the benthic habitats around and immediately adjacent to the port is presented in detail below. The

<sup>14</sup> Hoek, Christiaan; Mann, David; Jahns, H.M. (1995), *Algae: An Introduction to Phycology*. Cambridge University Press. p. 434. ISBN 978-0-521-31687-3

<sup>15</sup> Kohler, K.E. and Gill, S.M., 2006. Coral Point Count with Excel extensions (CPCe): A Visual Basic program for the determination of coral and substrate coverage using random point count methodology. *Computers & Geosciences*, 32(9), pp.1259-1269

<sup>16</sup> Carleton, J.H. and Done, T.J., 1995. Quantitative video sampling of coral reef benthos: large-scale application. *Coral Reefs*, 14(1), pp.35-46

<sup>17</sup> Kohler, K.E. and Gill, S.M., 2006. Coral Point Count with Excel extensions (CPCe): A Visual Basic program for the determination of coral and substrate coverage using random point count methodology. *Computers & Geosciences*, 32(9), pp.1259-1269

area appears to already be impacted by industrial activity, given the prevalence of industrial and domestic waste on the seafloor. The proposed project appears to pose little threat to the existing marine benthic environment, however some general recommendations, revolving around pollution management are provided considering the likely industrial operations associated with the project and as a result of potentially increased future port capacity and/or use. Examples of the substrate observed at Weno are included in Figure 20.

### Tonoas

Tonoas was not sampled for the benthic ecology consistent with the other sites at the port was not within the original scope; however, a rapid assessment was undertaken by two highly experienced marine biologists.

Tonoas port has not been used for many years, and as such, the biota is different from that of the existing ports that are heavily utilized. The existing benthic habitat immediately in front of the berth is predominantly abiotic in the macro-sense, consisting mostly of fine and coarse sands with sparse visible epiflora or fauna. An estimation suggests the depth was about 10 meters. Examples are shown in the first four photos in Figure 21. The area immediately west of the port has a more diverse benthic fauna than the front face. This could be that the area has not been utilized, but moreover, it is protected from the current within the main channel. The area consists mostly of fine and coarse sands with epiflora or fauna covering about 25% of the benthic environment. Examples are shown in Figure 21.

By contrast, the sheet piling on the port face has a thriving environment as it has not been disturbed for many years. Observations showed >50% cover high abundances of calcareous macroalgae, hard and soft coral cover and other sessile benthic invertebrates. Numerous small fishers were observed. Species of coral included *Porites* spp. Examples are shown in Figure 21. The area immediately north west of the port consists of shallow fringing reef habitat abutting the northern shoreline, dominated by calcareous macroalgae, turf algae on hard substrate with hard-coral cover and other sessile benthic invertebrates recorded. Similar habitat was observed to the east of the port in a larger embayment. Examples are shown in Figure 21.

### Kosrae

The Port of Kosrae is situated on the north eastern side of the island of Kosrae along a NE-SW orientated deep channel running parallel to the SE coast of Gabert Island and the NW coast of Kosrae main island. The channel is essentially between the Kosrae island outer fringing reef (upon which Gabert island is situated) and the Kosrae island coastline, which in the vicinity of the port is predominately mangrove-lined. The benthic habitat around the port is a mixture of macro-abiotic with sparse visible epiflora or fauna off the main operational area of the port (the south facing dock) and reef slope and flat off the eastern and western docks of the port. The benthic habitat immediately west of the port consists of shallow fringing reef, transitioning to a large reef flat area with substantial sub-tidal macroalgae beds giving way to intertidal seagrass habitat abutting the southern shoreline of Gabert Island. The benthic habitat to the east of the port also consists of shallow fringing reef, transitioning to a large reef flat area with substantial sub-tidal macroalgae beds giving way to intertidal seagrass habitat abutting the southern shoreline of Gabert Island. Qualitatively, across the channel to the south and east of the port there is a similar transition from channel to shallow fringing reef, to a large reef flat area with substantial sub-tidal macroalgae beds giving way to intertidal areas abutting the mangrove-laden north eastern shoreline of Kosrae. A quantitative description of the benthic habitats around and immediately adjacent to the port is presented in detail below as well as a qualitative description of the fringing reef wall on the eastern side of the port. The port area appears to already be impacted by industrial activity, given the prevalence of industrial and domestic waste on the seafloor. The proposed project appears to pose little threat to the existing marine benthic environment, however some general recommendations, revolving around pollution management are provided considering the likely industrial operations associated with the project and as a result of potentially increased future port capacity and/or use. Examples of the substrate observed at Kosrae are included in Figure 22.

### Pohnpei

The international port of Pohnpei is situated on the island of Dekehtik on the eastern side of a northern facing mangrove-lined inlet containing Sokehs Channel. Its benthic habitat is predominately macro-abiotic, consisting mostly of silt and mud with sparse visible epiflora or fauna. The area immediately to the west of the port dock recedes into deeper channel (Sokehs Channel) silt bottom habitat with sparse hard substrate and macroalgae present. The benthic habitat immediately north of the port consists of shallow fringing reef habitat abutting the western shoreline of Dekehtik. It is dominated hard substrate with algal turf and relatively high hard-coral cover ( $\approx 35\%$ ), compared to the immediately surrounding areas of other FSM ports. Across Sokehs Channel from the port (the western side of the inlet) there is a near vertical wall rising from the deeper waters of Sokehs Channel with substantial hard coral cover, breaking into an extensive reef flat area abutting the mangrove-laden western inlet shoreline (the eastern coast of Sokehs Island). A quantitative description of the benthic habitats around and immediately adjacent to the port is presented in detail below as well as a qualitative description of the fringing reef wall and reef flat habitat on the western side of the Sokehs Channel. The port area appears to already be impacted by industrial activity,

given the prevalence of industrial and domestic waste on the seafloor. The proposed project appears to pose little threat to the existing marine benthic environment, however some general recommendations, revolving around pollution management are provided considering the likely industrial operations associated with the project and as a result of potentially increased future port capacity and/or use. Examples of the substrate observed at Pohnpei are included in Figure 23.

#### Yap

The existing benthic environment at the port of Colonia Yap is predominately macro-abiotic, consisting mostly of soft sediments (predominately fine silt) with no visible epiflora or fauna. There were some hard corals and macroalgae at (relatively) shallow water (<9m depth) sites immediately adjacent (East and West) to the port, albeit with very low benthic cover (<10%). A quantitative description of the immediately adjacent port benthic is presented in detail below. The area appears to already be impacted by industrial activity, given the prevalence of industrial and domestic waste on the seafloor and the likelihood of resuspension of fine silts from ship movements and weather events etc. Around 350m to the NNE of the main port-face is an area of reef flat rising out of the channel, consisting of sparse, massive growth form coral colonies (generally in <5m depth) and bedrock rising to a coral lagoon with sparse branching corals and seagrass beds. The proposed project appears to pose little threat to the existing marine benthic environment, however some general recommendations, revolving around pollution management are provided considering the likely industrial operations associated with the project and as a result of potentially increased future port capacity and/or use. Examples of the substrate observed at Yap are included in Figure 24.

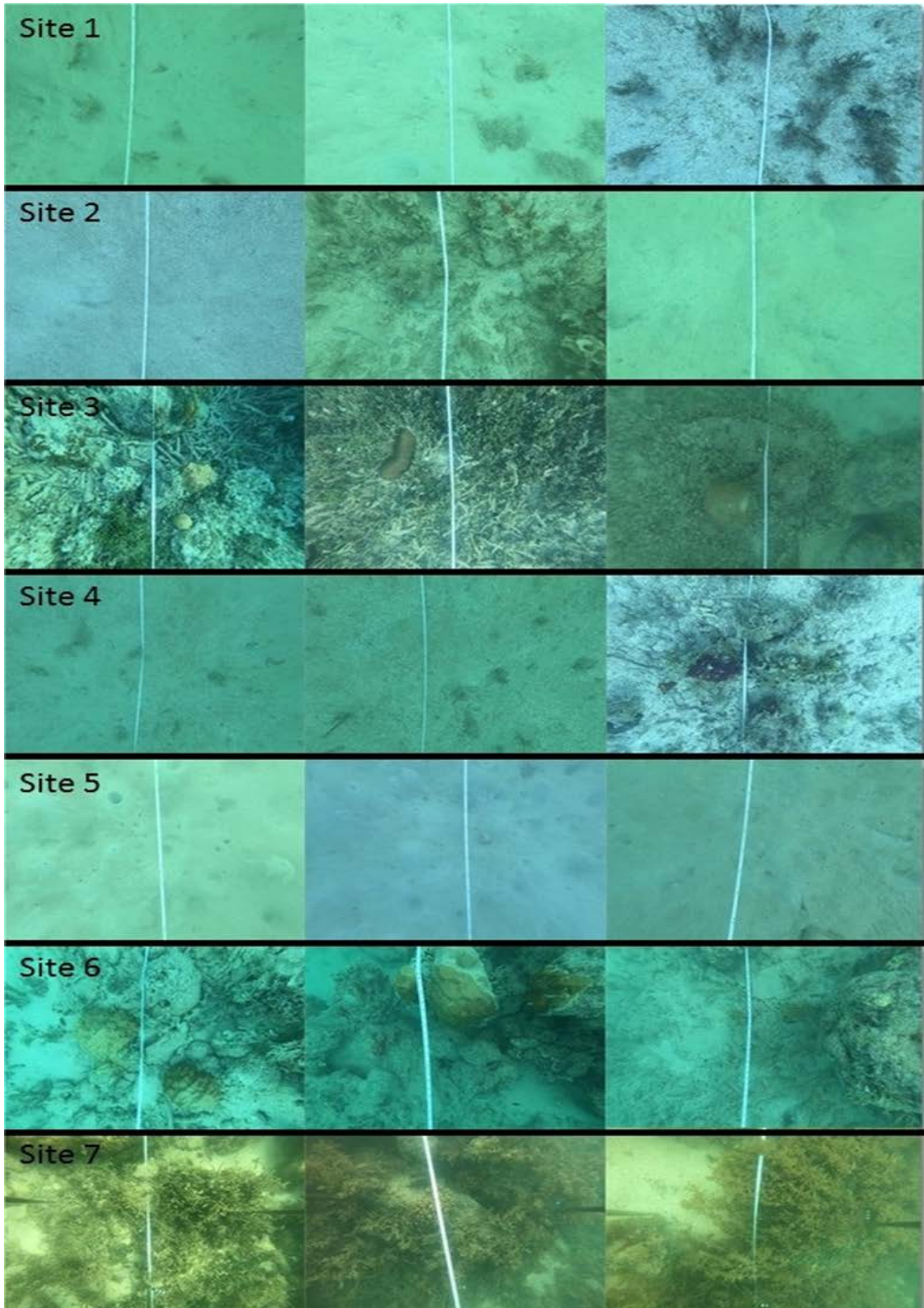


Figure 20 Representative photos of the benthic environment of each surveyed site at Weno



Benthic Environment in front of Tonoas port



Benthic Environment in front of Tonoas port



Benthic Environment in front of Tonoas port



Benthic Environment in front of Tonoas port



Benthic Environment west of Tonoas port



Benthic Environment west of Tonoas port



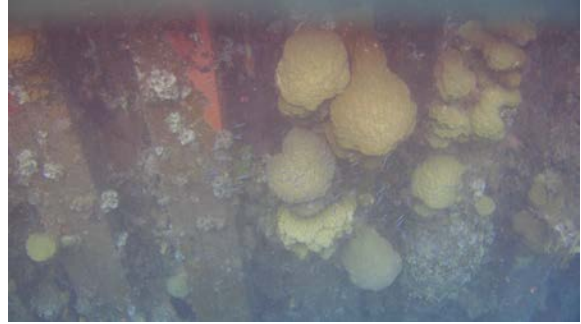
Benthic Environment west of Tonoas port



Benthic Environment west of Tonoas port



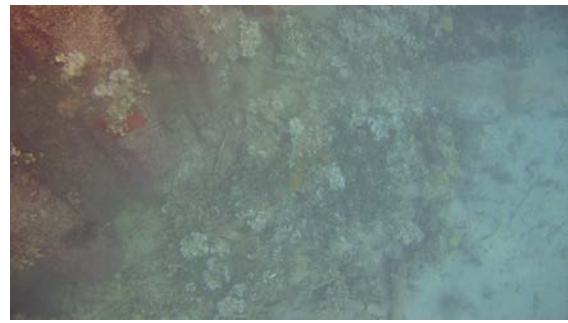
Sheet Piling at Tonoas Port



Sheet Piling at Tonoas Port



Sheet Piling at Tonoas Port



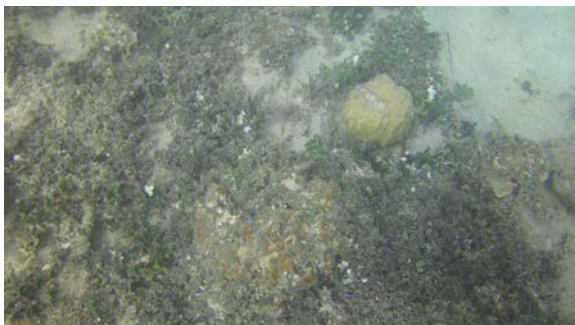
Sheet Piling at Tonoas Port



Inshore reef north west of Tonoas Port



Inshore reef north west of Tonoas Port



Inshore reef north west of Tonoas Port



Inshore reef north west of Tonoas Port



Inshore reef north west of Tonoas Port



Inshore reef north west of Tonoas Port

Figure 21 Representative photos of the benthic environment at Tonoas

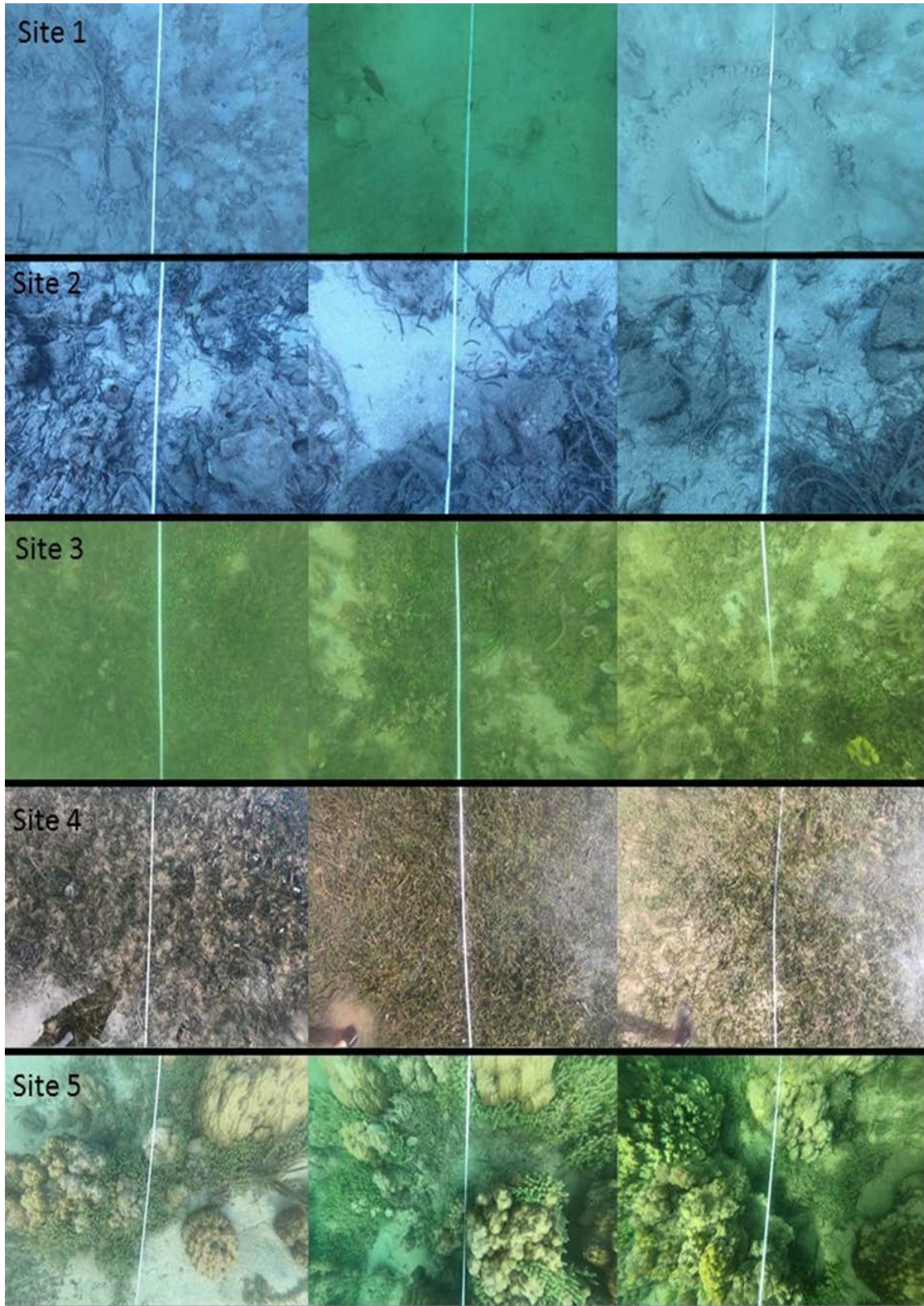


Figure 22 Representative photos of the benthic environment of each surveyed site at Kosrae



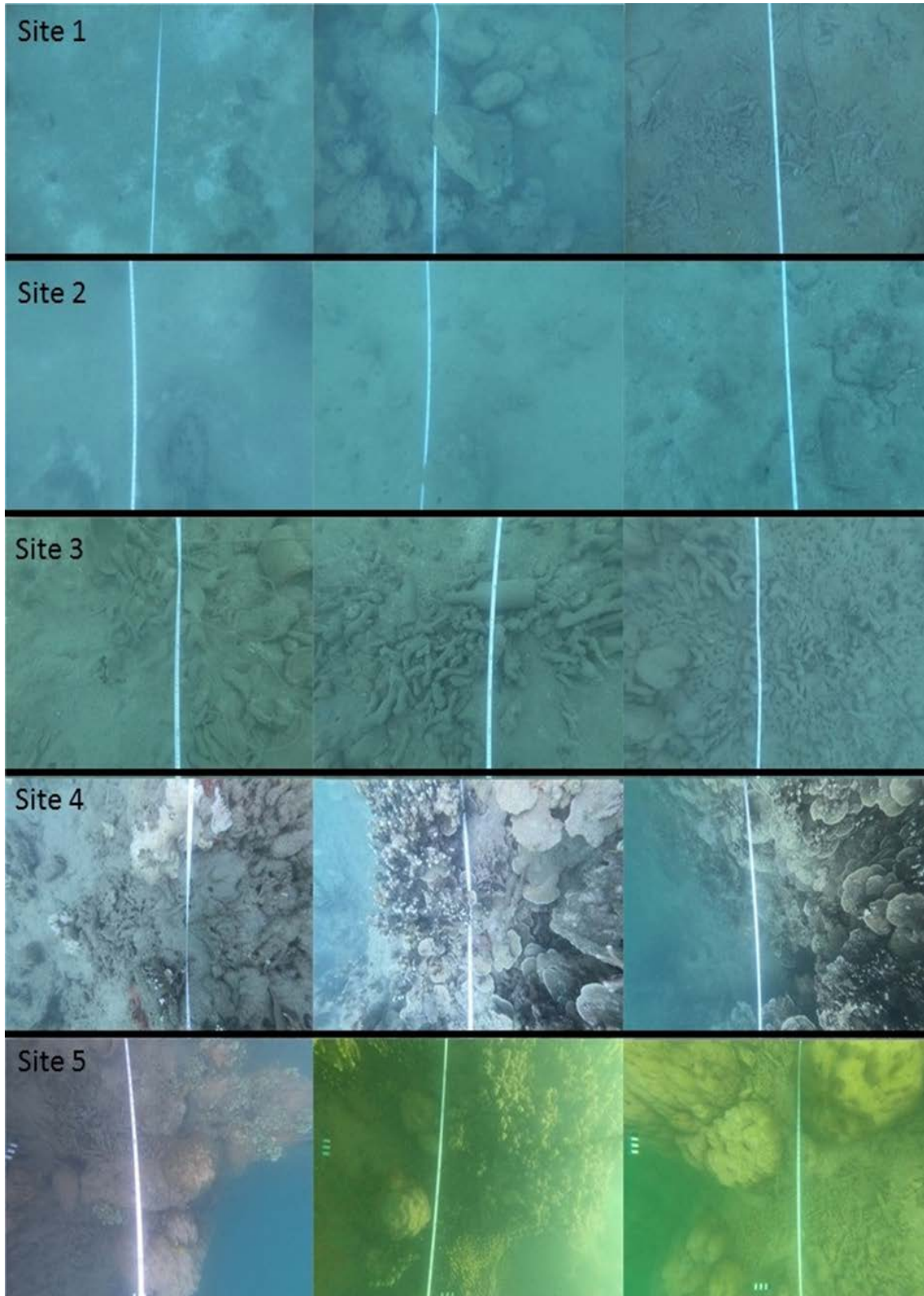


Figure 23 Representative photos of the benthic environment of each surveyed site at Pohnpei

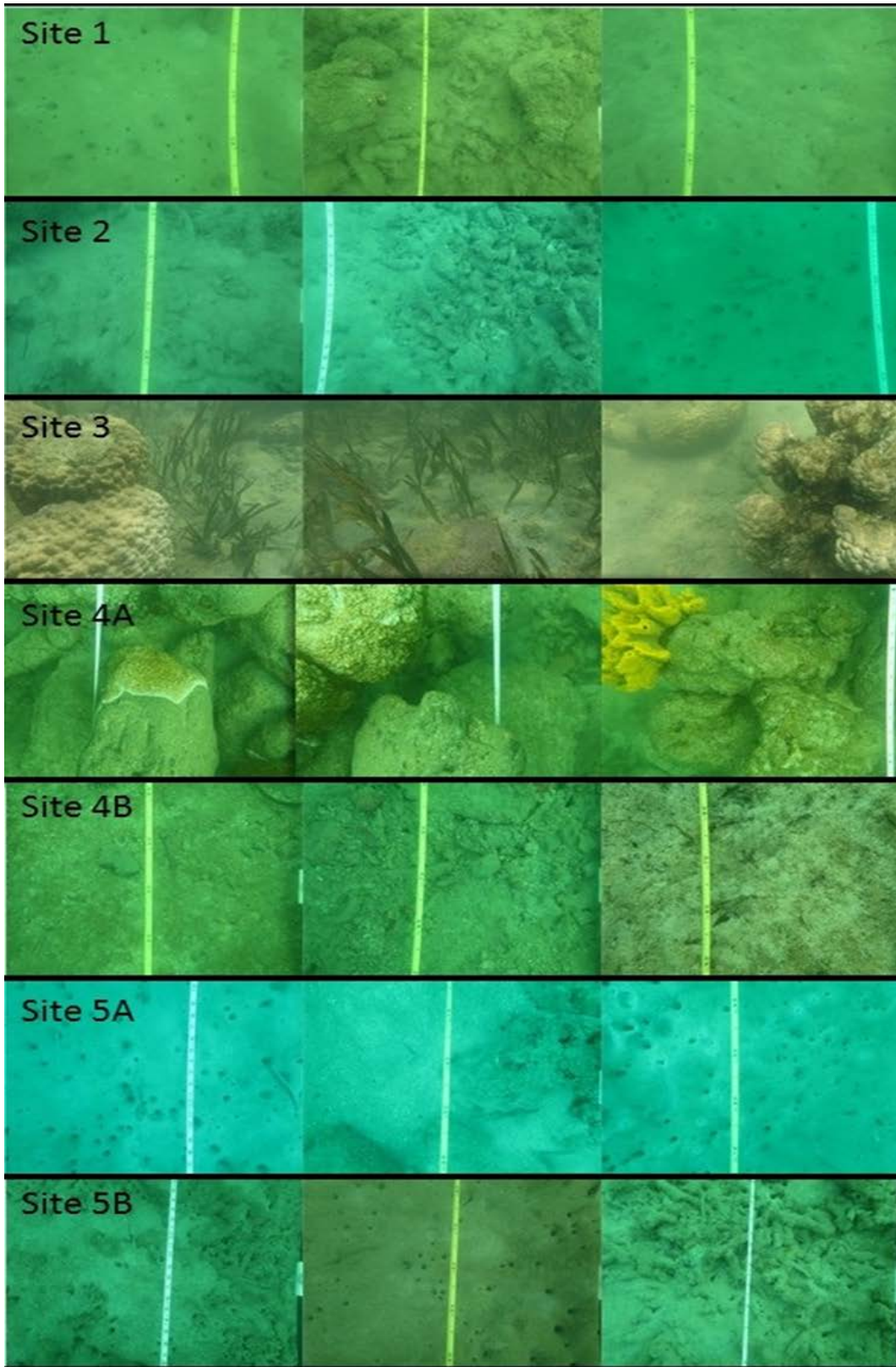


Figure 24 Representative photos of the benthic environment of each surveyed site at Yap

## Marine Water Quality

### Methodology

Water quality samples were collected at a range of sites for each port. A YSI Pro DSS unit was used to collect the samples. The water quality equipment located the site using GPS technology and collected the following parameters

- a. Barometer (mmHg)
- b. Temp (°C)
- c. Cond (µS/cm)
- d. Sp Cond (µS/cm)
- e. Sal (psu)
- f. nLFCond (µS/cm)
- g. TDS (mg/L)
- h. Resistivity (ohms-cm)
- i. Sigma-T (s t)
- j. Sigma (s)
- k. ODO (% Sat)
- l. ODO (mg/L)
- m. ODO (ppm)
- n. pH
- o. pH (mV)
- p. ORP (mV)
- q. Turbidity (FNU).

All samples were taken at a depth of 6 meters for consistency.

Sample sites were as follows:

- a. Weno – seven (7) sites;
- b. Tonoas – seven (7) sites;
- c. Kosrae – ten (10) sites;
- d. Pohnpei – nine (9) sites; and
- e. Yap – six (6) sites.

Data was logged on the YSI Pro DSS and then transferred into an excel spreadsheet. Full data for all ports is contained within Annexure Two of the ESMF.

### Chuuk

#### Weno

A range of sites were surveyed as part of the water quality sampling, including what could be considered unimpacted sites versus sites in proximity to the port and small vessel area.

Water quality across the seven sites was very similar irrespective of being close to the port. Temperature was consistent across all sites at 28.5°C except for site 2 which was 28.6°C. Likewise, conductivity was very similar across all sites as was oxygen saturation and availability. pH ranged between 8.25 and 8.31. Turbidity was highest at site 7, which was to be expected, although it was still low at only 1.2 FNU. Total dissolved solids ranged from 33225 to 33252, again very similar. In open water, turbidity ranged between 0.49 to 0.79. Around the port (sites 5 and 6), turbidity was still low at 0.86 and 0.96 respectively. This would suggest high water circulation within the lagoon.

Marine water quality sites for Weno are shown in Figure 25.

### Tonoas

A range of sites were surveyed as part of the water quality sampling, including what could be considered unimpacted sites versus sites in proximity to the port, notwithstanding the port is not being utilized.

Water quality across the seven sites was very similar irrespective of being close to the port. Temperature was fairly consistent across all sites (28.8°C – 28.9°C) except for site 5 which was 29.4°C. Likewise, conductivity was very similar across all sites except for site 5 which was higher, although specific conductivity was very similar. Turbidity ranged between 0.47 to 0.68, with site one being higher, most likely given it was taken within a small embayment where circulation might be reduced. Oxygen saturation and availability were also all consistent. pH ranged between 8.28 and 8.35.

Marine water quality sampling sites for Tonoas are shown in Figure 26.

### Kosrae

Okat Port is located on an area of reclaimed land adjacent to the airport. At the eastern end of the airport, there is an access bridge and during an incoming tide, flow velocities under the bridge are estimated to be in excess of six (6) knots. This would likely have an impact on water in the marine park area (upper reaches of the area adjacent to site 1).

Water quality was sampled at ten locations around Okat Port. Temperature ranged from 28.8°C to 29.1°C. Conductivity was similar across all sites except for site 8 which was higher, although specific conductivity was very similar. Total dissolved solids were similar across sites. Oxygen saturation was much higher at site 8 (125.5%) in comparison to the other sites which ranged from 99.7% to 102.1%. Turbidity was highest at site 2 (8.59 FNU) while turbidity was low around the port itself.

Marine water quality sampling sites for Kosrae are shown in Figure 27.

### Pohnpei

Water quality was sampled at nine (9) locations within the embayment. Water temperature varied across the nine sites sampled with site 1 having higher temperature (29.6°C) while sites 3, 4 and 7 had water temperatures of 28.8°C. Oxygen saturation was highest at site 1 (108% and only 83% and site 8 which could be a result of water circulation. Sites 8 and 9 had much higher turbidity (5.07 and 5.42 FNU) in comparison to other sites, although site 6 immediately adjacent to the port had a turbidity reading of 3.51 FNU. Other variables were similar across all sites.

Marine water quality sampling sites for Pohnpei are shown in Figure 28

### Yap

Water quality was sampled at six (6) locations. Water temperature varied across the six sites sampled by as much as 1.2 degrees with sites 4 and 5 having higher temperatures (range 27.7°C to 28.9°C). Sites 4 and 5 were located closer to the waste water treatment plant and had significantly higher turbidity than the other four sites (6.94 and 3.14 respectively). Salinity ranged from 31.7 to 33.29psu, again with sites 4 and 5 being the lowest. Oxygen saturation was lowest around the port area (84.2% to 86.6%) and highest site 4. Oxidation-Reduction Potential (ORP), which is a measure of the cleanliness of the water and its ability to break down contaminants was significantly higher at sites 1 and 2 (132.5 to 134.4mV) than other sites.

Marine water quality sampling sites for Yap are shown in Figure 29.

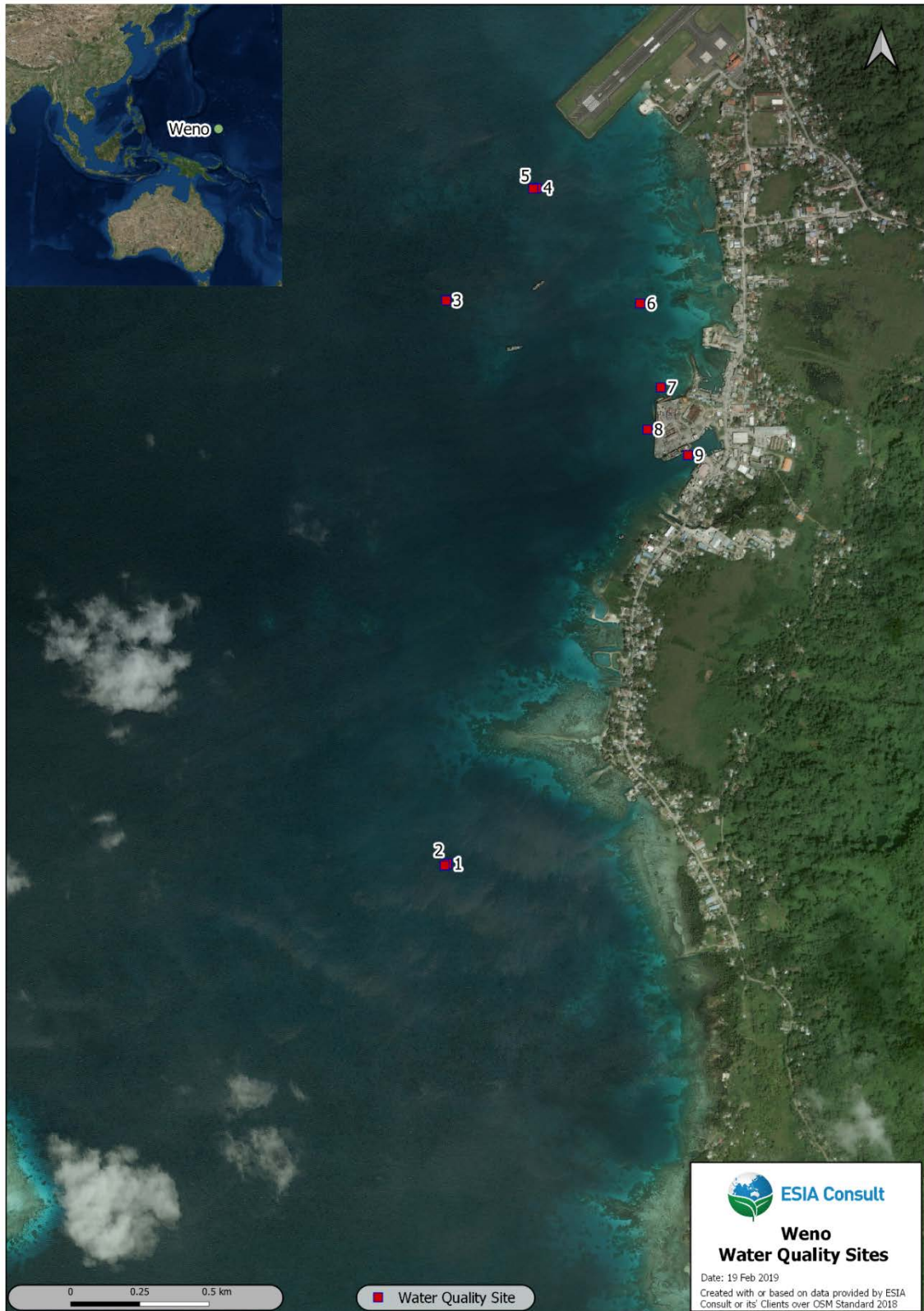


Figure 25 Marine Quality Sites in Weno

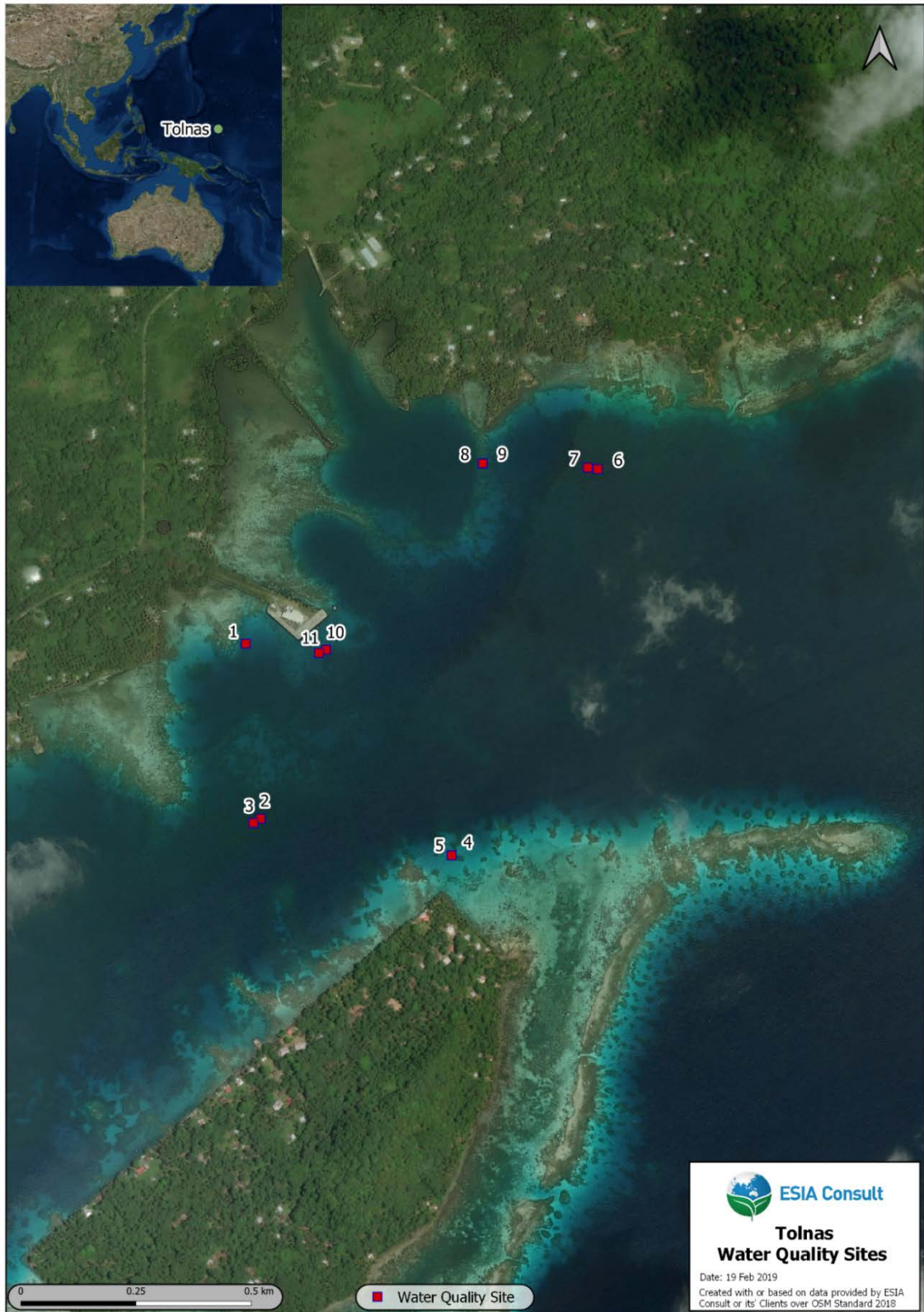


Figure 26 Marine Quality Sites in Tonoas

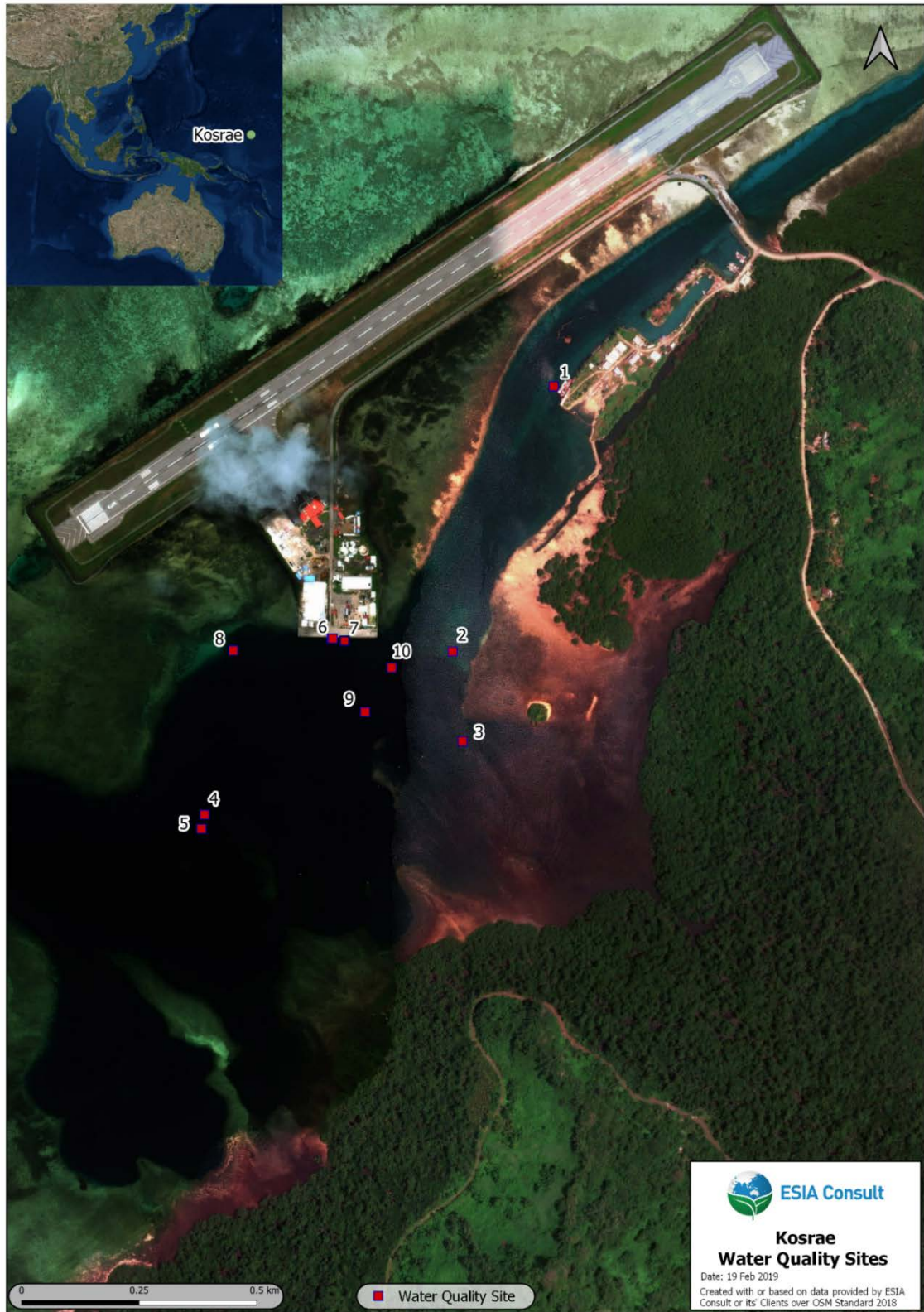


Figure 27 Marine Quality Sites in Kosrae

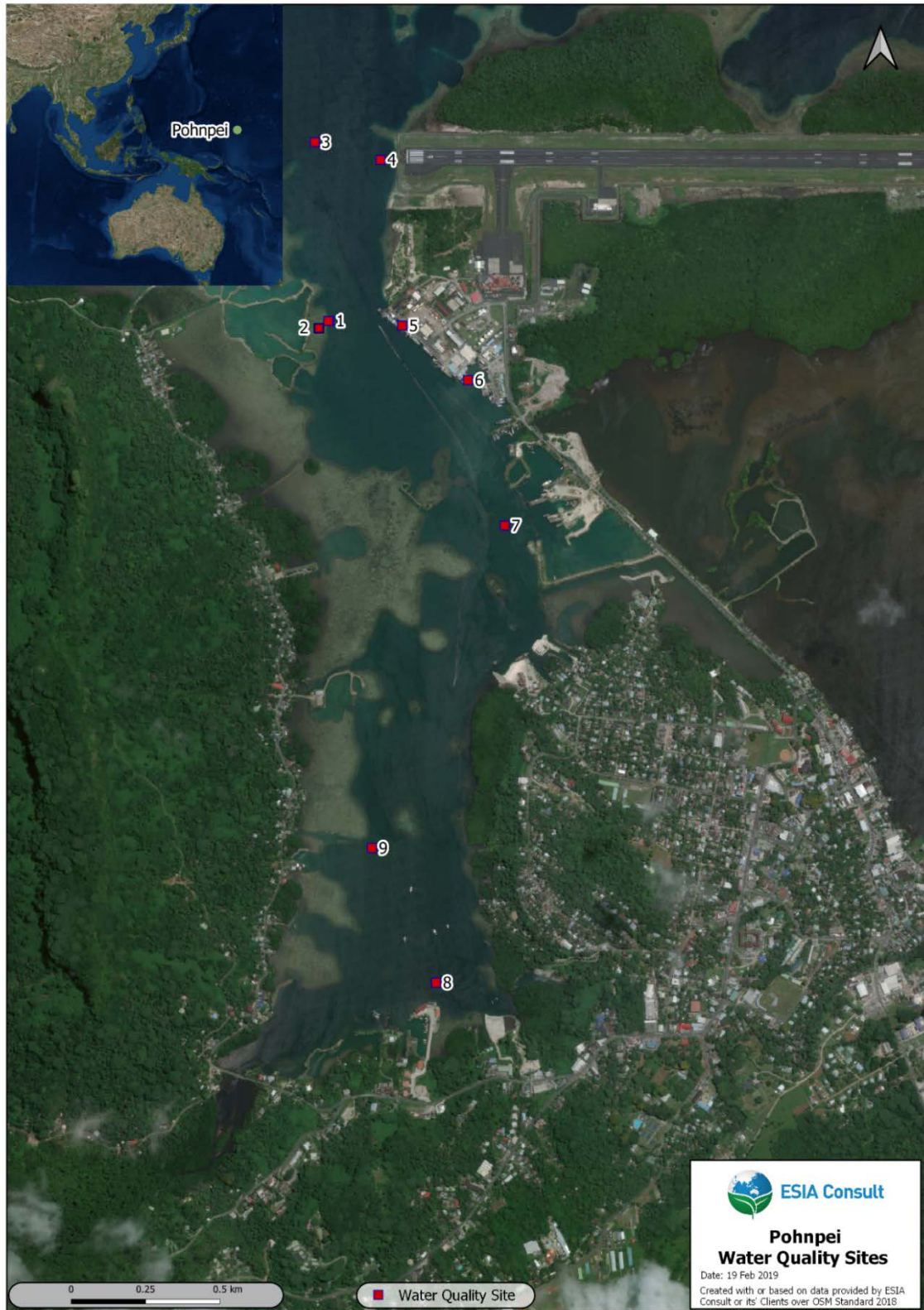


Figure 28 Marine Quality Sites in Pohnpei



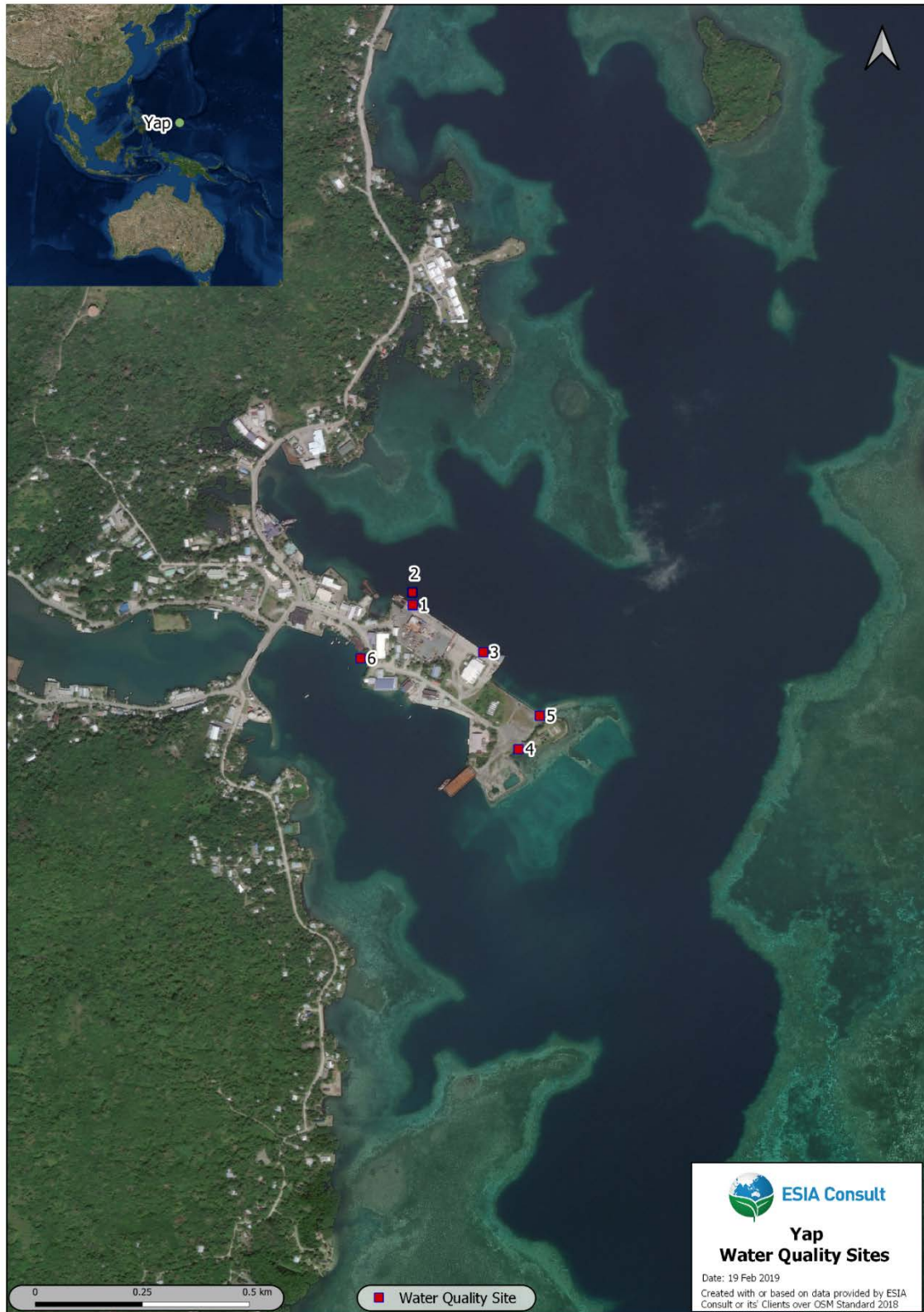


Figure 29 Marine Quality Sites in Yap

## Surface Water

### Chuuk

Most of the islands of Chuuk lagoon are too small to have large and long rivers. The high islands have a number of small streams. Only on Weno and some of the bigger islands do larger, significant rivers flow occur. The amount of water in them varies with rainfall. After rainfall, much water flows through the streams, while during dry periods, most streams dry up. They are active only during and following rainy weather. Few streams flow during the entire year. Unfortunately, due to uncontrolled dumping of solid waste and pollution from human and animal waste products, the quality of surface water is generally poor on Chuuk.

Only Weno and a few of the largest islands in Chuuk Lagoon have public water supply. Everyone else, on high islands as well as low islands, must secure their own water. On high islands, people can get water from small streams and on low islands from shallow wells. However, to have clean water that is good for drinking, the majority of people use rainwater harvesting systems to capture roof water.

### Kosrae

Kosrae is an extremely wet island. The relative humidity of air is always about 80-90%. The rainfall is well distributed throughout the year and there is no noticeable dry season. Droughts are extremely rare on Kosrae. The last significant one was in 1983.

The abundance of rainfall feeds many streams and rivers. They run quickly through narrow valleys in steep mountain slopes, but slow down when they reach the lowlands. They empty into the mangrove swamps and reefs around the island. Some of the most significant rivers on Kosrae are Finkol, Innem, and Okat, which flow to Utwe, Lelu, and Okat harbor, respectively.

People who live in areas where public water supply is available rely on it for most of their needs. However, in some rural areas, particularly in the village of Walung in southeastern part of Kosrae, people obtain water of quality good enough for drinking only by capturing rain.

### Pohnpei

Pohnpei is one of the world's wettest places. On the average, it receives almost 5 meters of rain per year, with higher regions and mountain peaks getting over twice that much. Rainfall is distributed evenly throughout the year (only January through March receive somewhat less rain than other months). This abundance of rainfall feeds over 40 rivers and many smaller streams around the island. Most never dry out.

After major rainfall, which is quite common on the island, streams and rivers reach flood levels and torrents rush down mountain slopes. As they reach lowlands, where terrain is less steep, the rivers slow down and flow in wider valleys. They empty into the mangrove swamps and the lagoon around the island.

People who live in densely populated parts of Pohnpei, particularly the town of Kolonia, get their water from the municipal supply. In rural areas, people use water from nearby streams for most of their needs. However, as the quality of water in streams is generally not good enough to be used as drinking water without treatment, many people rely on catching rainwater into tanks and using it as primary source of water for drinking, cooking, and other needs.

### Yap

Yap is the driest state in FSM. Average annual rainfall over the Yap Islands amounts to approximately 3 meters. Rainfall-runoff comparisons indicate that about half of the annual rainfall runs off to the ocean on Yap Island and Gagil-Tamil. Streams on Gagil-Tamil are perennial but streams on Yap Island are dry an average of 3 months per year due to geologic differences. Analyses of water samples from 23 sources in 1983 showed the good quality and the chemical similarity of surface and ground water.

As good public supplies of fresh water are available across the island, including in rural communities, most people do not maintain rainwater catchments for their drinking water. Only in certain areas, particularly the island of Rumung (highly traditional place separated by a channel from the rest of Yap Proper) and some of the newer settlements inhabited by people from the outer islands, the lack of suitable public supply requires communities to maintain rainwater catchment tanks.

## Groundwater

Groundwater resources vary from State to State and island to island. The following provides a high-level summary of groundwater given the project is unlikely to have any impact on groundwater.

### Chuuk

On high islands of Chuuk, the rocks are not very porous and contain little groundwater. Nevertheless, people have drilled wells and extract groundwater for public supply. Though the wells do not yield a lot of water, they are an important source as streams and rivers are insufficient to meet human demand.

On the low islands of Chuuk Lagoon, streams are absent altogether and all rainfall goes into the ground. That is because the rocks on low islands are very porous. Shallow rocks are permeated by fresh water, which rests atop of salty water that permeates deeper rocks. People on low islands can get freshwater from very shallow wells, just about 500mm below the ground surface.

### Kosrae

Kosrae has relatively little water that seeps through the soil and into cracks and pores in the volcanic rocks, but as surface water is plentiful on Kosrae, groundwater is not an important water source for residents. There are, however, many natural springs that issue water from the ground and are highly respected as sources of water of excellent quality.

### Pohnpei

The volcanic rocks on Pohnpei are not very porous so little of it seeps through the soil and into cracks and pores. None the less, many natural springs exist.

The outer islands are low islands, which means they are composed of limestone and sand, which are highly porous and unable to retain water. Freshwater is trapped as freshwater lens that float atop the deeper, salty groundwater. The availability of fresh groundwater depends on island size and rainfall and diminishes during droughts.

### Yap

The bedrock on Yap is metamorphic and volcanic. It yields little groundwater; however, groundwater is important in absence of other sources.

## Annexure Three: Description of Existing Socio-Economic Environment

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The following section provides an overview of the bio-physical environment of the five ports.

### Population

Prior to European contact, the present-day FSM were part of a group of islands whose pan-Micronesian subsistence and seafaring populations were in sporadic contact through circular migration to trade, participate in ceremonies, intermarry, and give/receive support in times of natural and other disasters.

The indigenous people of the FSM, who constitute the vast majority of the population, are ethnically Micronesian, and speak distinct dialects of Austronesian languages that are part of the Malayo-Polynesian family. Though there is broad cultural similarity amongst the States, in the relative historical isolation of the islands, different customs, local practices and strategic interests have developed according to island, village, class, kinship and religious affiliations. These, rather than ethnicity or indigenous status per se, are generally the basis of differences within and between States.

### Social Organization

Urban population in 2010 accounted for only 22% of the total in the FSM. Community and especially family are critical to social organization and identity. Especially on the high islands, society is stratified by descent group affiliation, title, age and land relationships, which are the traditional basis of wealth and the conspicuous generosity that is the mark of a leader. However, disease and depopulation in the colonial period eroded the powerbase of traditional leaders, which depended on a large labor-force to work lands. The coral atolls are generally more egalitarian, and place more emphasis on specialized knowledge and achievement, though age and gender are still important social markers. Churches are now focal points of community interaction, though especially in Yap, men's houses that were formerly the centers of village power are maintained as meeting places and uphold traditional arts and culture.

### Households and Housing Characteristics

Most households comprise nuclear or extended families, with around one quarter providing a home for a parent or another relative. In 2000, average household size was 6.7, with a tendency to smaller households on Yap and larger in Chuuk. Female headed households accounted overall for 18% of the total, though 27% in Yap. Most homes in 2000 were single detached dwelling units. A further 9% of dwellings had an attached unit; only 2% were located in apartment blocks. Half had piped water and electricity, but only a quarter had any form of sanitary waste disposal, except in Kosrae, where over 70% enjoyed this facility. By 2010, four out of five had an improved drinking water supply, and three out of five an improved toilet facility, and household size had dropped to 6.1, an indication of the trend to depopulation.

#### Religion

Most of the population of FSM is now Christian, with only 4.6% either professing another or no religion. Religion is predominantly Christian, divided between Roman Catholic and Protestant and other churches include Latter-Day Saints, Seventh-Day Adventist, Assembly of God, Jehovah's Witnesses, and the Baha'i Faith. Churches of many denominations can be found throughout the islands.

On the island of Kosrae, the population is approximately 7,800; (95% Protestant). On Pohnpei, the population of 35,000 is evenly divided between Protestants and Catholics (50% catholic & 50% Protestant). On Chuuk and Yap, (an estimated 60% Catholic & 40% Protestant). Religious groups with small followings include Baptists, Assemblies of God, Salvation Army, Seventh-day Adventists, Jehovah's Witnesses, the Church of Jesus Christ of Latter-day Saints (Mormons), and the Baha'i Faith. There is a small group of Buddhistson Pohnpei, (0.7% Buddhist) (population as of 2010). Attendance at religious services is generally high; churches are well supported by their congregations and play a significant role in civil society. The Ahmadiyya Muslims were registered in Kosrae in July 2015, despite strong public resistance against Islam in the country.

Most immigrants are Filipino Catholics who have joined local Catholic churches. The Filipino Iglesia Ni Cristo also has a church in Pohnpei. In the 1890s, on the island of Pohnpei, intermissionary conflicts and the conversion of clan leaders resulted in religious divisions along clan lines which persist today. Protestants are the majority on the western side of the island, while Catholics are the majority on the eastern side. Missionaries of many religious traditions are present and operate freely. The Constitution provides for freedom of religion, and the Government generally respected this right in practice. The US government received no reports of societal abuses or discrimination based on religious belief or practice in 2007.

## Education

Literacy levels in FSM are generally high. Over 95% of those 15-24 or older are literate, with women's rates at 96% slightly higher than men at 94.2% in 2000. Overall, girls have higher participation rates than boys at both elementary and high school levels, though Yap, the most traditional State, features lower high school enrolment rates for girls than boys. In 2000, 11.7% of persons over 25 were college graduates. This rose to 11.8% in 2010. 91. Due to the multiplicity of indigenous languages and dialects, which though related, are not always easily mutually intelligible, English has been adopted as the sole official language, and is the medium of instruction in high schools and tertiary institutions. Good English language ability is an advantage in the employment market. In 2010, 75.9% over the age of five were literate in English, with higher levels amongst the young and those of economically active age.

## Land Use, Land Ownership and Customary Tenure

### National

In pre-colonial times, land was generally plentiful, though with higher population densities in Chuuk than in the other States. Since the dramatic decline in population due to post-contact epidemics, and the continuing overall trend to decline due to later marriage, lower birthrates and migration, population pressure has not been a large issue in the country, though ownership, use, control and inheritance of particular plots may still be locally sensitive. Ownership of land and aquatic areas varies between States. In Kosrae and Pohnpei, land is both privately and State owned, while aquatic areas are managed by the State as public trusts. In Chuuk, most land and aquatic areas are privately owned and acquired through inheritance, gift or, recently, by purchase. In Yap, almost all land and aquatic areas are owned or managed by individual estates and usage is subject to traditional controls. In all states, land cannot be sold to non-citizens of the FSM, thus these land and aquatic ownership patterns greatly influence the strategies and actions required to sustainably manage the natural resources of the nation.

Some States have made a concerted effort to have land titles registered, and to declare unregistered land as Government land. Custom mechanisms for ascertaining land rights have played an important part in this process. In some States, Government land may be designated as Homestead land for eligible clans and individuals and could be legally allocated as replacement land if eminent domain powers were exercised in downstream projects.

### Chuuk

The majority of land in Chuuk is privately or commonly family- owned lands thus the State Government has limited land to locate public infrastructure. This has resulted to continuous challenge of acquiring land for public infrastructure such as power, water and airport, and therefore any activities that might expand the port. In all States, land cannot be sold to non-citizens of the FSM.

Due to the presence of a large number of WW II historic shipwrecks and other munitions the Chuuk Lagoon State District Monument Act has been adopted which provides for these items to be designated as a State district monument and therefore preserved. The removal of any equipment associated with these items is illegal

### Kosrae

Traditional customary land ownership in Kosrae was modified by the Church in 1800s. While land is still owned by family members, the original traditions have been substantially changed.

### Pohnpei

Pohnpei is overseen through a Council of Chiefs that sits as required.

### Yap

Approximately 98% of all land and aquatic areas is privately owned, with the majority of State-owned land located in the capital of Colonia in the municipalities of Rull and Weloy. Almost are owned or managed by individual estates and usage is subject to traditional control and are privately owned.

## Gender, Gender Based Violence and Human Trafficking

Micronesian societies are matrilineal, and inheritance of land and other assets is traditionally through women. However, the senior male of the lineage, often a woman's older brother, is generally the manager of landed estate, and males exercise most political and economic power. The senior male decides on inheritance, which may be exercised in favor of matrilineal or patrilineal kin, within or outside the village. This ambilateral allocation of inheritance by family heads is a potential source of disagreement about land. Partly for this reason, the traditions of village exogamy and cross-cousin marriage, which tend to consolidate alliances and interests in clan land, are still a cultural preference in many areas. Women traditionally defer to men, and the sexes do not generally mix freely in social situations.<sup>18</sup>

In the subsistence sector, traditional division of labor assigns domestic chores, and the care of infants and the elderly to women and children. Women plant, weed and harvest subsistence produce, weave mats and tend livestock while men perform the heavy agricultural labor tasks such as construction, ground-breaking, ditching and fencing. Generally, women fish and gather in the lagoons, while men fish outside reefs.

In the non-subsistence economy, both sexes have new opportunities to which education and language skills are important enablers of access. The Constitutions of the nation and of each individual State specifically exclude discrimination or exclusion on grounds of sex, language, national origin, ancestry, race, in most cases social status, religion and in one case dialect. FSM's accession to the Convention for the Elimination of all forms of Discrimination Against Women (CEDAW) in September 2004 is a reaffirmation of its commitment to the principle of gender equality.

Recent social assessments found approximately 20% of households in FSM are led by females and female-led households have a lower annual average income than male-led households in Chuuk, Pohnpei and Yap. The latest available data (2013) found female-led households to have a 9 % lower income than male led households. The income gap is particularly significant in Chuuk (40 % lower for female-led than for male-led households). This is in the context of Chuuk already having significantly lower income per households than other States. In Pohnpei and Yap the income gap is 7 % and 10 % respectively. In Kosrae, the total income of female-led households is higher than for male-led households, but by only two %. This may reflect a higher proportion of households with male members working outside FSM.<sup>19</sup>

Reported gender based violence is relatively low in FSM, although anecdotal evidence suggests it may be much higher. As reported by ADB in 2016, an estimated 33% of women have experienced physical and/or sexual violence by their intimate partner (compared to for example 37% of women in Australia); while 10% had experienced violence by someone other than a partner. However, stakeholders reported that Domestic Violence Law of 2017 is not being implemented. Victim protection facilities are non-existent (in some states there are reported designated safe houses however they are not equipped for habitation) and protection processes are unclear. Also commonly reported during consultations was age consent issue, as age of consent regulations are not enforced. The consent age has been recently lifted to 16; however, Human Trafficking law defines a "child" as any person below the age of eighteen.

"Culture" is often stated as a reason why gender and sexual exploitation issues are not talked about, however, when the potential benefits are well explained to traditional leaders and they support them, that support is very important as traditional leaders are highly influential in the communities. This is an important consideration for any project proposing to commence work in this space.

In terms of labor participation, 66% of male and 48% of female population of working age are reported as employed; with relatively good women's share in non-agricultural employment at 38%5 (compared to for example 47% in Australia). Total labor participation rates are however somewhat low, mainly due to high unemployment of youth. It is therefore youth unemployment (of both sexes) and not women's lack of employment opportunities that is an issue in FSM - a very common occurrence in the Pacific, indeed. With 58% of population aged under 24 at the 2010 Census, the youth unemployment trend is unfortunately likely to persist.

Stakeholders were also of opinion that employment is typically merit based, with women potentially facing obstacles when progressing into positions of power and decision-making. Further, maritime sector is traditionally a male dominated sector and improvement of image and 'visibility' of women working in the sector might be beneficial.

Most overwhelmingly, however, stakeholders insisted on project providing strong preference for local companies and local labor to be engaged during the implantation and in construction activities. Preferential employment of State residents and nationals is institutionalized in both state and FSM legislation; however, foreigners can be employed if the skill is lacking.

<sup>18</sup> Energy Division, National Department of Resources and Development, Government of the Federated States of Micronesia (2018) *Sustainable Energy Development and Access Project (SEDAP), Environment and Social Management Framework (ESMF) for Component 3 – Weno Solar Power Plant*, Federated States of Micronesia

<sup>19</sup> Energy Division, National Department of Resources and Development, Government of the Federated States of Micronesia (2018) *Sustainable Energy Development and Access Project (SEDAP), Environment and Social Management Framework (ESMF) for Component 3 – Weno Solar Power Plant*, Federated States of Micronesia

Stakeholders argued against the perception that 'local people have no trades'; rather, even when local skilled people are available, construction companies still prefer to bring cheaper labor in from China and the Philippines. Although local labor force is prioritized in hiring, foreigners are still being brought in as 'specialists'; in reality their main 'advantage' is that they are cheaper than local workforce as they are paid below FSM minimum wage. During their stay in FSM they are kept in workers camps and then shipped back home if they complain about working conditions. Their salaries are paid directly at home so there is no financial benefit (multipliers) from any of these activities to FSM.

Economic Aspects and Livelihoods

#### Employment, Labor and working conditions

Overall, 78% of the population is rural, and subsistence farming and fishing are still the main means of livelihood. Almost half the women and two thirds of the men of economically active age participate in the labor force. One third of working men, and more than half working women (56%) are in unpaid occupations. The 2010 unemployment rate for men is 15.5%, and 17% for women.<sup>20</sup>

While most households engage in agricultural production and fishing (94.6% and 70.7% respectively in 2010), only around 1% produces exclusively for sale. Around 10% sells some of their production. Of those aged 15 or more with cash income in 2000, 43% received wages or salaries, 21% had income from their own business, 41% received remittance income and 7% received social security or other income from Government.

Public administration, education, health, social work and utilities supply accounted for just over half of paid jobs. The only other significant sector was wholesale and retail repair and supply of vehicles and household goods, which employed 13% of the work force.

Average household income in 2005 was \$13,421. Female headed households earned over \$2,000 less than the average, while foreigners (non-FSM residents) earned almost \$7,000 more than the average. These figures include cash and non-cash income, so are not necessarily a good indication of purchasing power for cash goods.

#### Fisheries

The main commercial fisheries in the FSM Exclusive Economic Zone (EEZ) focus on targeting tropical tunas. Three main sectors exist, defined by the type of gear they use: purse seine, longline and pole and line. Catches are dominated by the purse seine sector, which primarily harvests skipjack tuna (*Katsowonus pelamis*) and yellowfin tuna (*Thunnus albacares*) for canning (Figure 30). The longline sector harvests the next highest volume, targeting bigeye tuna (*Thunnus obesus*) and yellowfin tuna for higher value sashimi markets. The pole and line sector targets skipjack tuna almost exclusively for canning, although has been largely inactive in recent years.

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<sup>20</sup> Energy Division, National Department of Resources and Development, Government of the Federated States of Micronesia (2018) *Sustainable Energy Development and Access Project (SEDAP), Environment and Social Management Framework (ESMF) for Component 3 – Weno Solar Power Plant*, Federated States of Micronesia

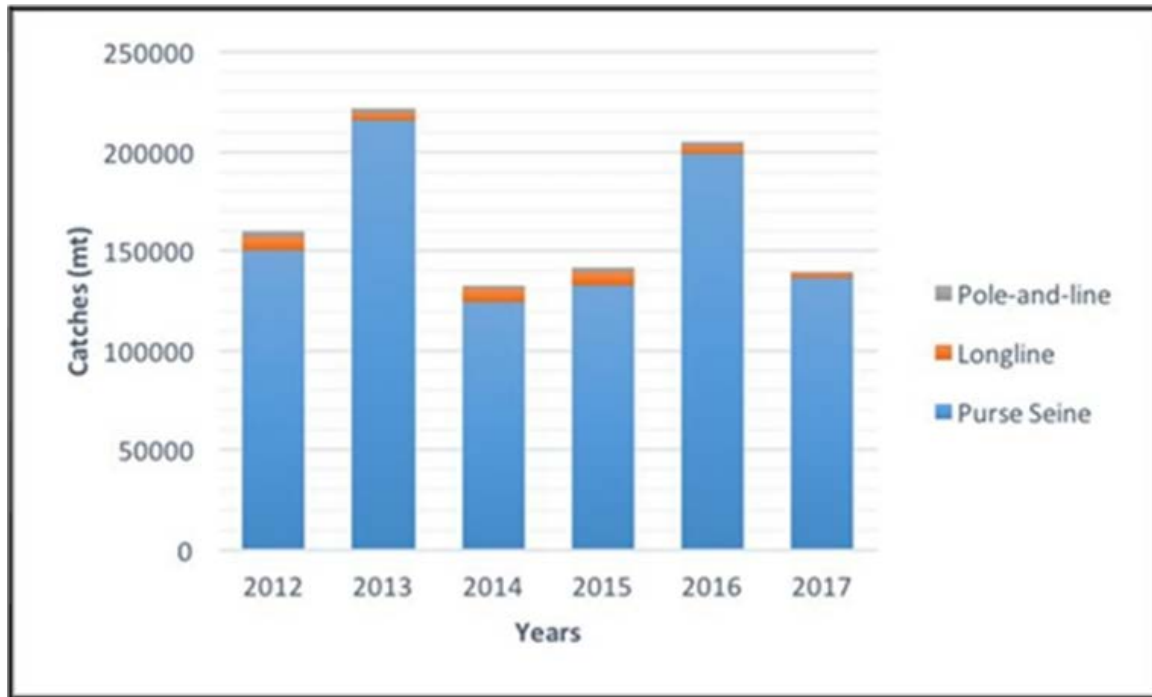


Figure 30: Total catch by the different gears operating in the FSM EEZ<sup>21</sup>

Both the purse seine and longline sectors comprise both domestic-based and foreign vessels, while the pole and line fishery are comprised exclusively of Japanese flagged vessels.

In addition to oceanic fisheries targeting tunas, an active coastal fishery exists primarily targeting demersal reef fish and other local species.

The sections below provide an overview of the characteristics of each main sector, including baseline figures on catch, effort and vessel numbers.

The domestic (FSM-flagged) purse seine fleet grew over the period 2013 to 2017, increasing from 10 to 19 vessels (Table 19). FSM flagged purse seine vessels are typically licensed to fish in a number of EEZs within the Western and Central Pacific Fisheries Commission Convention Area (WCPFC-CA) (including the high seas), with most holding Regional Access Licenses (RALs) under the Party to the Nauru Agreement's (PNA) Federated States of Micronesia Arrangement (FMSA). RALs allow the vessel to fish within the EEZs of any one of the eight members of the PNA.<sup>22</sup>

<sup>21</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

<sup>22</sup> Membership of the PNA includes the Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.



Year	Vessel Size (GRT)					
	0-500	501-1000	1001-1500	1500+	Unknown	Total
2013	0	4	2	4	0	10
2014	0	4	1	5	0	10
2015	1	3	1	7	0	12
2016	1	3	3	7	2	16
2017	0	3	3	13	0	19

 Table 19: FSM-flagged purse seine fleet by vessel size, 2013-2017<sup>23</sup>

Catch of FSM-flagged vessels increased from around 31,000 tonnes to 83,000 tonnes during the period 2013 to 2017, in line with the growth in vessel numbers (Table 20). In 2017, the total catch (including discards) was estimated at 83,515t, dominated by skipjack which accounted for around 83% of the catch. Yellowfin comprised around 15% of the catch, while bigeye tuna accounted for 2%. All other species combined accounted for <1% of the total catch.

	2013	2014	2015	2016	2017	
					Retained	Discards
Albacore	0	0	0	0	0	0
Bigeye	984.1	1,296	1,744.4	4,364	1,196	148.4
Pacific Bluefin	0	0	0	0	0	0
Skipjack	26,84.9	31,961.9	44,506.7	56,446	67,024.3	1,957.8
Yellowfin	3,321.9	4,065.5	6,945.3	10,856	12,128.2	263.3
Black Marlin	0	0	.4	0	0	4.9
Blue Marlin	0	0	1.4	0	3.5	17.5
Striped Marlin	0	0	0	0	.5	1.1
Swordfish	0	0	0	0	0	0
Blue Shark	0	0	0	0	0	0
Silky Shark	1.4	4.4	10.3	0	1.5	47.6
Hammerhead Shark	0	0	.5	0	0	0
Mako Shark	0	0	.1	0	0	0
Oceanic Whitetip	0	0	0	0	0	.2
Porbeagles Shark	0	0	0	0	0	0

<sup>23</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

Whale Shark	0	.5	0	0	0	0
Thresher Shark	0	0	0	0	0	0
Total	31,189.3	37,328.3	53,176.1	71,665.7	81,074	2,440.8

Table 20 Annual Purse Seine Catches in FSM

The distribution of catch and effort in Western and Central Pacific Ocean is influenced by prevailing environmental conditions, with higher catches recorded in the central WCPO during or immediately following strong El Niño periods and higher catches in the western WCPO during La Niña periods. In 2017, the majority of fishing by FSM domestic purse seine vessels occurred in the south east of the FSM EEZ, as well as the eastern part of the PNG EEZ, Solomon Islands EEZ and Kiribati EEZ (Figure 31).

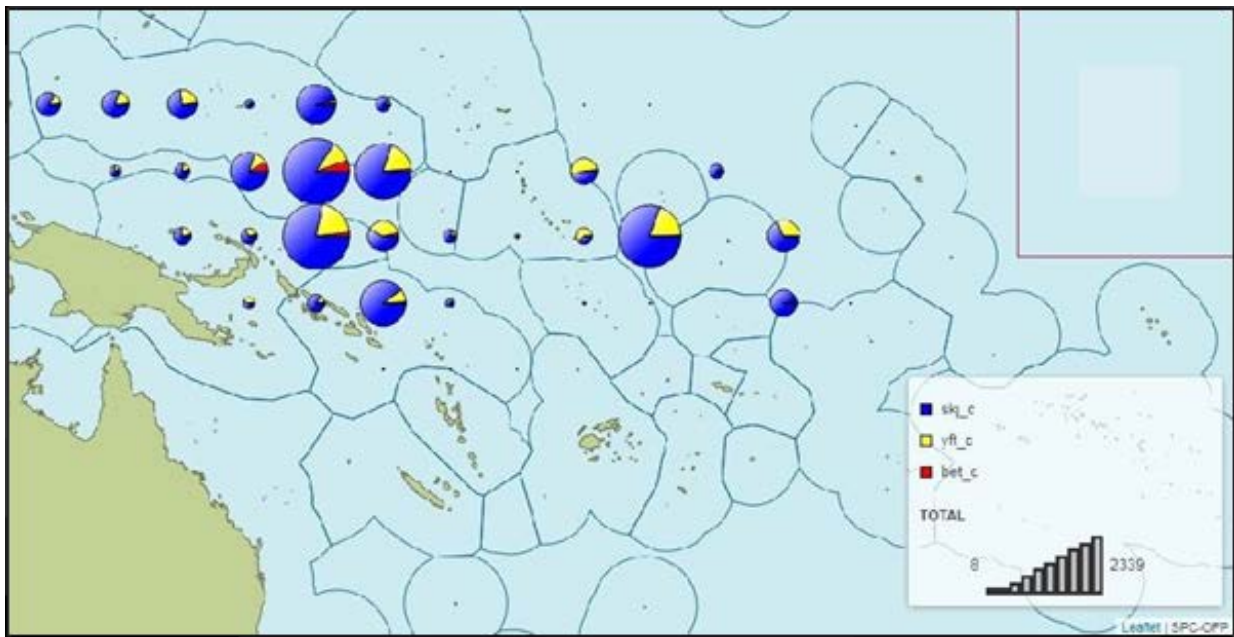


Figure 31: Catch distribution of FSM-flagged purse seine vessels in the WCPFC Convention Area, 2017 (blue = Skipjack tuna; Yellow = yellowfin tuna; red = bigeye tuna)<sup>24</sup>

In addition to the domestic fleet, 208 foreign flagged purse seine vessels were licensed to operate in FSM waters in 2017 (Table 21), although not all were active. The main foreign fleets included the FSM fleet (essentially a Pacific domestic fleet, comprising vessels with a demonstrated economic connection to one of the PNA Parties), the US fleet (accessing the FSM Exclusive Economic Zone (EEZ) under the terms of the US Treaty<sup>25</sup>) and the distant water fleets of China, Taiwan, Japan and Korea.

<sup>24</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

<sup>25</sup> *The Multilateral Treaty on Fisheries Between Certain Governments of the Pacific Island States and the Government of the United States of America*

No	Flag	Gears	2013	2014	2015	2016	2017
1	China	Purse Seine	14	14	14	9	11
		Longline	0	22	24	18	27
2	Japan	Purse Seine	29	29	31	30	21
		Longline	33	42	34	10	17
		Pole-and-line	23	20	21	12	25
3	South Korea	Purse Seine	27	29	26	26	26
4	Chinese Taipei	Purse Seine	32	32	33	26	27
		Longline	10	10	8	0	9
5	USA	Purse Seine	40	37	37	34	34
6	FSMA sponsorship (Excluding FM)	Purse Seine	53	63	64	68	86
7	New Zealand	Purse Seine	0	0	0	0	1
8	Kiribati	Purse Seine	1	0	0	6	1
9	Philippine	Purse Seine	3	0	3	0	1

Table 21: Number of foreign purse seine, longline and pole-and-line vessels licensed to fish in the FSM EEZ, by year and flag, 2013-2017<sup>26</sup>

Consistent with broader WCPO trends, foreign purse seine catch and effort in the FSM EEZ is strongly influenced by prevailing climatic conditions. Between 2013 and 2017 total catch ranged from 123,925t to 215,804t (Table 22). Skipjack dominates the catch, averaging around 82% of the catch between 2013 and 2017, with yellowfin accounting for 17% and bigeye 2%. For context, the total 2017 foreign purse seine catch taken in the FSM EEZ represents around 7.5% of the WCPFC-CA wide purse seine catch of 1,812,474t.<sup>27</sup>

Flag	Year	SKJ	YFT	BET	Total
China	2013	10353	1415	79	11847
	2014	3583	427	48	4058
	2015	1823	663	53	2539
	2016	2346	336	59	2741
	2017	0	0	0	0
Chinese Taipei	2013	40806	3571	232	44609
	2014	24180	3453	150	27783
	2015	16617	9991	249	26857
	2016	21001	4154	351	25506
	2017	22635	2803	237	25675
Japan	2013	49586	2571	511	52668
	2014	50313	9013	890	60216
	2015	44567	13302	1587	59456
	2016	93904	15095	1746	110745
	2017	23155	6788	539	30482

<sup>26</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

<sup>27</sup> Williams, P. and Reid, C. (2018). Overview of Tuna Fisheries in the Western and Central Pacific Ocean, including Economic Conditions - 2017 Rev 1 (22 July 2018). Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. GN-WP-01

Korea	2013	21390	1190	74	22654
	2014	7135	813	75	8023
	2015	10332	8208	400	18940
	2016	21130	1475	424	23029
	2017	12349	3520	174	16043
USA	2013	27366	1620	292	29278
	2014	5679	137	27	5843
	2015	7081	4414	137	11632
	2016	3420	158	43	3621
	2017	24102	1755	281	26138
FSMA	2013	38762	15014	972	54748
	2014	10987	4990	2075	18052
	2015	3299	9696	378	13373
	2016	28801	3382	1154	33337
	2017	32449	5093	737	38279
Total	2013	188263	25381	2160	215804
	2014	101877	18833	3265	123975
	2015	83719	46274	2804	132797
	2016	170602	24600	3777	198979
	2017	114690	19959	1968	136617

Table 22: Annual catches of purse seine fleets operating in the FSM EEZ, by flag and species, 2013-2017 - unraised log sheet data<sup>28</sup>

The other key influence on the level of purse seine effort in the FSM EEZ is the availability of fishing days under the PNA's Vessel Days Scheme (VDS). Under the VDS, the total number of fishing days across all Parties' waters are capped (the 'Total Allowable Effort', or TAE), with each Party allocated a share of the TAE ('Party Allowable Effort', or PAE) expressed as a number of fishing days. Each Party is then free to distribute their PAE to domestic or foreign vessels, or trade days to other PNA Parties, as they see fit. Where days are sold to foreign vessels, the fee must meet a benchmark price agreed annually amongst Parties to avoid intra-Party competition and ensure a fair economic rent is received for access.

A total of 65 longline vessels were licensed to fish in the FSM EEZ in 2017. This included 12 FSM-flagged domestic vessels and 53 foreign flagged vessels, registered to China (27), Japan (17) and Chinese Taipei (6) (Table 21).

In addition to the 12 domestic longline vessels, 18 foreign flagged vessels operated under charter to FSM-based companies.<sup>29</sup> The majority (23) of these vessels were between 51-200 GRT, with 7 slightly larger between 201 and 500 GRT (Table 23).

Year	Vessel size (GRT)				Total
	0-50	51-200	201-500	500+	
2013	0	20	0	1	21
2014	0	18	0	0	18
2015	1	18	0	0	19

<sup>28</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

<sup>29</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

2016	0	23	2	0	25
2017	0	23	7	0	30

Table 23: Numbers of FSM flagged and chartered longline vessels, according to vessel size, 2013-2017<sup>30</sup>

Catch estimates for the 2013-2017 period by vessel flag are provided in Table 24. The Japanese fleet has accounted for the largest catches, contributing around 58% of total catches during the period. It is likely the majority of these catches are landed domestically in Japan, consistent with the common practice of Japanese longline vessels. FSM flagged vessels accounted for 25% of the total catch, with Chinese Taipei and China contributing 10% and 7% respectively. Total catch data for the China and Chinese Taipei fleets are impacted by the absence of data for 2017.

Bigeye tuna and yellowfin tuna are the main species targeted, accounting for 59% and 36% of the total tuna catch respectively. Albacore tuna (*Thunnus alalunga*) comprised 5% of the catch.

<sup>30</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

Flag	Year	ALB	YFT	BET	Total
China	2013	1	13	17	31
	2014	37	310	207	554
	2015	16	280	179	475
	2016	32	277	267	576
	2017	0	0	0	0
Chinese Taipei	2013	6	859	337	1202
	2014	10	346	129	485
	2015	4	165	117	286
	2016	19	160	134	313
	2017	0	0	0	0
Japan	2013	118	937	1522	2577
	2014	118	1212	3451	4781
	2015	124	1168	2102	3394
	2016	492	267	977	1736
	2017	7	320	957	1284
FSM	2013	3	46	95	144
	2014	88	529	879	1496
	2015	75	917	1547	2539
	2016	79	565	619	1263
	2017	21	191	339	551
Total	2013	128	1855	1971	3954
	2014	253	2397	4666	7316
	2015	219	2530	3945	6694
	2016	622	1269	1997	3888
	2017	28	511	1296	1835

Table 24: Annual catches of longline fleets operating in the FSM EEZ, by flag and species, 2013-2017 - unraised log sheet data<sup>31</sup>

FSM flagged longline vessels fish actively throughout the WCPFC-CA, with effort in 2017 concentrated in the EEZs of the Marshall Islands and Cook Islands as well as the eastern part of the FSM EEZ (Figure 32). Amongst the distant water longline fleets, the Japanese fleet mainly fished in the west of the EEZ, while others fished in the east.

<sup>31</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

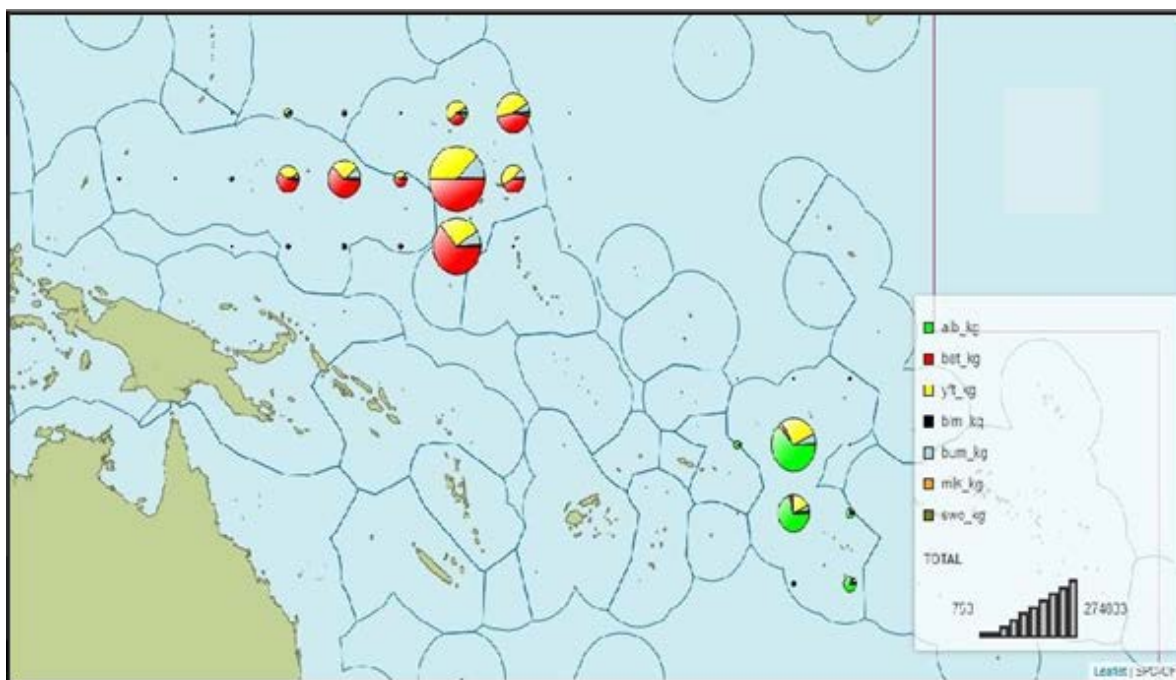


Figure 32: Catch distribution of FSM-flagged/chartered longline vessels in the WCPFC Convention Area, 2017 (yellow = yellowfin tuna; red = bigeye tuna; green = albacore tuna; light blue = blue marlin)<sup>32</sup>

Other sectors

The Japanese fleet has been the only fleet active in the pole and line fishery in the 2013 to 2017 period (Table 21). Numbers licensed vessels have ranged from 20 to 25, except for 2016 when numbers dropped to 12. Catches remained relatively stable between 2013 and 2016, although declined in 2017 (Table 25). The fishery is almost exclusively focused on skipjack, with very minor catches of yellowfin and bigeye tuna also retained.

		Catch (Metric tonnes)		
		SKJ	BET	YFT
JAPAN	2013	2334	2	1
	2014	1270	1	4
	2015	2597	2	2
	2016	2236	17	30
	2017	285	1	9

Table 25: Annual catches of pole and line fleets operating in the FSM EEZ, by flag and species, 2013-2017 - unraised log sheet data<sup>33</sup>

Coastal Fisheries

Coastal fisheries in FSM primarily target four broad categories of product: demersal fish (bottom-dwelling fish associated with mangrove, seagrass and coral reef habitats), nearshore pelagic fish (including tuna, wahoo, mackerel, rainbow runner and

<sup>32</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

<sup>33</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

mahi-mahi), invertebrates targeted for export, and invertebrates gleaned from intertidal and subtidal areas.<sup>34</sup> Coastal fisheries are typically accessed by small outboard powered vessels undertaking short trips.

Gillet estimated coastal fisheries production to be 5,280 mt 2014 - 1,725 mt commercial and 3,555 mt subsistence, valued at US\$5.0 million and US\$8.8 million to fishers respectively. Around 2/3 of the coastal fisheries catch is estimated to be reef fish.<sup>35</sup>

A Situation Analysis Report on Coastal Fisheries was prepared by IAS Australia.<sup>36</sup> The study was one of the first of its kind to review coastal fisheries and practices in FSM. The project undertook extensive consultation.

Transshipment and unloading

Pohnpei is a key transshipment port accounted for purse seine vessels operating in the Western and Central Pacific Ocean (WCPO), accounting for around 16% of all transshipments during 2015 to 2018 (Figure 33). An estimated 239 purse seine transshipments occurred in 2017, with a provisional total of 164,830t transhipped. The relatively central location within the WCPO and good access to logistics and support services (e.g. air networks to replace crew and reprovision vessels) means Dekehtik Port is used by purse seine vessels flagged to a range of countries and fishing in a range of EEZs and high seas areas throughout the WCPO.

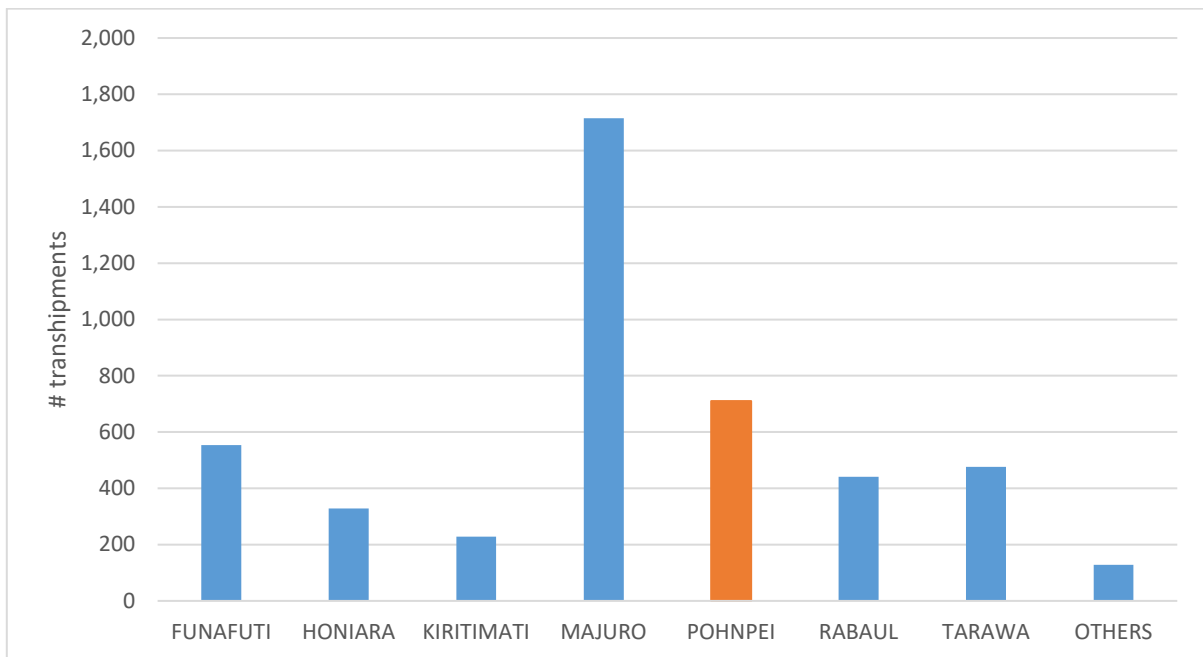


Figure 33: Estimated numbers of transshipments by port for purse seine vessels fishing within the WCPFC Convention Area, 2015-2018 combined. 'Others' includes around 26 other ports<sup>37</sup>

In 2017, Yap port also received its first purse seine transshipment since the 1990s, with FSM purse seiner Nippon FSM visiting Yap port for a trial transshipment.

Liancheng Overseas Fishery operates a fish base in Dekehtik Port unloading catch and reprovisioning vessels (e.g. bait, ice, food, crew) in the domestic and domestically-based foreign (chartered) fleet. Pohnpei currently handles only frozen fish transhipped via container.<sup>38</sup>

<sup>34</sup> Bell, J.D., Johnson, J.E., Ganachaud, A.S., Gehrke, P.C., Hobday, A.J., Hoegh-Guldberg, O., Le Borgne, R., Lehodey, P., Lough, J.M., Pickering, T., Pratchett, M.S. and Waycott, M. (2011). Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change: Summary for Pacific Island Countries and Territories. Secretariat of the Pacific Community, Noumea, New Caledonia, 386 p

<sup>35</sup> Gillet, R. (2016). Fisheries in the Economies of the Pacific Island Countries and Territories. Philippines: Asian Development Bank

<sup>36</sup> FSM. Coastal Fisheries Assessment Pacific Islands Regional Oceanscape Program (PROP) Project, Situation Analysis Report and The Sustainable Development of the Inshore Fisheries and Resources of the FSM Report on the Coastal Fisheries of the FSM, IAS Australia, May 2018

<sup>37</sup> SPC

<sup>38</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06



In 2015, Kosrae opened its port for unloading tuna vessels. Liancheng (Leun Thai) Overseas Fishery operates an unloading facility in the port, with a number of purse seiners and longliners unloading frozen tuna to freezer containers in Kosrae in 2017.<sup>39</sup> Kosrae has a small slipway for basic ship repair.

In 2017, a provisional total of 2,728 mt of fish was unloaded by the FSM-flagged (or chartered) longline fleet, with almost all bound for export markets (Table 26).

Species	Quantity off loaded (mt)	Product form	Gear
ALB	113.11	Frozen	LL
YFT	894.353		
BET	1641.521		
SKJ	7.926		
ALB	2.003	Fresh	LL
YFT	33.14		
BET	36.421		
SKJ	0		

Table 26: Provisional volumes of fish transhipped by FSM-flagged (or chartered) vessels in 2017<sup>40</sup>

#### Governance and port state controls

The NORMA has day-to-day responsibility for the management of fisheries. The main piece of fisheries legislation is the *Marine Resources Act of 2002* (Title 24). The Department of Justice has primary responsibility for fisheries enforcement, including collaboration with NORMA in the monitoring and control of all fishing operations within FSM waters.

Entry into Dekehtik Port is controlled by the Pohnpei Port Authority, which is responsible for the development, management, operation and maintenance of Dekehtik Ports and facilities<sup>41</sup>. The Pohnpei Port Authority is governed by a seven-member Board of Directors who are appointed by the Governor and confirmed by the State Legislature.

#### Archaeological and Cultural Heritage

All the five ports are developed on reclaimed land. No known Archaeological and Cultural Heritage exists on the port land.

<sup>39</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

<sup>40</sup> NORMA (2018). Annual Report to the Commission Part 1: Information on Fisheries, Research, and Statistics. Scientific Committee Fourteenth Regular Session. Busan, Republic of Korea 8-16 August 2018. WCPFC-SC14-AR/CCM-06

<sup>41</sup> <http://www.ppa.fm/>

## Annexure Four: Marine Water Quality Data

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Location	Site No	DATE	TIME	GPS Latitude (°)	GPS Longitude (°)	Barometer (mmHg)	Temp (°C)	Cond (µS/cm)	Sp Cond (µS/cm)	Sal (psu)	nLFCond (µS/cm)	TDS (mg/L)	Resistivity (ohms-cm)	Sigma-T (s t)	Sigma (s)	ODO (% Sat)	ODO (mg/L)	ODO (ppm)	pH	pH (mV)	ORP (mV)	Turbidity (FNU)
Yap	1	26/01/2019	10:59:58	9.51632 °	138.12463 °	757	28.2	53450.2	50385.9	32.94	50053.9	32751	18.71	20.8	20.8	84.2	5.47	5.47	8.18	-68	134.4	0.32
	2	26/01/2019	11:00:48	9.51633 °	138.12463 °	757.1	28.2	53506.4	50469.5	33	50140.6	32805	18.69	20.8	20.8	84.6	5.5	5.5	8.2	-68.6	132.5	0.34
	3	26/01/2019	11:08:18	9.51532 °	138.12613 °	757	27.7	53494.8	50853.8	33.29	50569.5	33055	18.69	21.2	21.2	86.6	5.66	5.66	8.25	-71.9	60.2	0.28
	4	26/01/2019	11:21:44	9.51326 °	138.12688 °	756.8	28.9	53101.8	49411.1	32.2	49007.3	32117	18.83	20	20	99.6	6.42	6.42	8.24	-71.2	76.7	6.94
	5	26/01/2019	11:25:11	9.51397 °	138.12733 °	757	28.8	52294.2	48720.4	31.7	48329.7	31668	19.12	19.6	19.6	97.2	6.29	6.29	8.23	-70.8	61.2	3.14
	6	26/01/2019	11:33:50	9.51519 °	138.12352 °	756.9	27.9	53568.3	50723.3	33.19	50416.1	32970	18.67	21.1	21.1	87.9	5.73	5.73	8.28	-73.5	76.4	0.77
Tonoas	1	29/01/2019	15:37:23	7.36602 °	151.88474 °	755.3	28.8	55035	51288.7	33.58	50879.2	33338	18.17	21.1	21.1	98.3	6.3	6.3	8.28	-73.5	45	0.68
	2	29/01/2019	15:42:18	7.36258 °	151.88503 °	755.5	28.8	55025.7	51295.9	33.59	50888.3	33342	18.17	21.1	21.1	96.6	6.19	6.19	8.3	-75	47.3	0.47
	3	29/01/2019	15:48:02	7.36186 °	151.88879 °	755.4	28.9	55093.1	51301.6	33.59	50886.9	33346	18.15	21	21	103.3	6.61	6.61	8.33	-76.9	49.6	0.54
	4	29/01/2019	15:54:04	7.36945 °	151.89166 °	755.3	28.9	55158.6	51294.7	33.58	50871.7	33342	18.13	21	21	101	6.46	6.46	8.35	-77.8	53.1	0.51
	5	29/01/2019	15:57:59	7.36956 °	151.88940 °	755.4	29.4	55565.9	51297.2	33.57	50827.4	33343	18	20.9	20.9	108.1	6.87	6.87	8.35	-78	42.1	0.56
	6	29/01/2019	16:03:41	7.36590 °	151.88632 °	755.4	28.9	55110.2	51282.5	33.57	50863.7	33334	18.15	21	21	98.3	6.29	6.29	8.31	-75.8	14.1	0.58
	7	29/01/2019	16:04:15	7.36584 °	151.88618 °	755.3	28.9	55098.7	51282.4	33.57	50864.9	33334	18.15	21	21	98.4	6.29	6.29	8.31	-75.8	19.8	0.58
Weno	1	29/01/2019	16:28:22	7.43143 °	151.83255 °	755.5	28.5	54586.8	51124.5	33.47	50747.4	33231	18.32	21.1	21.1	96.8	6.24	6.24	8.25	-72.2	62.1	0.49
	2	29/01/2019	16:34:54	7.44989 °	151.83252 °	755.5	28.6	54627.9	51130.1	33.47	50749	33235	18.31	21.1	21.1	97.5	6.28	6.28	8.3	-75	46.8	0.65
	3	29/01/2019	16:38:31	7.45357 °	151.83548 °	755.5	28.5	54580.5	51156.7	33.49	50784.1	33252	18.32	21.1	21.1	97.3	6.27	6.27	8.31	-75.7	48.1	0.65
	4	29/01/2019	16:42:56	7.44979 °	151.83887 °	755.6	28.5	54524.9	51131	33.48	50761.8	33235	18.34	21.1	21.1	98	6.32	6.32	8.31	-75.7	44.3	0.79
	5	29/01/2019	16:46:15	7.44704 °	151.83955 °	755.6	28.5	54548.2	51116	33.46	50742.4	33225	18.33	21.1	21.1	99.5	6.41	6.41	8.31	-75.6	20.3	0.86
	6	29/01/2019	16:48:29	7.44566 °	151.83911 °	755.7	28.5	54509.5	51118.9	33.47	50750	33227	18.35	21.1	21.1	98	6.32	6.32	8.31	-75.5	34.8	0.96
	7	29/01/2019	16:51:10	7.44482 °	151.84044 °	755.7	28.5	54502.5	51119.4	33.47	50751.5	33228	18.35	21.1	21.1	97.3	6.28	6.28	8.31	-75.5	36.7	1.2
Pohnpei	1	31/01/2019	14:34:24	6.98015 °	158.19833 °	755.8	29.6	54651.1	50230.2	32.78	49742	32650	18.3	20.2	20.2	108	6.86	6.86	8.2	-69	66.8	2.61
	2	31/01/2019	14:35:04	6.98014 °	158.19830 °	755.8	29.1	54942.4	50943.5	33.32	50504.7	33113	18.2	20.8	20.8	100.4	6.41	6.41	8.23	-70.8	60.8	1.76
	3	31/01/2019	14:49:10	6.98559 °	158.19789 °	755.8	28.9	54967.5	51136.6	33.47	50717.3	33239	18.19	20.9	20.9	98.2	6.28	6.28	8.31	-75.5	93.3	0.76
	4	31/01/2019	14:51:44	6.98505 °	158.19989 °	755.7	28.8	54870.6	51122.5	33.46	50712.8	33230	18.22	21	21	97.7	6.26	6.26	8.3	-74.8	77.8	0.75
	5	31/01/2019	14:55:43	6.98000 °	158.20055 °	755.8	28.8	54848.4	51126.6	33.46	50719.9	33232	18.23	21	21	93.4	5.99	5.99	8.29	-74.7	71.4	1.84
	6	31/01/2019	14:59:12	6.97834 °	158.20255 °	755.6	29.3	55214.6	51047.2	33.39	50588.9	33181	18.11	20.8	20.8	96.3	6.13	6.13	8.3	-74.8	48.6	3.51
	7	31/01/2019	15:02:49	6.97391 °	158.20367 °	755.8	28.8	54858.5	51106.6	33.45	50696.4	33219	18.23	21	21	95.8	6.14	6.14	8.3	-74.8	61.3	2.88
	8	31/01/2019	15:07:37	6.95999 °	158.20158 °	755.7	29	54863.5	51005.3	33.37	50582.8	33153	18.23	20.9	20.9	83	5.31	5.31	8.26	-72.5	71.6	5.07
	9	31/01/2019	15:12:17	6.96409 °	158.19963 °	755.8	29.1	54952.6	50988.9	33.35	50554.2	33143	18.2	20.8	20.8	89.1	5.69	5.69	8.29	-74.3	66.6	5.42
Kosrae	1	2/02/2019	10:48:05	5.35520 °	162.96086 °	757.1	29.1	55447.9	51452.3	33.69	51014.2	33444	18.03	21.1	21.1	102.1	6.51	6.51	8.27	-73.3	12.5	3.72
	2	2/02/2019	10:50:44	5.35011 °	162.95892 °	757.1	29	55405.8	51433	33.68	50997.5	33431	18.05	21.1	21.1	101.7	6.49	6.49	8.34	-77.3	2	8.59
	3	2/02/2019	10:52:40	5.34839 °	162.95911 °	757	28.9	55245.2	51422.7	33.68	51004.4	33425	18.1	21.1	21.1	98.1	6.28	6.28	8.31	-75.8	-14.5	1.99
	4	2/02/2019	10:55:53	5.34698 °	162.95416 °	757	28.9	55275.1	51434.1	33.69	51013.7	33432	18.09	21.1	21.1	97.2	6.22	6.22	8.34	-77.2	0.5	1.24
	5	2/02/2019	10:57:12	5.34671 °	162.95410 °	757	29	55313.3	51430.2	33.68	51005	33430	18.08	21.1	21.1	99.7	6.37	6.37	8.33	-76.8	3.9	1.54
	6	2/02/2019	11:00:45	5.35036 °	162.95660 °	757	28.8	55134.1	51403.2	33.67	50995.6	33412	18.14	21.1	21.1	100.3	6.43	6.43	8.34	-77.4	1.7	1.14
	7	2/02/2019	11:01:03	5.35036 °	162.95662 °	757	28.8	55159.7	51386.3	33.65	50973.8	33401	18.13	21.1	21.1	99.7	6.38	6.38	8.33	-76.6	0.4	0.81
	8	2/02/2019	11:03:42	5.35013 °	162.95471 °	757	29.3	55723.2	51465.8	33.7	50997.4	33453	17.95	21	21	125.2	7.95	7.95	8.45	-84	4	4.31
	9	2/02/2019	11:05:49	5.34895 °	162.95724 °	757	29	55283.1	51402.4	33.66	50977.5	33412	18.09	21.1	21.1	101.6	6.49	6.49	8.36	-78.5	-2.9	1.1
	10	2/02/2019	11:08:35	5.34980 °	162.95775 °	756.8	29	55350.6	51426.3	33.68	50996.3	33427	18.07	21.1	21.1	106.7	6.81	6.81	8.37	-79.3	-18.5	1.4

## Annexure Five: Benthic Marine Environment Description of Areas Within and Adjacent to the Proposed Physical Investments

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### Acknowledgements

We gratefully acknowledge the assistance of staff at the Yap Conservation Society, Chuuk Conservation Society and Chuuk Department of Marine Resources, Pohnpei Conservation Society and Kosrae Conservation Society.

## Part One: Methods used to Assess Benthic Habitats and Technical Considerations

A number of factors dictated the methods used to describe the benthic marine environment within and adjacent to the areas of the proposed physical investments. Because of the extremely tight timelines for the work (both in terms of field work, and also reporting) and the fact that associates of various levels of professional ability were engaged locally, we employed a simple photographic technique to document benthic environments, that employs easy to use waterproof cameras (most GoPro Hero 7) taking unframed quadrat photographs along randomly placed 30m transects at within and adjacent to Ports. These photos are then analyzed using 'random point count' methodology, which is a common method to enumerate community/habitat statistics in a variety of fields of biology (Kohler and Gill, 2006), and is commonly used for coral reef habitats (Carleton and Done 1995). This method allowed many sites to be assessed using basic habitat descriptors. The broad overview of marine benthic habitats this method produces is by no means a comprehensive biological/ecological inventory and should only be used for semi-quantitative descriptive purposes rather than representing a current biological baseline dataset.

At each port the site was assessed both from satellite photographs and in situ. Survey sites were selected for data collection to assess the benthic environment based on both proximity to the physical investments (directly around ports) and adjacent to ports, based on the variety of habitats present (i.e. deep channels, fringing reef slopes, reef flats, intertidal areas etc). At each site up to four divers (or a single snorkeler) were deployed. The diver/snorkeler randomly placed the start of a 50m surveyors measuring tape on the bottom and deployed 30m of tape in a random direction. The diver (or a second diver) then swam along the transect length, taking 8-15 photographs of the seafloor from directly above the transect tape with the transect tape in-shot. This was performed 4-8 times per site, depending on the number of personnel available. At Yap different cameras to the GoPro's were used, which resulted in higher resolution photography, but a more limited field of view. Hence at this site, more photos were taken and analyzed than at other sites, but ultimately less benthic habitat was sampling due to the field-of-view restriction.

Photos were analyzed using the program CPCe (Kohler and Gill, 2006), which allows users to correctly spatially scale photographs according to known measures (in this case the surveyors tape). The program then has an algorithm to place random points within a pre-defined area, and database functions that allow the user to catalog the benthic habitat category/taxonomic group under that datapoint. For this study, photographs had a quadrat (square area of predefined dimension) defined based on as large an area as practical given the field of view of the photograph (for YAP, usually around 40 – 70 cm<sup>2</sup>, for all other ports usually 1 m<sup>2</sup>). Within each quadrat a point was placed at random in each 10cm column of the quadrat, and the user then recorded the benthic habitat category/taxonomic group at this point. Habitat categories and taxonomic groupings used to record data for this report are provided below in Appendix 1.

After data was collected for each site, data were summarized per transect such that descriptive statistics (means, standard deviations, standard errors) were generated across transects. Benthic habitat data is presented in graph and table form however all data (photographs, CPCe outputs) is available in electronic appendices.

## Part Two: Benthic Environment Description

### Port of Colonia, Yap.

#### Port of Colonia, Yap, Benthic Environment Executive Summary

The existing benthic environment at the port of Colonia Yap is predominately macro-abiotic, consisting mostly of soft sediments (predominately fine silt) with no visible epiflora or fauna. There were some hard corals and macroalgae at (relatively) shallow water (<9m depth) sites immediately adjacent (East and West) to the port, albeit with very low benthic cover (<10%). A quantitative description of the immediately adjacent port benthic is presented in detail below. The area appears to already be impacted by industrial activity, given the prevalence of industrial and domestic waste on the seafloor and the likelihood of resuspension of fine silts from ship movements and weather events etc. Around 350m to the NNE of the main port-face is an area of reef flat rising out of the channel, consisting of sparse, massive growth form coral colonies (generally in <5m depth) and bedrock rising to a coral lagoon with sparse branching corals and seagrass beds. The proposed project appears to pose little threat to the existing marine benthic environment, however some general recommendations, revolving around pollution management are provided considering the likely industrial operations associated with the project and as a result of potentially increased future port capacity and/or use.

#### Yap Benthic Sampling Overview

The port at Yap was sampled at two locations on the widest north-western facing area of the dock (Sites 1 and 2; Figure 34), two locations adjacent to the main port area (Site 4 and Site 5; Figure 34) and qualitatively across the main channel directly in front of the port where benthic habitat transitioned from a deep channel environment to a fringing reef slope and reef flat environment (Figure 34). In total, the benthic habitat was quantitatively characterized at 1645 randomly selected points from 422 photo-quadrats, representing a random selection of 210.8 m<sup>2</sup> of benthic habitat, from 840 linear meters of haphazardly placed 30m ( $n=28$ ) transects (Figure 34; Table 27).

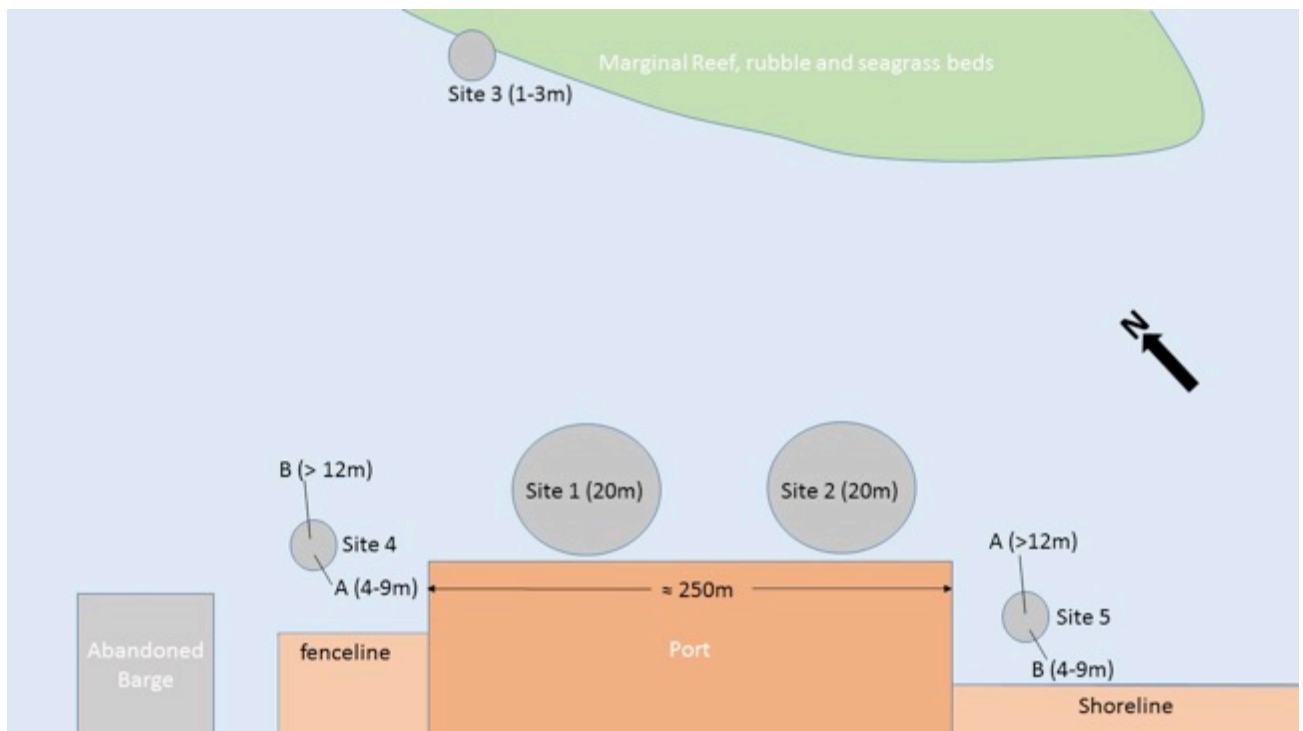


Figure 34 Basic sampling scheme for benthic surveys of port in YAP, Colonia. Note, the seaward length of the port bib is included, but otherwise diagram is not to scale

SITE	TRANSECT	TOTAL DATA POINTS	TOTAL M <sup>2</sup> SURVEYED	# PHOTO QUADRATS	MEAN (M <sup>2</sup> ) QUADRAT SIZE	MIN (M <sup>2</sup> ) QUADRAT SIZE	MAX (M <sup>2</sup> ) QUADRAT SIZE
1	1	66	2.46	18	0.37	0.3	0.4
1	2	61	2.71	15	0.41	0.3	0.7
1	3	16	0.64	4	0.40	0.4	0.4
1	<b>Totals</b>	<b>143</b>	<b>5.81</b>	<b>37</b>			
2	1	58	2.26	16	0.36	0.2	0.6
2	2	88	3.56	22	0.40	0.3	0.5
2	3	84	3.4	21	0.40	0.3	0.5
2	4	74	2.78	20	0.37	0.3	0.4
2	5	71	2.69	19	0.37	0.3	0.4
2	6	56	2.24	14	0.40	0.4	0.4
2	7	65	2.67	16	0.41	0.3	0.5
2	<b>Totals</b>	<b>496</b>	<b>19.6</b>	<b>128</b>			
4A	1	87	3.67	26	0.33	0.2	0.8
4A	2	95	3.73	24	0.40	0.2	0.5
4A	3	95	4.19	22	0.43	0.3	0.5
4A	4	74	3.28	17	0.44	0.3	0.5
4A	<b>Totals</b>	<b>351</b>	<b>14.87</b>	<b>89</b>			
4B	1	41	1.55	11	0.37	0.3	0.4
4B	2	54	2.34	13	0.42	0.3	0.7
4B	3	51	1.89	14	0.36	0.3	0.4
4B	4	56	2.12	15	0.37	0.3	0.4
4B	<b>Totals</b>	<b>202</b>	<b>7.9</b>	<b>53</b>			
5A	1	55	2.05	15	0.37	0.3	0.4
5A	2	60	2.4	15	0.40	0.4	0.4
5A	3	60	2.44	15	0.40	0.3	0.5
5A	4	53	2.03	14	0.38	0.3	0.4
5A	<b>Totals</b>	<b>228</b>	<b>8.92</b>	<b>59</b>			
5B	1	57	2.33	14	0.41	0.4	0.5
5B	2	60	2.42	15	0.40	0.3	0.5
5B	3	52	2.12	13	0.40	0.3	0.5
5B	4	56	2.26	14	0.40	0.3	0.5
5B	<b>Totals</b>	<b>225</b>	<b>9.13</b>	<b>56</b>			
<b>YAP - TOTALS</b>	<b>Transect</b>	<b>Total Data Points</b>	<b>Total M<sup>2</sup> Surveyed</b>	<b># Photo Quadrats</b>			
	<b>26</b>	<b>1645</b>	<b>66.23</b>	<b>422</b>			

Table 27 Sampling summary of benthic surveys at Yap Port. See Fig 1. for schematic of sampling areas in relation to the port

## Port of Colonia, Yap Benthic Environment Description

Visibility was poor while field work was being conducted (< 4m) and this was reported to be typical of the area by staff at the Yap Conservation Society. ≈

The benthic environment immediately surrounding and adjacent to the port of Colonia, Yap, was dominated by abiotic substrate with very little epiflora and epifauna visible at most sampled locations (Figure 35). The majority of abiotic substrate consisted of very fine silt/mud, sand and silt covered hard substrate (rubble and rock) and there was also a considerable coverage of domestic and industrial litter that was observed, photographed and sometimes sampled in photo quadrats, particularly at Site 2 (Table 28). At most locations where biotic substrate was present, it was predominately algal turf attached to hard substrate (rocks, rubble, coral rubble and dead compress; Figure 35) and was generally blanketed in silt. There were also small amounts (<10% benthic coverage) of macroalgae noted at sites 2 and 5b, although it is likely the macroalgae noted at site 2 was recently detached from shallower areas in the vicinity, given the depth at site 2 and the general water clarity at the port. Some hard coral (<10% benthic coverage) was noted at both sites adjacent to the port along the rocky shoreline surrounding the port industrial area (sites 4a and 5b), these were mostly encrusting growth forms attached to the rocky shoreline, as well as some massive growth forms, provisionally identified to encrusting *Acroporidae*, *Montipora sp.* and massive *Astreopora sp.*, *Lobophylliidae* and *Favites sp.* Corals at these locations were all present at water depths <9m.

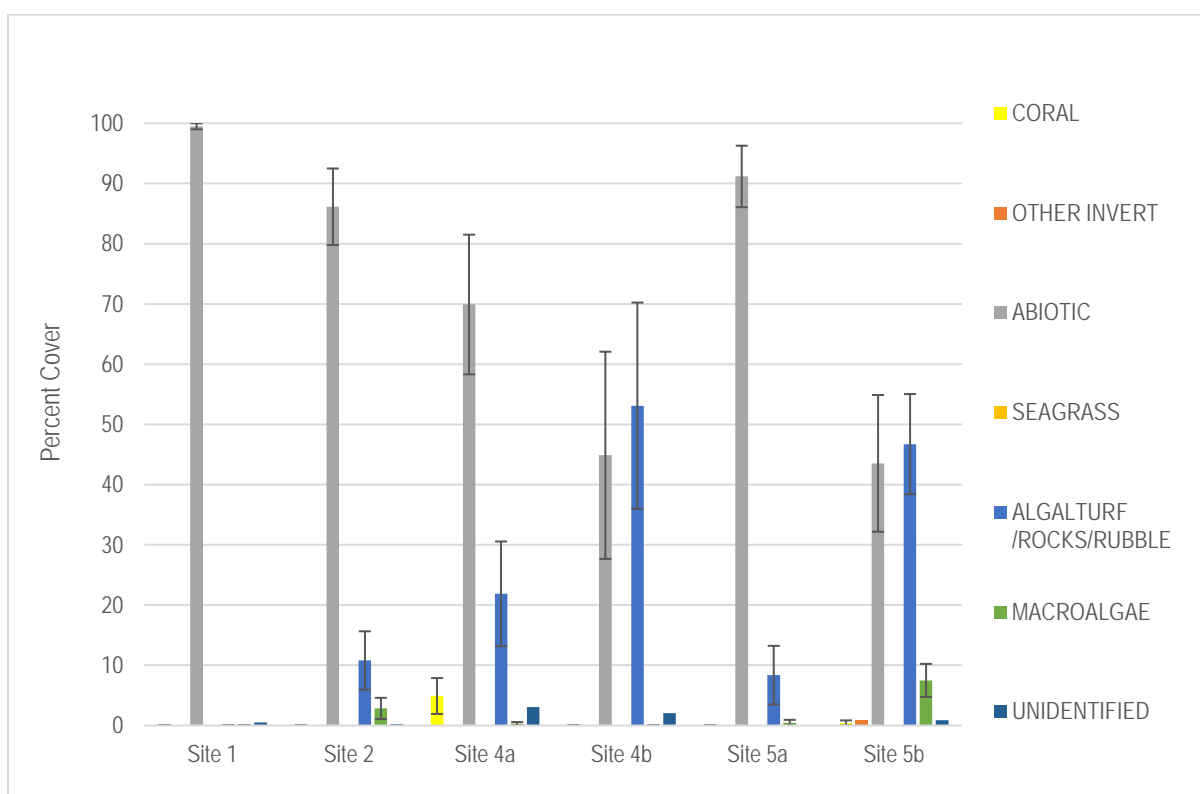


Figure 35 Percent cover of main benthic substrate categories at each surveyed site at port of Colonia, Yap. Values are mean values based on stratified random point sampling of individual photo quadrats according to the sampling summarized in Table 1. Whiskers on bars are Standard Error



	BEDROCK	BLACK HOLE	CORAL RUBBLE SILT COVERED	COURSE SAND	FINE SAND	LITTER INDUSTRIAL	LITTER DOMESTIC	BOLDER/ ROCK	SILT/MUD
SITE 1	0.55 (0.5)	0.55 (0.5)	0.00 (0.0)	0.00 (0.0)	0.51 (0.5)	0.00 (0.0)	0.00 (0.0)	8.74 (8.7)	89.15 (9.4)
SITE 2	0.00 (0.0)	0.74 (0.4)	3.65 (1.8)	0.00 (0.0)	0.70 (0.7)	0.00 (0.0)	0.39 (0.4)	0.78 (0.6)	79.88 (8.5)
SITE 4A	0.26 (0.3)	0.90 (0.3)	12.28 (9.8)	23.12 (15.1)	0.27 (0.3)	0.00 (0.0)	8.91 (8.9)	5.56 (4.5)	16.32 (14.2)
SITE 4B	0.00 (0.0)	0.49 (0.5)	1.89 (1.9)	30.39 (15.7)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	12.10 (9.2)
SITE 5A	0.00 (0.0)	1.33 (0.9)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	89.85 (4.4)
SITE 5B	0.00 (0.0)	1.92 (1.9)	7.70 (2.9)	0.89 (0.9)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	33.01 (13.8)

Table 28 Mean coverage of abiotic substrate categories at the port of Colonia, Yap. Values are mean values (Standard Error) based on stratified random point sampling of individual photo quadrats according the sampling summarized in Table 1.

Across the channel from the port, a short qualitative snorkel survey was conducted at site 3. This site is roughly 350m from the north-western corner of the port and rises out of <20m depth to a bommie area roughly 1m depth. The area consists mostly of coral reef bedrock and rubble, scattered coral heads (predominately *Porties sp.*) with some sparse branching corals (*Acroporidae* and *Porities sp.*). Corals were generally present from around 5m depth and upwards onto the reef flat. On the reef flat there were extensive (but sparse) areas of the seagrass, *Cymodocea rotundata* and scattered macroalgae.

Some representative images of all sites are shown in Figure 36.

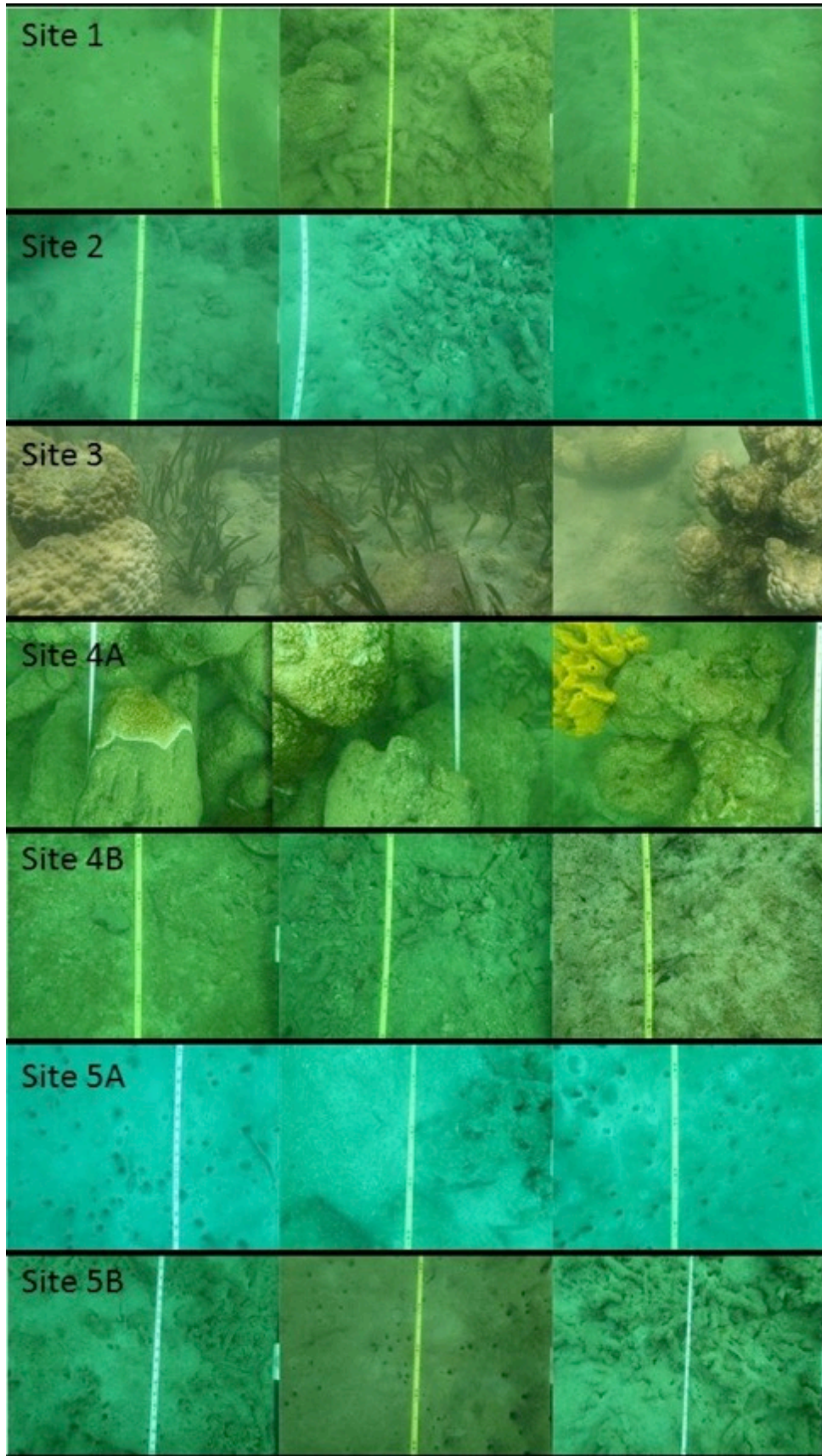


Figure 36 Some representative photos of the benthic environment of each surveyed site at port of Colonia, Yap

## Port of Weno, Chuuk.

### Port of Weno, Chuuk, Benthic Environment Executive Summary

The existing benthic habitat at the port of Weno, Chuuk, is predominately abiotic in the macro-sense, consisting mostly of fine and coarse sands with sparse visible epiflora or fauna. The area immediately to the west of the port dock recedes into deeper lagoonal sandy bottom habitat with sparse hard substrate and macroalgae present. The area immediately north consists of shallow fringing reef habitat abutting the northern shoreline, dominated by mostly calcareous macroalgae, turf algae on hard substrate with some hard-coral cover and other sessile benthic invertebrates recorded. To the south there is a sandy bottom channel of 9-11m depth, which after  $\approx 100\text{m}$  transitions into fringing reef abutting the southern shoreline. This southern fringing reef consists of mainly turf algae on hard substrate and macroalgae habitat, with the highest recorded hard coral cover around the port vicinity of approximately 10% at 6-8m depth rising from the sandy bottom channel. The reef flat of the southern fringing reef is dominated by fleshy macroalgae cover with some algal turf on hard substrate and hard coral cover (both  $\approx <10\%$ ). A quantitative description of the benthic habitats around and immediately adjacent to the port is presented in detail below. The area appears to already be impacted by industrial activity, given the prevalence of industrial and domestic waste on the seafloor. The proposed project appears to pose little threat to the existing marine benthic environment, however some general recommendations, revolving around pollution management are provided considering the likely industrial operations associated with the project and as a result of potentially increased future port capacity and/or use.

### Chuuk Benthic Sampling Overview

The port at Chuuk was sampled at three sites on the widest western facing area of the dock (Sites 1, 2 and 4; Figure 37), one site on the southern side of the main dock in the busy main channel for small boat traffic (Site 5; Figure 37), one site on the northern side of the main port area where a shoal was visibly evident from the surface (Site 3; Figure 37) and two sites across the channel on the southern side of the port where benthic habitat transitioned from a deeper lagoon/channel environment (Site 6; Figure 37) to a fringing reef flat environment (Site 7; Figure 37). In total, the benthic habitat was quantitatively characterized at 4388 randomly selected points from 476 photo-quadrats, representing a random selection of 422.2 m<sup>2</sup> of benthic habitat, from 1470 linear meters of haphazardly placed 30m ( $n=49$ ) transects (Table 29 Sampling effort summary of benthic surveys at Weno Port, Chuuk. See Fig 1. for schematic of sampling areas in relation to the port.).

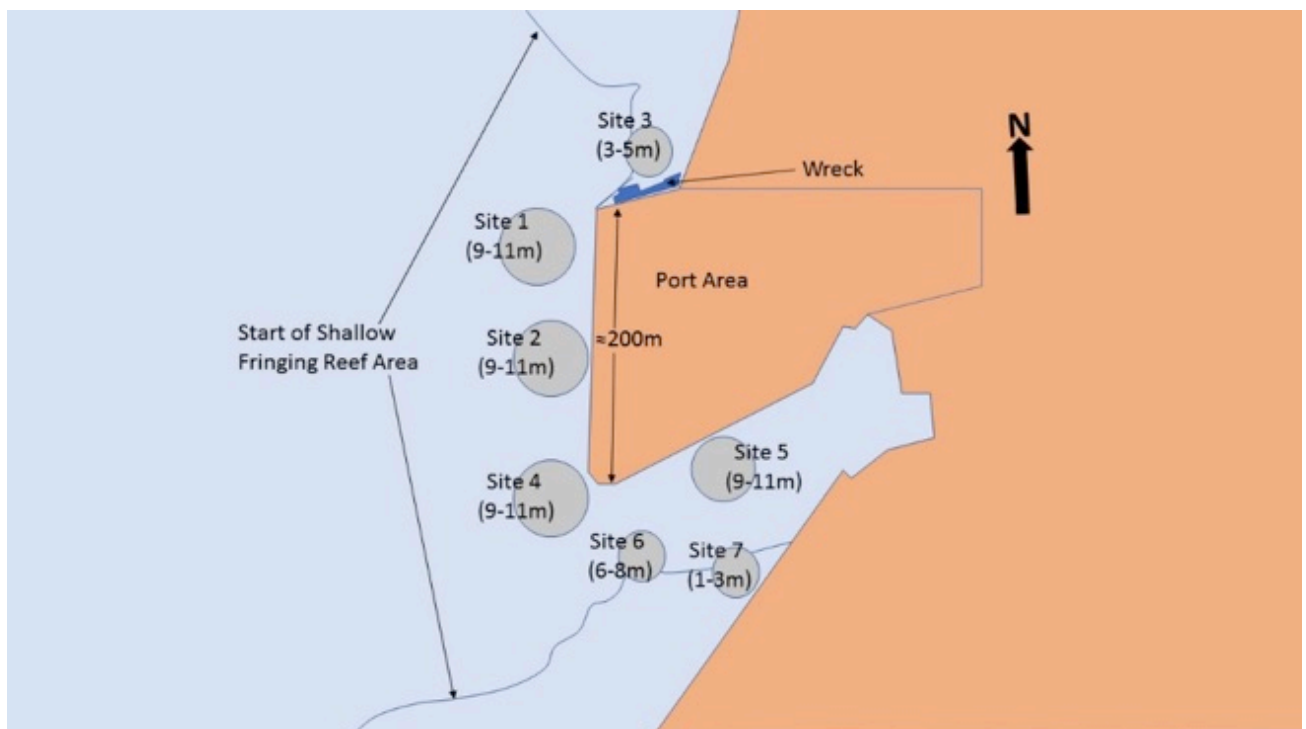


Figure 37 Basic sampling scheme for benthic surveys of Weno Port, Chuuk. Sampling sites are indicated by named purple circles and approximate depths are given in parentheses. Note, the length of the seaward (western) port bib is shown, but otherwise diagram is not to scale.

Table 29 Sampling effort summary of benthic surveys at Weno Port, Chuuk. See Fig 1. for schematic of sampling areas in relation to the port.

SITE	TRANSECT	TOTAL DATA POINTS	TOTAL M <sup>2</sup> SURVEYED	# QUADRATS	MEAN (M <sup>2</sup> ) QUADRAT SIZE	MIN (M <sup>2</sup> ) QUADRAT SIZE	MAX (M <sup>2</sup> ) QUADRAT SIZE
1	1	118	10.14	14	0.84	0.7	1
1	2	90	10.59	10	0.90	0.8	1
1	3	125	12.13	13	0.96	0.7	1
1	4	110	11	11	1.00	1	1
1	5	81	6.31	11	0.74	0.5	1
1	6	110	11	11	1.00	1	1
1	7	86	10.91	9	0.96	0.7	1
1	8	77	7.43	8	0.96	0.9	1
1	<b>Totals</b>	<b>797</b>	<b>79.51</b>	<b>87</b>			
2	1	108	10.62	11	0.98	0.9	1
2	2	96	9.24	10	0.96	0.9	1
2	3	124	13.68	13	0.95	0.8	1
2	4	107	9.65	12	0.89	0.7	1
2	5	99	9.81	10	0.99	0.9	1
2	6	93	8.71	10	0.93	0.8	1
2	7	106	10.26	11	0.96	0.8	1
2	8	90	8.24	10	0.90	0.7	1
2	<b>Totals</b>	<b>823</b>	<b>80.21</b>	<b>87</b>			
3	1	110	11	11	1	1	1
3	2	109	10.09	12	0.91	0.6	1
3	3	98	8.84	11	0.89	0.8	1
3	4	83	7.85	9	0.92	0.6	1
3	5	75	7.13	8	0.94	0.7	1
3	6	80	6.54	10	0.8	0.7	1
3	7	80	6.64	10	0.8	0.5	1
3	8	90	8.16	10	0.9	0.8	1
3	<b>Totals</b>	<b>725</b>	<b>66.25</b>	<b>81</b>			
4	1	81	7.37	9	0.90	0.8	1
4	2	88	8.62	9	0.98	0.9	1
4	3	100	10	10	1.00	1	1
4	4	96	9.26	10	0.96	0.8	1
4	5	90	8.14	10	0.90	0.8	1
4	6	76	6.52	9	0.84	0.7	1
4	7	79	6.29	10	0.79	0.7	0.9
4	8	100	10	10	1.00	1	1
4	<b>Totals</b>	<b>710</b>	<b>66.2</b>	<b>77</b>			
5	1	80	8	8	1.00	1	1
5	2	78	7.62	8	0.98	0.9	1
5	3	80	8	8	1.00	1	1
5	4	70	7	7	1.00	1	1

5	5	94	8.92	10	0.94	0.7	1
5	6	80	8	8	1.00	1	1
5	7	78	7.64	8	0.98	0.8	1
5	8	77	7.45	8	0.96	0.8	1
5	<b>Totals</b>	<b>637</b>	<b>62.63</b>	<b>65</b>			
6	1	80	8	9	1.00	1	1
6	2	86	8.77	11	0.86	0.6	1
6	3	71	6.41	9	0.89	0.7	1
6	4	68	5.82	9	0.85	0.8	1
6	5	72	6.62	9	0.90	0.6	1
6	<b>Totals</b>	<b>377</b>	<b>35.62</b>	<b>47</b>			
7	1	79	7.81	8	0.99	0.9	1
7	2	90	9	9	1.00	1	1
7	3	80	8	8	1.00	1	1
7	4	70	7	7	1.00	1	1
7	<b>Totals</b>	<b>319</b>	<b>31.81</b>	<b>32</b>			
	<b>Transects</b>	<b>Total Data Points</b>	<b>Total m<sup>2</sup> Surveyed</b>	<b># Quadrats</b>			
<b>CHUUK TOTALS</b>	<b>49</b>	<b>4388</b>	<b>422.23</b>	<b>476</b>			

### Port of Weno, Chuuk, Benthic Environment Description

Excepting the fringing reef flat and immediately to the north of the main port area (e.g. the shoal at Site 3; Figure 37) the benthic habitat immediately surrounding and adjacent to Weno port (within 100m), was dominated by abiotic substrate with very little epiflora and epifauna visible (Sites 1, 2, 4 and 5; Figure 38). The majority of abiotic substrate consisted of fine sand (sites 1 & 5);

Table 30) and coarse sand (sites 2 & 4; Table 4). Coarse sand at all sites showed clear signs it is composed of the calcareous remains of *Halimeda spp.*, which is a common feature of marine sediments in atoll and lagoonal reef environments with *Halimeda spp.* present (Hoek et al. 1995). The little biotic benthic cover present at these sites (<10%) was generally either macroalgae (*Halimeda spp.*, *Padina sp.* and unidentified macroalgae) or hard substrate (dead coral, reef compress and rubble) covered in turf algae. The seagrass *Halophila sp.* was also noted present at Site 1 and point sampled in one quadrat in transect 7.

The shoal ≈50m immediately to the north of the main port area (Site 3; Fig 4) was dominated by macroalgae cover, predominately *Halimeda spp.* (22.7 +/- 3.5 % cover, mean +/- SE), unidentified macroalgae and *Padina sp.* (9-11 +/- ≈ 3% cover each). Other major biotic benthic categories were algal turf covered hard substrate (rubble 13.6 +/- 3.6% cover; dead compress 5.4 +/- 2.9% cover) and hard corals (Massive growth form corals, mainly *Porites spp.*: 4.7 +/- 1.5% cover; Solitary growth form corals, Family Fungiidae: 0.6 +/- 0.4% cover). There was also some sponges (Porifera) recorded, albeit at very low cover (<1%).

Approximately 100m to the south of the port dock, the benthic habitat transitions from 9-11m depth sandy channel to fringing reef (Sites 6 and 7). Although there was considerable abiotic coarse sand cover (Table 4), both sites had more biotic habitat than abiotic cover. Site 6 consisted of mostly algal turf covered hard substrate (rubble 15.4 +/- 5.7% cover; dead compress 6.9 +/- 1.5% cover) and macroalgae cover (unidentified large macroalgae 8.4 +/- 2.8%; *Halimeda spp.* 6.8 +/- 1.1%; *Padina sp.* 4.5 +/- 0.7% and some *Dictyota sp.* 0.6 +/- 0.3%). There was also notable hard coral cover consisting of mostly individual massive growth form corals (predominately *Porities spp.* 8.4 +/- 3.9% cover, some colonies from the family Lobophylliidae were also noted). At site 7 the biotic habitat was dominated by macroalgae beds (*Sargassum spp.* 26.4 +/- 12%; *Halimeda spp.* 11.2 +/- 2.1%; Unidentified macroalgae 9 +/- 3.2 %; *Padina spp.* 7.5 +/- 4.7% cover), with similar amounts of algal turf covered hard substrate and hard coral cover (6-9%). Hard coral cover consisted predominately of massive growth form *Porities spp.* colonies (5.8 +/- 2.1% cover) and some *Pocillopora spp.* were also recorded in quadrats.

As with other FSM ports, litter/refuse of both industrial and domestic origin was noted at all locations and was point-scored in quadrats at some sites closest to the busiest operational areas of the ports (sites 2, 4 and 5:

Table 30).

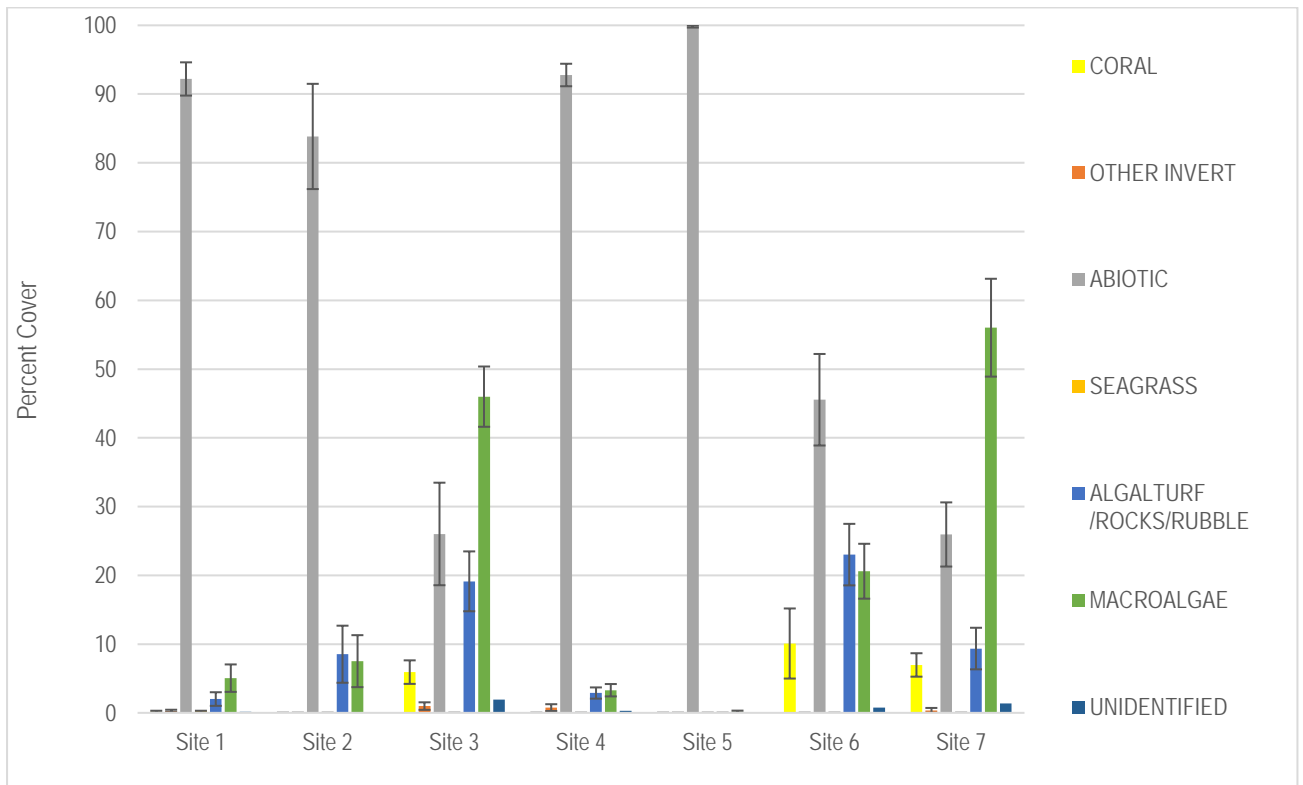


Figure 38 Percent cover of main benthic substrate categories at each surveyed site at Weno Port, Chuuk. Values are mean values based on stratified random point sampling of individual photo quadrats, summarized by transect, according to the sampling summarized in Table 1. Whiskers on bars are Standard Error.

Table 30 Mean coverage of abiotic substrate categories at the Weno Port, Chuuk. Values are mean values (Standard Error) based on stratified random point sampling of individual photo quadrats according the sampling summarized in Table 1.

	BEDROCK	BLACK HOLE	CORAL RUBBLE SILT COVERED	COARSE SAND	FINE SAND	LITTER INDUSTRIAL	LITTER DOMESTIC	BOLDER/ ROCK	SILT/MUD
<b>SITE 1</b>	0.00 (0.0)	0.00 (0.0)	0.15 (0.2)	18.61 (11.6)	73.44 (13.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)
<b>SITE 2</b>	0.00 (0.0)	0.40 (0.3)	0.00 (0.0)	75.12 (9.0)	7.08 (7.1)	0.10 (0.1)	1.02 (1.0)	0.12 (0.1)	0.00 (0.0)
<b>SITE 3</b>	0.00 (0.0)	0.76 (0.3)	0.00 (0.0)	20.83 (5.9)	4.30 (4.3)	0.00 (0.0)	0.00 (0.0)	0.14 (0.1)	0.00 (0.0)
<b>SITE 4</b>	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	91.44 (1.7)	0.64 (0.6)	0.55 (0.3)	0.14 (0.1)	0.00 (0.0)	0.00 (0.0)
<b>SITE 5</b>	0.00 (0.0)	0.33 (0.2)	0.00 (0.0)	2.13 (2.1)	95.96 (2.2)	0.00 (0.0)	1.42 (1.0)	0.00 (0.0)	0.00 (0.0)
<b>SITE 6</b>	0.00 (0.0)	2.35 (0.3)	0.00 (0.0)	39.81 (5.1)	3.38 (3.4)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)
<b>SITE 7</b>	0.00 (0.0)	0.71 (0.7)	0.00 (0.0)	25.23 (5.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)

Some representative images of all sites are shown in Figure 39.



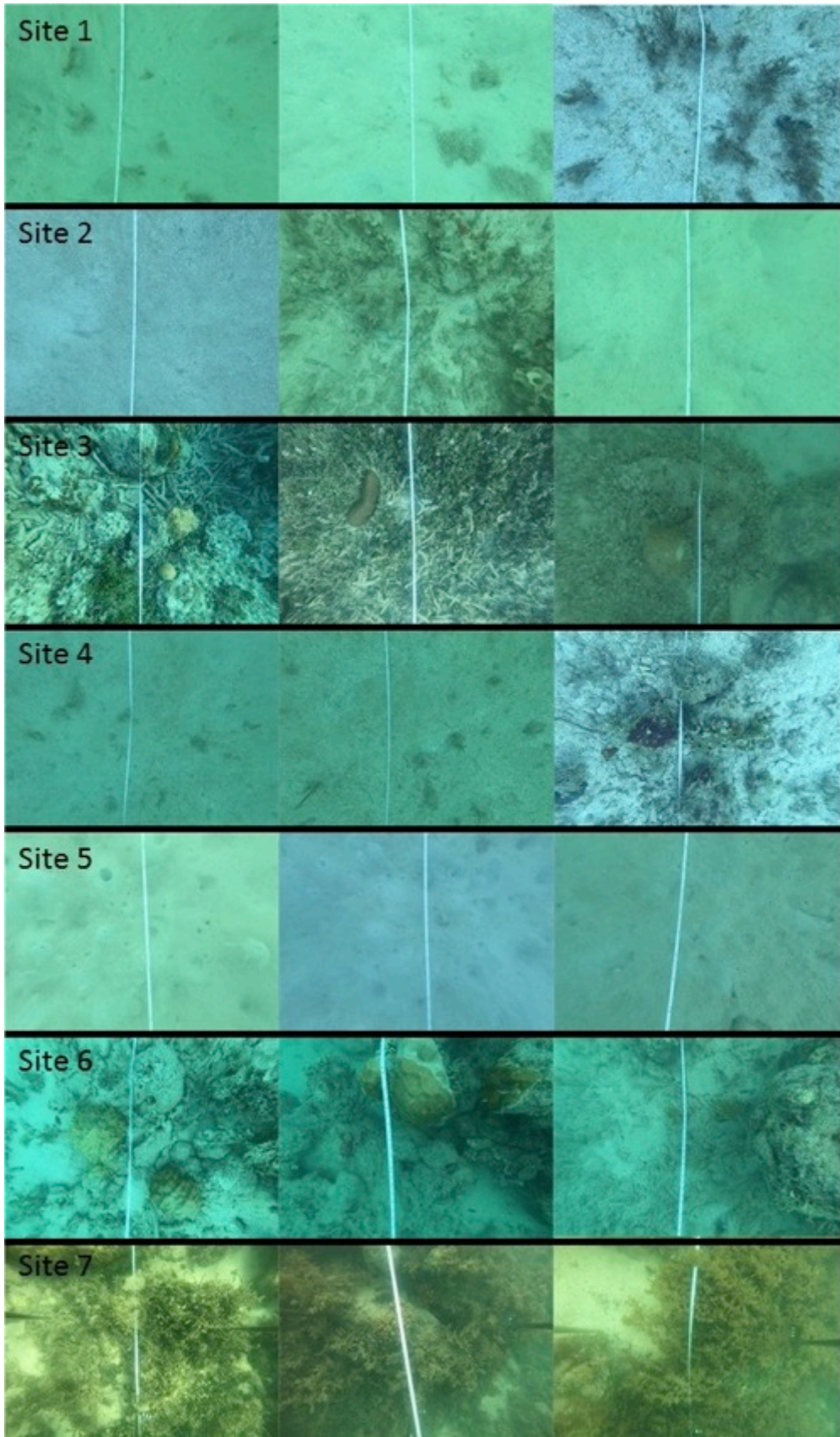


Figure 39 Some representative photos of the benthic environment of each surveyed site at port of Weno, Chuuk.

## Port of Dekehtik, Pohnpei.

### Port of Dekehtik, Pohnpei, Benthic Environment Executive Summary

The international port of Pohnpei is situated on the island of Dekehtik on the eastern side of a northern facing mangrove-lined inlet containing Sokehs Channel. Its benthic habitat is predominately macro-abiotic, consisting mostly of silt and mud with sparse visible epiflora or fauna. The area immediately to the west of the port dock recedes into deeper channel (Sokehs Channel) silt bottom habitat with sparse hard substrate and macroalgae present. The benthic habitat immediately north of the port consists of shallow fringing reef habitat abutting the western shoreline of Dekehtik. It is dominated hard substrate with algal turf and relatively high hard-coral cover ( $\approx 35\%$ ), compared to the immediately surrounding areas of other FSM ports. Across Sokehs Channel from the port (the western side of the inlet) there is a near vertical wall rising from the deeper waters of Sokehs Channel with substantial hard coral cover, breaking into an extensive reef flat area abutting the mangrove-laden western inlet shoreline (the eastern coast of Sokehs Island). A quantitative description of the benthic habitats around and immediately adjacent to the port is presented in detail below as well as a qualitative description of the fringing reef wall and reef flat habitat on the western side of the Sokehs Channel. The port area appears to already be impacted by industrial activity, given the prevalence of industrial and domestic waste on the seafloor. The proposed project appears to pose little threat to the existing marine benthic environment, however some general recommendations, revolving around pollution management are provided considering the likely industrial operations associated with the project and as a result of potentially increased future port capacity and/or use.

### Dekehtik Port, Pohnpei Benthic Sampling Overview

Dekehtik Port, Pohnpei was sampled at three sites on the widest western facing area of the dock (Sites 1, 2 and 3; Figure 40) and one site on the northern side of the main port area where benthic habitat transitioned from a deeper channel environment to a fringing reef flat environment (Site 4; Figure 40). An attempt also was made to survey one site across the channel from the western side of the port, where benthic habitat transitioned from a deeper channel to a fringing reef flat habitat on the western side of the port inlet (Site 5; Figure 40). However, the last site (Site 5) proved difficult to survey accurately with the method employed (1mx1m photo quadrat frame) because of the steepness of the fringing reef wall, so the photos were examined qualitatively for a site description. In total, the benthic habitat was quantitatively characterized at 2001 randomly selected points from 242 photo-quadrats, representing a random selection of 174.5 m<sup>2</sup> of benthic habitat, from 960 linear meters of haphazardly placed 30m ( $n=32$ ) transects (Table 31).

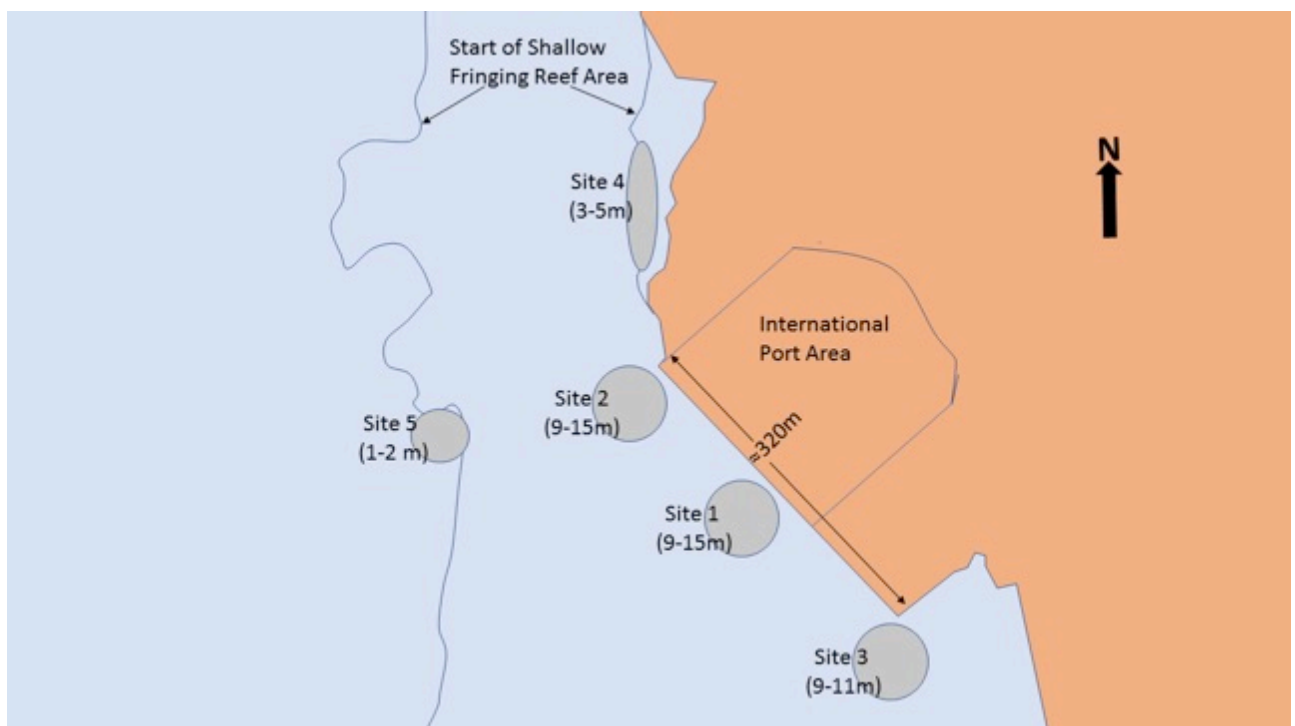


Figure 40 Basic sampling scheme for benthic surveys of Dekehtik Port, Pohnpei. Sampling sites are indicated by named purple circles and approximate depths are given in parentheses. Note, the length of the seaward (western) port bib is shown, but otherwise diagram is not to scale.

Table 31 Sampling effort summary of benthic surveys at Dekehtik Port, Pohnpei. See Fig 1. for schematic of sampling areas in relation to the port.

SITE	TRANSECT	TOTAL DATA POINTS	TOTAL M <sup>2</sup> SAMPLED	# QUADRATS	MEAN (M <sup>2</sup> ) QUADRAT SIZE	MIN (M <sup>2</sup> ) QUADRAT SIZE	MAX (M <sup>2</sup> ) QUADRAT SIZE
1	1	45	3.39	6	0.75	0.7	0.8
1	2	72	6.48	8	0.90	0.9	0.9
1	3	70	6.18	8	0.88	0.7	1
1	4	72	6.58	8	0.90	0.7	1
1	5	79	7.81	8	0.99	0.9	1
1	6	90	9	9	1	1	1
1	7	80	8	8	1	1	1
1	8	70	7	7	1	1	1
1	<b>Totals</b>	<b>578</b>	<b>54.44</b>	<b>62</b>			
2	1	67	6.45	7	0.96	0.8	1
2	2	88	8.62	9	0.98	0.9	1
2	3	90	9	9	1	1	1
2	4	76	7.24	8	0.95	0.9	1
2	5	74	6.92	8	0.93	0.8	1
2	6	42	2.96	6	0.70	0.6	0.8
2	7	63	4.99	8	0.79	0.7	0.9
2	8	45	2.91	7	0.64	0.6	0.7
2	<b>Totals</b>	<b>545</b>	<b>49.09</b>	<b>62</b>			
3	1	50	5	5	1	1	1
3	2	40	4	4	1	1	1
3	3	66	6.24	7	0.94	0.9	1
3	4	69	6.11	8	0.86	0.6	1
3	5	27	1.51	5	0.54	0.4	0.7
3	6	52	2.78	10	0.52	0.4	0.7
3	7	41	2.15	8	0.51	0.4	0.6
3	8	58	3.86	9	0.64	0.4	0.8
3	<b>Totals</b>	<b>403</b>	<b>31.65</b>	<b>56</b>			
4	1	60	4.76	8	0.75	0.5	1
4	2	46	2.86	8	0.58	0.3	0.8
4	3	60	4.12	9	0.67	0.5	0.8
4	4	54	3.12	10	0.54	0.3	0.8
4	5	58	5.64	6	0.97	0.8	1
4	6	54	5.16	6	0.90	0.4	1
4	7	73	6.67	8	0.91	0.9	1
4	8	70	7	7	1	1	1
4	<b>Totals</b>	<b>475</b>	<b>39.33</b>	<b>62</b>			
	<b>Transects</b>	<b>Total Data Points</b>	<b>Total m<sup>2</sup> Sampled</b>	<b># Quadrats</b>			
<b>POHNPEI TOTALS</b>	32	2001	174.51	242			

## Port of Dekehtik, Pohnpei, Benthic Environment Description

Excepting the fringing reef immediately to the north of the main port area (Site 4; Figure 40) the benthic habitat immediately west and south of Dekehtik port into the shipping channel, was dominated by macro-abiotic substrate with very little epiflora and epifauna visible (Sites 1, 2, and 3; Figure 41). The majority of macro-abiotic substrate at these sites consisted of mud/silt with some algal turf covered hard substrate also present (

Table 32). These sites also had substantial industrial and domestic refuse/litter on the seafloor, which was apparent in most areas of all dives and was  $\approx 1.5 - 4\%$  of benthic cover.

Site 4, to the immediate north of the port, consisted of a coral wall rising gently from deeper waters of Sokehs Channel to a small reef flat area abutting the western shore of Dekehtik island. Where surveyed (depth of 3-5m), benthic habitat was dominated by biotic cover: algal turf on hard substrate ( $45.1 \pm 7.5\%$  cover) and hard coral cover ( $34.3 \pm 8.6\%$  cover). Hard corals consisted mostly of foliose/laminar growth form cover ( $16.3 \pm 5\%$ ) and columnar growth form cover ( $10.4 \pm 3.1\%$ ), with some branching and massive growth forms also present ( $\approx 5\%$ ). Few hard corals could be taxonomically identified to Family level (or below) due to photo resolution and/or water quality.

Site 5, on the western side of Sokehs Channel, consisted of a coral wall rising sharply (near vertically) from the deeper waters of Sokehs Channel to an extensive reef flat area abutting the mangroved lined eastern shore of Sokehs island. On the rising wall the site was qualitatively similar to site four, mostly consisting foliose/laminar growth form hard corals on the rising wall and columnar growth form hard corals towards the top of the wall (and some scattered branching corals) along with algal turf covered hard substrate (rubble and dead compress). On the reef flat there appeared to be mostly algal turf covered hard substrates (rubble, dead coral and dead compress) and massive and encrusting growth form *Porites* spp. hard corals. There was also scattered branching corals and macroalgae (*Halimeda* spp. noted). The cover of hard coral on the fringing reef wall appeared similar to estimates from site 4, whereas was likely to be  $<20\%$  on the reef flat.

As with other FSM ports, litter/refuse of both industrial and domestic origin was noted at all locations and was point-scored in quadrats at some sites closest to the busiest operational areas of the ports (sites 2, 4 and 5:

Table 32).

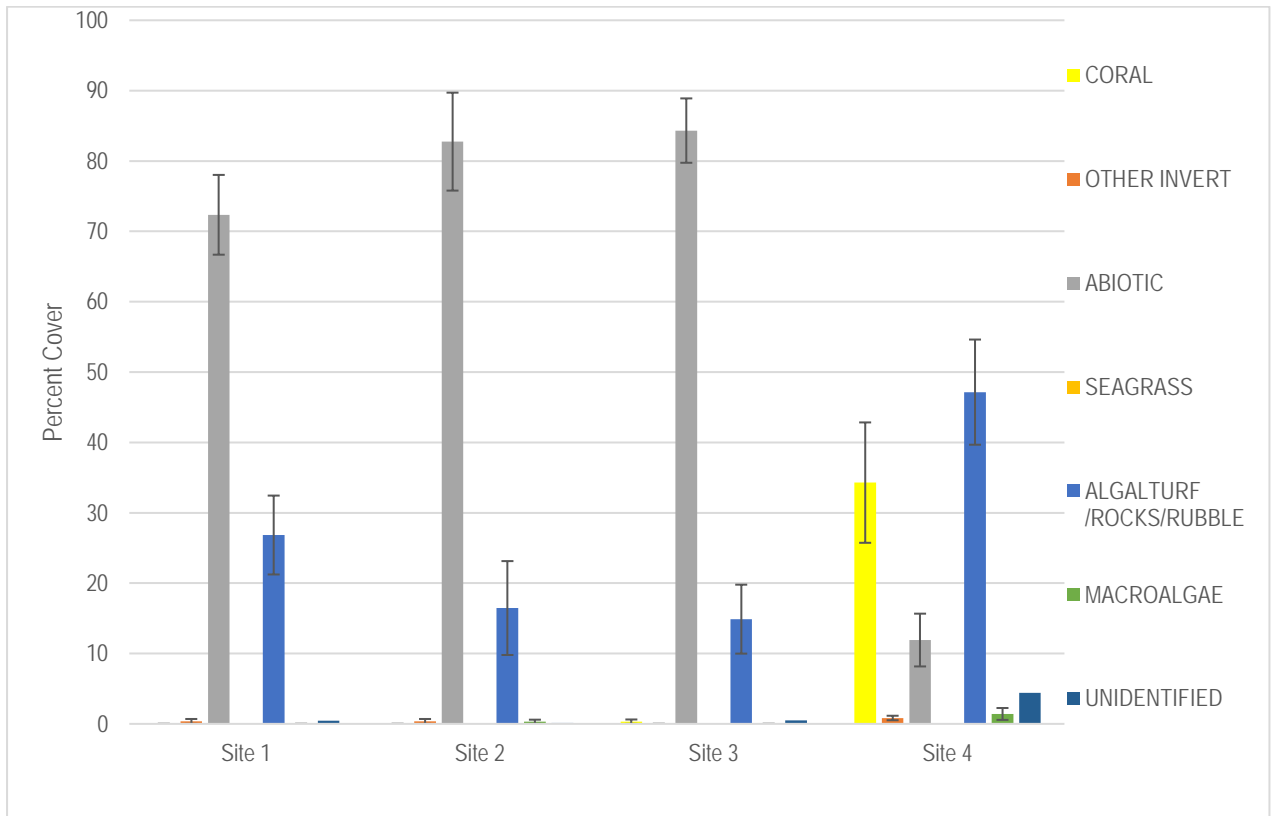


Figure 41 Percent cover of main benthic substrate categories at each surveyed site at Dekehtik Port, Pohnpei. Values are mean values based on stratified random point sampling of individual photo quadrats, summarized by transect, according the sampling summarized in Table 1. Whiskers on bars are Standard Error of the mean

Table 32 Mean coverage of abiotic substrate categories at the Dekehtik Port, Pohnpei. Values are mean values (Standard Error) based on stratified random point sampling of individual photo quadrats according the sampling summarized in Table 1.

	BEDROCK	BLACK HOLE	CORAL RUBBLE SILT COVERED	COARSE SAND	FINE SAND	LITTER INDUSTRIAL	LITTER DOMESTIC	BOLDER/ ROCK	SILT/MUD
<b>SITE 1</b>	0.00 (0.0)	0.16 (0.2)	0.00 (0.0)	3.65 (3.3)	19.46 (7.5)	0.54 (0.4)	1.07 (0.9)	0.00 (0.0)	47.48 (9.9)
<b>SITE 2</b>	0.00 (0.0)	0.20 (0.2)	0.00 (0.0)	6.40 (3.8)	11.74 (4.9)	1.50 (0.6)	1.72 (0.5)	0.00 (0.0)	61.19 (11.1)
<b>SITE 3</b>	0.00 (0.0)	0.81 (0.5)	0.00 (0.0)	1.92 (1.9)	4.81 (3.5)	2.95 (1.4)	0.94 (0.5)	0.00 (0.0)	72.89 (6.5)
<b>SITE 4</b>	0.00 (0.0)	2.43 (1.2)	0.21 (0.2)	4.43 (3.1)	0.73 (0.6)	0.63 (0.4)	0.69 (0.3)	0.00 (0.0)	2.80 (1.3)

Some representative images of all sites are shown in Figure 42.

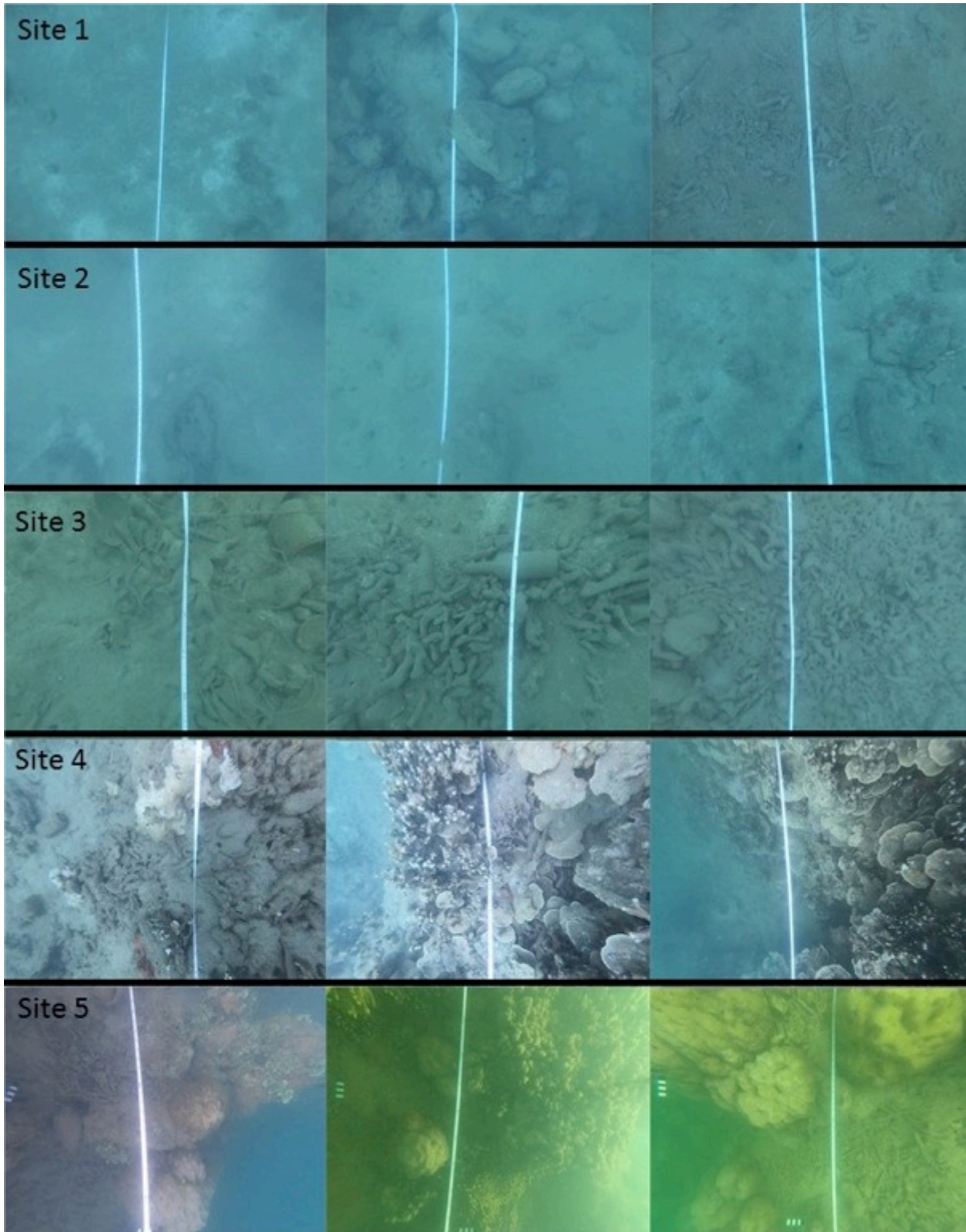


Figure 42 Some representative photos of the benthic environment of each surveyed site at port of Dekehtik, Pohnpei.



## Port of Kosrae

### Port of Kosrae, Benthic Environment Executive Summary

The Port of Kosrae is situated on the north eastern side of the island of Kosrae along a NE-SW orientated deep channel running parallel to the SE coast of Gabert Island and the NW coast of Kosrae main island. The channel is essentially between the Kosrae island outer fringing reef (upon which Gabert island is situated) and the Kosrae island coastline, which in the vicinity of the port is the predominately mangrove-lined. The benthic habitat around the port is a mixture of macro-abiotic with sparse visible epiflora or fauna off the main operational area of the port (the south facing dock) and reef slope and flat off the eastern and western docks of the port. The benthic habitat immediately west of the port consists of shallow fringing reef, transitioning to a large reef flat area with substantial sub-tidal macroalgae beds giving way to intertidal seagrass habitat abutting the southern shoreline of Gabert Island. The benthic habitat to the east of the port also consists of shallow fringing reef, transitioning to a large reef flat area with substantial sub-tidal macroalgae beds giving way to intertidal seagrass habitat abutting the southern shoreline of Gabert Island. Qualitatively, across the channel to the south and east of the port there is a similar transition from channel to shallow fringing reef, to a large reef flat area with substantial sub-tidal macroalgae beds giving way to intertidal areas abutting the mangrove-laden north eastern shoreline of Kosrae main island. A quantitative description of the benthic habitats around and immediately adjacent to the port is presented in detail below as well as a qualitative description of the fringing reef wall on the eastern side of the port. The port area appears to already be impacted by industrial activity, given the prevalence of industrial and domestic waste on the seafloor. The proposed project appears to pose little threat to the existing marine benthic environment, however some general recommendations, revolving around pollution management are provided considering the likely industrial operations associated with the project and as a result of potentially increased future port capacity and/or use.

### Port of Kosrae, Benthic Sampling Overview

The Port of Kosrae was sampled at two sites on the widest south facing area of the dock (Sites 1 & 2; Figure 43), one site on the eastern side of the main port area on the reef flat after benthic habitat had transitioned from the deeper channel and over a fringing reef wall (Site 3; Fig 10), one intertidal site on the reef flat on the western side of the main port area (Site 4; Figure 43) and one site along the coral reef wall where the benthic habitat transitioned from the deeper channel to the reef flat (Site 5; Figure 43). There was also a qualitative survey conducted on the reef wall on the eastern side of the port and in the intertidal reef flat environment on the north eastern side of the main port area ("Intertidal Seagrass" area; Figure 43). In total, the benthic habitat was quantitatively characterized at 2143 randomly selected points from 222 photo-quadrats, representing a random selection of 210.8 m<sup>2</sup> of benthic habitat, from 840 linear meters of haphazardly placed 30m ( $n=28$ ) transects (

Table 33).

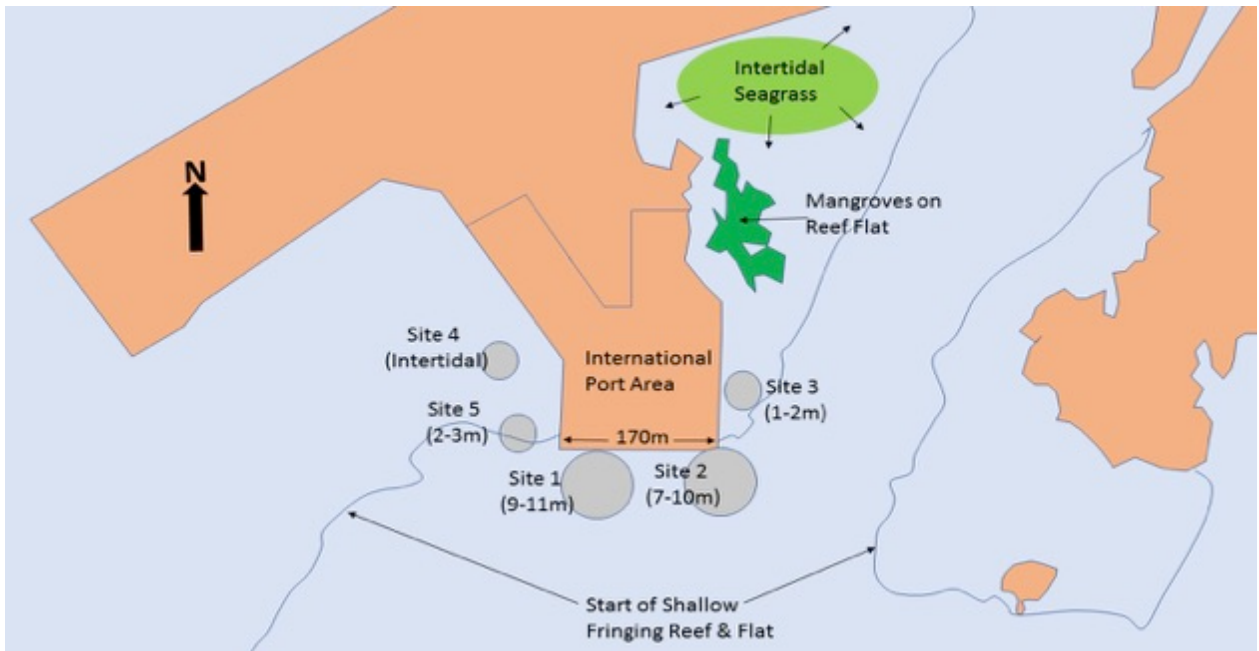


Figure 43 Basic sampling scheme for benthic surveys of Port of Kosrae. Sampling sites are indicated by named purple circles and approximate depths are given in parentheses. Note, the length of the seaward (western) port bib is shown, but otherwise diagram is not to scale.

Table 33 Sampling effort summary of benthic surveys at Port of Kosrae. See Fig 1. for schematic of sampling areas in relation to the port.

SITE	TRANSECT	TOTAL DATA POINTS	TOTAL M <sup>2</sup> SAMPLED	# QUADRATS	MEAN QUADRAT SIZE (M <sup>2</sup> )	MIN QUADRAT SIZE (M <sup>2</sup> )	MAX QUADRAT SIZE (M <sup>2</sup> )
1	1	60	5.36	7	0.86	0.5	1
1	2	90	9	9	1	1	1
1	3	94	8.98	10	0.94	0.7	1
1	4	67	5.75	8	0.84	0.7	1
1	5	90	9	9	1	1	1
1	6	90	9	9	1	1	1
1	7	80	8	8	1	1	1
1	8	80	8	8	1	1	1
1	Totals	651	63.09	68			
2	1	80	8	8	1	1	1
2	2	71	6.37	8	0.89	0.7	1
2	3	79	7.81	8	0.99	0.9	1
2	4	80	8	8	1	1	1
2	5	70	7	7	1	1	1
2	6	80	10	8	1	1	1
2	7	80	8	8	1	1	1
2	8	80	8	8	1	1	1
2	Totals	620	63.18	62			
3	1	80	8	9	1	1	1
3	2	79	7.81	9	0.99	0.9	1
3	3	78	7.62	9	0.98	0.9	1
3	4	79	7.81	9	0.99	0.9	1
3	Totals	316	31.24	36			
4	1	60	6	6	1	1	1
4	2	70	7	7	1	1	1
4	3	39	3.81	4	0.98	0.9	1
4	4	60	6	6	1	1	1
4	Totals	229	22.81	23			
5	1	78	7.64	8	0.98	0.8	1
5	2	79	7.81	8	0.99	0.9	1
5	3	90	8	9	1	1	1
5	4	80	7	8	1	1	1
5	Totals	327	30.45	33			
	Transects	Total Data Points	Total m <sup>2</sup> Sampled	# Quadrats			
<b>KOSRAE TOTALS</b>	28	2143	210.77	222			

## Port of Kosrae, Benthic Environment Description

Excepting the fringing reef wall and flat to the east and west of the port (Sites 3,4 & 5), the benthic habitat at the south-facing main operational area of the port was dominated by macro-abiotic substrate with very little epiflora and epifauna visible (Sites 1, 2; Figure 44). The majority of macro-abiotic substrate at these sites consisted of *Halimeda*-derived coarse sand and the predominate biotic cover was some algal turf covered hard substrate (Figure 44;

Table 34). At site 2 there was also some macroalgae cover (9.7 +/- 5.2%) and some hard corals were also present, albeit at very low cover (0.81 +/- 0.61%). These sites also had substantial industrial and domestic refuse/litter on the seafloor, which was apparent in most areas of all dives and was estimated  $\approx 3-7\%$  of benthic cover (

Table 34). There was also substantial organic waste consisting of large fish (industrial fisheries derived), discarded straight off the dock edge.

Site 3, the reef flat on the eastern side of the port was dominated by macroalgae cover (66.5 +/- 6%), most of which was unidentified macroalgae due to the poor resolution of photographs (mostly due to water quality), however some *Halimeda spp.* and *Padina spp.* were identified as present.

Site 4, the intertidal reef flat to the west of the port, was dominated by seagrass cover (59 +/- 3.4%), which was the highest recorded seagrass cover in the vicinity of all the FSM ports. Most of seagrasses could not be taxonomically identified in photographs, however by eye it appeared that most seagrass present was *Cymodocea rotundata* and *Thalassia hemprichii*. There was also a relatively high proportion of sponge cover noted at this site (2.7 +/- 1.7%).

Site 5 to the west of the port, the reef slope transitioning from the deep channel to the reef flat, had similar amounts of cover (≈20 -30%) of hard corals, coarse (*Halimeda*-derived) sands, algal turf on hard substrate (rubble and dead compress), and macroalgae (predominately unidentified, however some *Dictyota sp.*, *Halimeda spp.* and *Padina sp.* were noted). During this survey conducted along at least 120 linear meters of reef slope (i.e 4 x 30m transects) a total of 14 separate crown of thorns starfish (*Acanthaster planci*), a voracious predator of hard corals, was also present. This taxon was not recorded in the vicinity of any other FSM port.

As with other FSM ports, litter/refuse of both industrial and domestic origin was noted at all locations and was point-scored in quadrats at some sites closest to the busiest operational areas of the ports (sites 1 & 2:

Table 34).



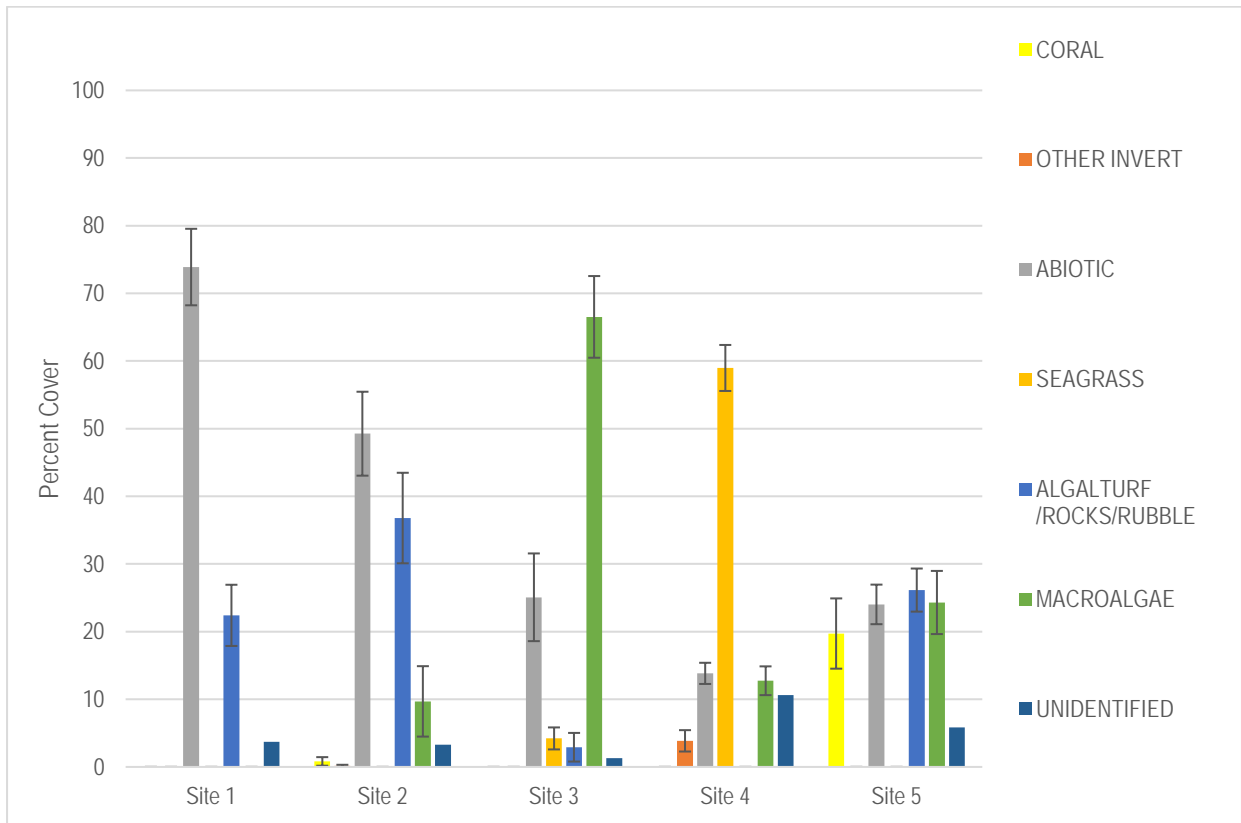


Figure 44 Percent cover of main benthic substrate categories at each surveyed site at Port of Kosrae. Values are mean values based on stratified random point sampling of individual photo quadrats, summarized by transect, according to the sampling summarized in Table 1. Whiskers on bars are Standard Error of the mean.

Table 34 Mean coverage of abiotic substrate categories at Port of Kosrae. Values are mean values (Standard Error) based on stratified random point sampling of individual photo quadrats according the sampling summarized in Table 1.

	BEDROCK	BLACK HOLE	CORAL RUBBLE SILT COVERED	COARSE SAND	FINE SAND	LITTER INDUSTRIAL	LITTER DOMESTIC	BOLDER/ ROCK	SILT/MUD
<b>SITE 1</b>	0.00 (0.0)	0.60 (0.3)	0.00 (0.0)	37.96 (7.5)	28.37 (9.8)	5.95 (2.3)	1.00 (0.5)	0.00 (0.0)	0.00 (0.0)
<b>SITE 2</b>	0.00 (0.0)	0.63 (0.3)	0.00 (0.0)	40.24 (6.8)	5.36 (2.2)	2.06 (1.2)	0.97 (0.5)	0.00 (0.0)	0.00 (0.0)
<b>SITE 3</b>	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	24.74 (6.6)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.33 (0.3)
<b>SITE 4</b>	0.00 (0.0)	0.36 (0.4)	0.00 (0.0)	13.47 (1.9)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)
<b>SITE 5</b>	0.00 (0.0)	4.00 (1.8)	0.00 (0.0)	19.39 (4.5)	0.00 (0.0)	0.63 (0.6)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)

Some representative images of all sites are shown in Figure 45.

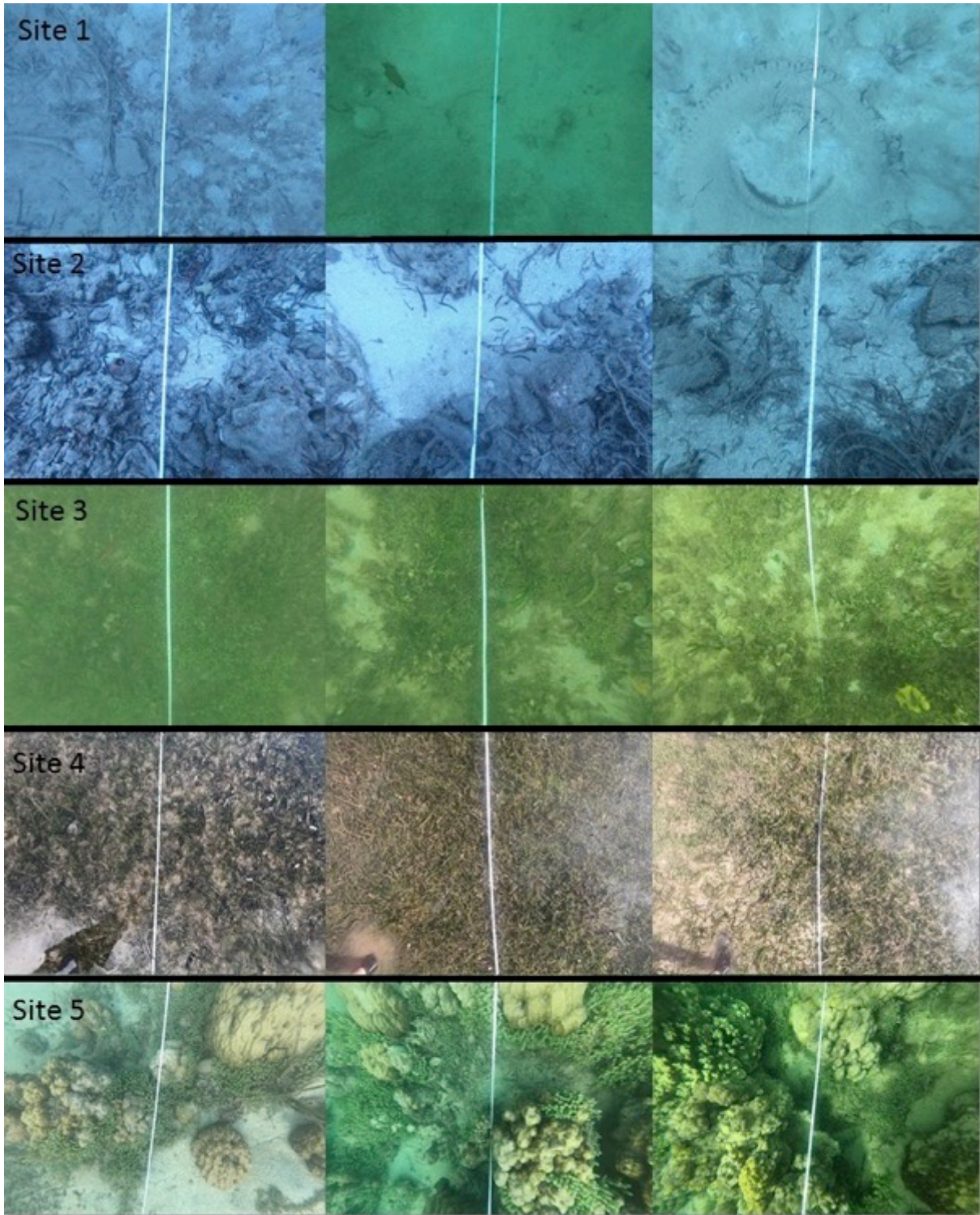


Figure 45 Some representative photos of the benthic environment of each surveyed site at the Port of Kosrae.

## Part Three: Project Marine Environmental Risks

Despite reef flat environments near all ports, the diversity of marine benthic habitats and organisms immediately surrounding, and adjacent to the ports is generally low, except for the reef slope environments noted above. All benthic environments in the main operational areas of ports are dominated by soft sediments and hard substrates with algal turf and thus most associated fauna is likely infauna (*i.e.* fauna that lives exclusively within the sediments such as bivalves, polychaete worms etc). The predominance of mud, silt and fine sand along the busiest operational area of many ports suggests the benthic environment is probably also physically disturbed semi-regularly due to weather events, shipping movements etc. Given that the proposed physical investments do not involve extending the port footprint or in-water construction activity, such as dredging, piling etc, it is considered that the risks of the project to the existing benthic environment at all ports are minimal. There are, however, generic risks to the marine environment from increasing and ongoing industrial activity at the port the project should consider:

**Light pollution:** Marine fauna can be adversely affected by artificial light - These effects may include adverse effects to marine zooplankton behaviour, adverse effects from fish aggregations at artificial light sources, potential effects on invertebrate spawning behaviour where lunar phase is used as a cue and displacement and/or disorientation of some marine wildlife (particularly marine turtles (hatchlings and adults) and marine birds) (Davies *et al.* 2014). Despite this, the impacts from the new lighting in the proposed project are expected to be negligible, particularly given the extensive existing artificial lighting already in the area, and the fact that there doesn't appear to be any sea turtle nesting habitat or significant seabird nesting areas in the coastal vicinity of the port.

**Diffuse ship- and land-based pollution:** There was a considerable amount of industrial (*i.e.* likely refuse from port/shipping activities, for example, tires, steel wire etc) and domestic (*i.e.* personal/small scale waste, for example cans, plastic bags etc) hard waste seen during dives around the port and noted in photo quadrats. This indicates that it is highly likely more rigorous waste management practices are required. The management of wastes generated as a result industrial activity at the port needs to be an explicit part of any environmental plan of the port, as does monitoring of their efficacy. Given there will be increased industrial activity as a result of the works of this project, and possibly ongoing afterward due to a potential increase in port capacity and/or use, it is recommended a port environmental management plan addressing this be implemented as part of this project and/or any future port master plan.

Another area which should be considered in terms of this project and any current/future environmental management plan is the control of drainage away from the port in consideration of both hard waste and importantly, processes and procedures for the prevention and management of petrochemical spills. During tours of the port sites it was noted that hydrocarbon distribution (*i.e.* refuelling sites etc) was not confined to a contained, bunded areas and there were no spill-kits available in the event of accidental petrochemical spills. Again, given there will be increased industrial activity as a result of the works of this project, and possibly ongoing afterward due to a potential increase in port capacity and/or use, it is recommended a port environmental management plan addressing this be implemented as part of this project and/or any future port master plan

**Biological Pollution:** Particularly at Kosrae Port, there was a substantial amount of fisheries waste (Large dead fish) discarded straight off the dock and onto the reef flat area to the west of the port and also into benthic habitat of the port main operational area. While some discards of this nature are probably inevitable, it should be noted that a sustained practise and/or continuing large events of this type of disposal could lead to undesirable consequences, such as microbial outbreaks that may affect the wider ecosystem around the port. This is of particular interest in Kosrae given the marine protected area close (to the east along the channel) to the port and the adverse consequences this may have to wildlife, not to mention human amenity (it was noted that families picnic at huts along the Kosrae coastline of this channel on the weekend. As above, it is recommended that appropriate management of biological waste be an explicit component of any future port environmental management plan.

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## Appendix 1 – Benthic Habitat/Taxonomic Group Categories Used to Describe Benthic Environments

<b>MAJOR CATEGORY (% of transect)</b>
CORAL (C)
OTHER INVERT (OI)
ABIOTIC (A)
SEAGRASS (SG)
CROPPED/OTHER ALGAE (CA)
MACROALGAE (MA)
UNIDENTIFIED (U)
TAPE, WAND, SHADOW (TWS)
Sum (excluding tape+shadow+wand)
<b>SUBCATEGORIES (% of transect)</b>
<b>CORAL (C)</b>
Branching Coral (BC)
Columnar Coral (CC)
Dead Coral (DEAD)
Digitate coral (DC)
Encrusting Coral (EC)
Foliose/Laminar Coral (FLC)
Massive Coral (MC)
Solitary Coral (SC)
Tabular Coral (TC)
Unidentified coral (UNCO)
<b>OTHER INVERT (OI)</b>
Anenome (ANEM)
Asteroidea (ASTE)
Bryozoan (BRYO)
Holothuriodian (HOLO)
Mobile Invert (MINV)
Octocoral (OCTO)
Octocoral on dead coral (OC/DL)
Octocoral on rubble (OC/R)
Other sessile inverts (OSIN)
Sponge (SPNG)
Tunicate (TUNI)
Zoanthid (ZOAN)
<b>ABIOTIC (A)</b>
Bedrock (BED)
Black Hole (BHOL)
Coral Rubble Silt Covered (CRUSI)
Course Sand (CSAND)
Fine Sand (FSAND)
Litter Industrial (LITI)

Litter domestic (LITD)  
 Non Coral Boulder/Rock (BOLD)  
 Silt/MUD (SILT)

**SEAGRASS (SG)**

Cymodocea sp (SGCY)  
 Halophila sp (SGHA)  
 Syringodium sp. (SGSY)  
 Thalassia sp. (SGTH)  
 UNID Seagrass (SEAG)

**CROPPED/OTHER ALGAE (CA)**

Blue greed on dead compressa (BG/DC)  
 Blue green (BLGR)  
 Blue green on dead coral (BG/DL)  
 Blue green on rubble (BG/R)  
 Crustose (CRST)  
 Crustose on dead compressa (CR/DC)  
 Crustose on dead coral (CR/DL)  
 Crustose on rubble (CR/R)  
 Turf/Bare (TU/B)  
 Turf/Bare on dead compress (TB/DC)  
 Turf/Bare on dead coral (TB/DL)  
 Turf/Bare on rubble (TB/R)

**MACROALGAE (MA)**

Acanthophora spicifera (ASPI)  
 Asparagopsis sp (ASPA)  
 Avrainvillea sp (AVRA)  
 Caulerpa sp. (CAUL)  
 Cladophora sp (CLAD)  
 Codium sp (CODI)  
 Crustose Macroalgae (CMAC)  
 Dictyosphaeria cavernosa (DCAV)  
 Dictyosphaeria versluysii (DVER)  
 Dictyota sp (DICT)  
 Galaxaura sp. (GALA)  
 Gelatinous red (GOOEY)  
 Gracillaria salicornia (GSAL)  
 Halimeda sp. (HALI)  
 Halymenia sp (HALY)  
 Hypnea musciformis (HMUS)  
 Jointed calcareous red (JCAL)  
 Kappaphycus sp (KAPP)  
 Large macroalgae (MACR)  
 Liagora sp (LIAG)  
 Lobophora sp (LOBO)  
 Low macroalgae (LMAC)  
 Neomeris sp (NEOM)

Padina sp (PADI)
Sargassum sp (SARG)
Styopodium sp (STYP)
Turbinaria sp (TURB)
Unidentified brown (UBRN)
Unidentified green (UGRE)
Unidentified red (URED)
Ventricaria sp (VENT)
<b>UNIDENTIFIED (U)</b>
Unidentified (UNID)
<b>TAPE, WAND, SHADOW (TWS)</b>
Shadow (SHADOW)
Tape (TAPE)
Wand (WAND)
<b>NOTES (% of transect)</b>
Acanthastrea (ACAN)
Acropora (ACRO)
Africana (AFRI)
Agaricia (AGAR)
Alatotrochus (ALAT)
Alveopora (ALVE)
Amphihelia (AMPH)
Anacropora (ANAC)
Anomastrea (ANOMA)
Anomocora (ANOM)
Anthemiphyllia (ANTH)
Antillia (ANTI)
Astrangia (ASTRA)
Astrea (ASTR)
Astreopora (ASTRE)
Astroides (ASTRO)
Aulocyathus (AULO)
Australocyathus (AUSTC)
Australogyra (AUSTG)
Australophyllia (AUSTP)
Bachytrochus (BACH)
Balanophyllia (BALAPH)
Balanopsammia (BALAPS)
Bathelia (BATH)
Bathycyathus (BATHC)
Bathypsammia (BATHP)
Bernardpora (BERN)
Blastomussa (BLASM)
Blastotrochus (BLAST)
Boninastrea (BONI)



Bourneotrochus (BOUR)
Cantharellus (CANT)
Caryophyllia (CARY)
Catalaphyllia (CATA)
Caulastrea (CAUL)
Ceratotrochus (CERA)
Cladangia (CLADA)
Cladocora (CLADO)
Cladopsammia (CLADS)
Coelastrea (COELTR)
Coeloseris (COEL)
Coenocyathus (COENC)
Coenosmilia (COENS)
Colangia (COLA)
Colpophyllia (COLP)
Concentrotheca (CONC)
Confluphyllia (CONF)
Conocyathus (CONO)
Conotrochus (CONOT)
Coscinaraea (COSC)
Craterastrea (CRAT)
Crispatotrochus (CRIS)
Cryptotrochus (CRYP)
Ctenactis (CTEN)
Ctenella (CTENE)
Culicia (CULI)
Cyathelia (CYATE)
Cyathotrochus (CYAT)
Cycloseris (CYCL)
Cynarina (CYNA)
Cyphastrea (CYPH)
Dactylotrochus (DACT)
Danafungia (DANA)
Dasmosmilia (DASM)
Deltocyathoides (DELT)
Deltocyathus (DELTU)
Dendrocora (DENDC)
Dendrogyra (DENDA)
Dendrophyllia (DEND)
Desmophyllum (DESM)
Dichocoenia (DICH)
Dichopsammia (DICHP)
Diploastrea (DIPLA)
Diploria (DIPL)
Dipsastraea (DIPS)
Duncanopsammia (DUNC)

Dunocyathus (DUNO)
Echinomorpha (ECHIM)
Echinophyllia (ECHIP)
Echinopora (ECHI)
Eguchipsammia (EGUC)
Enallopsammia (ENAL)
Endocyathopora (ENDO)
Endopachys (ENDOC)
Endopsammia (ENDOP)
Enigmopora (ENIG)
Ericocyathus (ERIC)
Erythrastrea (ERYT)
Euphyllia (EUPH)
Eusmilia (EUSM)
Falcatoflabellum (FALC)
Family Acroporidae (FAM-ACROP)
Family Agariciidae (FAM-AGARI)
Family Anthemiphylliidae (FAM-ANTHE)
Family Astrocoeniidae (FAM-ASTRO)
Family Caryophylliidae (FAM-CARYO)
Family Coscinaraeidae (FAM-COSCI)
Family Deltocyathidae (FAM-DELTO)
Family Dendrophylliidae (FAM-DENDR)
Family Diploastreidae (FAM-DIPLO)
Family Euphylliidae (FAM-EUPHY)
Family Faviidae (FAM-FAVII)
Family Flabellidae (FAM-FLABE)
Family Fungiacyathidae (FAM-FUNGIC)
Family Fungiidae (FAM-FUNGI)
Family Gardineriidae (FAM-GARDI)
Family Guyniidae (FAM-GUYNI)
Family Lobophylliidae (FAM-LOBOP)
Family Meandrinidae (FAM-MEAND)
Family Merulinidae (FAM-MERUL)
Family Micrabaciidae (FAM-MICRA)
Family Not (FAM-UNID)
Family Oculinidae (FAM-OCULI)
Family Plesiastreidae (FAM-PLESI)
Family Pocilloporidae (FAM-POCIL)
Family Poritidae (FAM-PORIT)
Family Psammocoridae (FAM-PSAMM)
Family Rhizangiidae (FAM-RHIZA)
Family Schizocyathidae (FAM-SCHIZ)
Family Siderastreidae (FAM-SIDER)
Family Stenocyathidae (FAM-STENO)
Family Turbinoliidae (FAM-TURBI)

Favia (FAVIA)
Favites (FAVIT)
Fimbriaphyllia (FIMB)
Flabellum (FLAB)
Foveocyathus (FOVE)
Fungia (FUNG)
Fungiacyathus (FUNGCI)
Galaxea (GALA)
Gardineria (GARDA)
Gardineroseris (GARDS)
Goniastrea (GONI)
Goniocorella (GONIC)
Goniopora (GONIP)
Guynia (GUYN)
Gyrosmlia (GYRO)
Halomitra (HALO)
Heliofungia (HELIF)
Helioseris (HELI)
Herpolitha (HERP)
Heterocyathus (HETEC)
Heteropsammia (HETEP)
Holcotrochus (HOLC)
Homophyllia (HOMO)
Hoplangia (HOPL)
Horastrea (HORA)
Hydnophora (HYDN)
Idiotrochus (IDIO)
Isophyllia (ISOPH)
Isopora (ISOPO)
Javana (JAVA)
Kionotrochus (KION)
Labyrinthocyathus (LABY)
Leptastrea (LEPT)
Leptopenus (LEPTP)
Leptopsammia (LEPTM)
Leptoria (LEPTA)
Leptoseris (LEPTS)
Letepsammia (LETE)
Lissotrochus (LISS)
Lithophyllon (LITH)
Lobactis (LOBA)
Lobophyllia (LOBO)
Lochmaetrochus (LOCH)
Machadoporites (MACH)
Madracis (MADRA)
Madrepora (MADR)

Manicina (MANI)
Meandrina (MEAN)
Merulina (MERU)
Micromussa (MICR)
Monohedotrochus (MONOH)
Monomyces (MONO)
Montigyra (MONT)
Montipora (MONTI)
Moseleya (MOSE)
Mussa (MUSSA)
Mussismilia (MUSS)
Mycedium (MYCE)
Mycetophyllia (MYCET)
Nemanzophyllia (NEME)
Nomlandia (NOML)
Notocyathus (NOTO)
Notophyllia (NOTOP)
Oculina (OCUL)
Orbicella (ORBI)
Oulangia (OULAN)
Oulastrea (OULA)
Oulophyllia (OULO)
Oxypora (OXYP)
Oxysmilia (OXYS)
Pachyseris (PACH)
Palauastrea (PALA)
Paraconotrochus (PARAC)
Paracyathus (PARACY)
Paragoniastrea (PARAG)
Paramontastraea (PARA)
Pavona (PAVO)
Pectinia (PECT)
Pedicyathus (PEDI)
Peponocyathus (PEPO)
Petrophyllia (PETR)
Phacelocyathus (PHAC)
Phyllangia (PHYL)
Physogyra (PHYS)
Physophyllia (PHYSP)
Placotrochides (PLACC)
Placotrochus (PLAC)
Platygyra (PLATG)
Platyrochus (PLAT)
Pleotrochus (PLEO)
Plerogyra (PLER)
Plesiastrea (PLES)

Pleuractis (PLEU)
Pocillopora (POCI)
Podabacia (PODA)
Polycyathus (POLYC)
Polymyces (POLYM)
Polyphyllia (POLY)
Porites (PORI)
Pourtalocyathus (POUR)
Pourtalopsammia (POURP)
Pourtalosmilia (POURS)
Premocyathus (PREM)
Psammocora (PSAM)
Pseudocyathoceras (PSEUC)
Pseudodiploria (PSEUD)
Pseudosiderastrea (PSEUS)
Rhizopsammia (RHIZP)
Rhizosmilia (RHIZS)
Rhizotrochus (RHIZ)
Rhombopsammia (RHOM)
Sandalolitha (SAND)
Scapophyllia (SCAP)
Schizoculina (SCHIL)
Schizocyathus (SCHI)
Sclerhelia (SCLE)
Sclerophyllia (SCLEP)
Scolymia (SCOL)
Seriatopora (SERI)
Siderastrea (SIDE)
Simplastrea (SIMP)
Sinuorota (SINU)
Solenastrea (SOLE)
Solenosmilia (SOLEO)
Sphenotrochus (SPHE)
Stenocyathus (STEN)
Stephanocoenia (STEP C)
Stephanocyathus (STEP Y)
Stephanophyllia (STEP)
Stolarskicyathus (STOL)
Stylaraea (STYL)
Stylocoeniella (STYLC)
Stylophora (STYLP)
Sympodangia (SYMP)
Temnotrochus (TEMN)
Tethocyathus (TETH)
Thalamophyllia (THAL)
Thecopsammia (THEC)

Thypticotrochus (THRY)
Trachyphyllia (TRAC)
Trematotrochus (TREM)
Trochocyathus (TROCC)
Trochopsammia (TROC)
Tropidocyathus (TROP)
Truncatoflabellum (TRUNF)
Truncatoguynia (TRUN)
Tubastraea (TUBA)
Turbinaria (TURB)
Turbinolia (TURBO)
Vaughanella (VAUG)
Zoopilus (ZOOP)
<b>NOTES (% of coral)</b>
Acanthastrea (ACAN)
Acropora (ACRO)
Africana (AFRI)
Agaricia (AGAR)
Alatotrochus (ALAT)
Alveopora (ALVE)
Amphihelia (AMPH)
Anacropora (ANAC)
Anomastrea (ANOMA)
Anomocora (ANOM)
Anthemiphyllia (ANTH)
Antillia (ANTI)
Astrangia (ASTRA)
Astrea (ASTR)
Astreopora (ASTRE)
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Blastotrochus (BLAST)
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Colpophyllia (COLP)
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Confluphyllia (CONF)
Conocyathus (CONO)
Conotrochus (CONOT)
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Ctenella (CTENE)
Culicia (CULI)
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Dasmosmilia (DASM)
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Deltocyathus (DELTU)
Dendrocora (DENDC)
Dendrogyra (DENDA)
Dendrophyllia (DEND)
Desmophyllum (DESM)
Dichocoenia (DICH)
Dichopsammia (DICHP)
Diploastrea (DIPLA)
Diploria (DIPL)
Dipsastraea (DIPS)
Duncanopsammia (DUNC)
Dunocyathus (DUNO)
Echinomorpha (ECHIM)

Echinophyllia (ECHIP)
Echinopora (ECHI)
Eguchipsammia (EGUC)
Enallopsammia (ENAL)
Endocyathopora (ENDO)
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Endopsammia (ENDOP)
Enigmopora (ENIG)
Ericicyathus (ERIC)
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Eusmilia (EUSM)
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Family Fungiacyathidae (FAM-FUNGIC)
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Family Gardineriidae (FAM-GARDI)
Family Guyniidae (FAM-GUYNI)
Family Lobophylliidae (FAM-LOBOP)
Family Meandrinidae (FAM-MEAND)
Family Merulinidae (FAM-MERUL)
Family Micrabaciidae (FAM-MICRA)
Family Not (FAM-UNID)
Family Oculinidae (FAM-OCULI)
Family Plesiastreidae (FAM-PLESI)
Family Pocilloporidae (FAM-POCIL)
Family Poritidae (FAM-PORIT)
Family Psammocoridae (FAM-PSAMM)
Family Rhizangiidae (FAM-RHIZA)
Family Schizocyathidae (FAM-SCHIZ)
Family Siderastreidae (FAM-SIDER)
Family Stenocyathidae (FAM-STENO)
Family Turbinoliidae (FAM-TURBI)
Favia (FAVIA)
Favites (FAVIT)



Fimbriaphyllia (FIMB)
Flabellum (FLAB)
Foveocyathus (FOVE)
Fungia (FUNG)
Fungiacyathus (FUNG)
Galaxea (GALA)
Gardineria (GARDA)
Gardineroseris (GARDS)
Goniastrea (GONI)
Goniocorella (GONIC)
Goniopora (GONIP)
Guynia (GUYN)
Gyrosmitia (GYRO)
Halomitra (HALO)
Heliofungia (HELIF)
Helioseris (HELI)
Herpolitha (HERP)
Heterocyathus (HETEC)
Heteropsammia (HETEP)
Holcotrochus (HOLC)
Homophyllia (HOMO)
Hoplangia (HOPL)
Horastrea (HORA)
Hydnophora (HYDN)
Idiotrochus (IDIO)
Isophyllia (ISOPH)
Isopora (ISOPO)
Javania (JAVA)
Kionotrochus (KION)
Labyrinthocyathus (LABY)
Leptastrea (LEPT)
Leptopenus (LEPTP)
Leptopsammia (LEPTM)
Leptoria (LEPTA)
Leptoseris (LEPTS)
Letepsammia (LETE)
Lissotrochus (LISS)
Lithophyllon (LITH)
Lobactis (LOBA)
Lobophyllia (LOBO)
Lochmaeotrochus (LOCH)
Machadoporites (MACH)
Madracis (MADRA)
Madrepora (MADR)
Manicina (MANI)
Meandrina (MEAN)

Merulina (MERU)
Micromussa (MICR)
Monohedotrochus (MONOH)
Monomyces (MONO)
Montigyra (MONT)
Montipora (MONTI)
Moseleya (MOSE)
Mussa (MUSSA)
Mussismilia (MUSS)
Mycedium (MYCE)
Mycetophyllia (MYCET)
Nemenezophyllia (NEME)
Nomlandia (NOML)
Notocyathus (NOTO)
Notophyllia (NOTOP)
Oculina (OCUL)
Orbicella (ORBI)
Oulangia (OULAN)
Oulastrea (OULA)
Oulophyllia (OULO)
Oxypora (OXYP)
Oxysmilia (OXYS)
Pachyseris (PACH)
Palauastrea (PALA)
Paraconotrochus (PARAC)
Paracyathus (PARACY)
Paragoniastrea (PARAG)
Paramontastraea (PARA)
Pavona (PAVO)
Pectinia (PECT)
Pedicyathus (PEDI)
Peponocyathus (PEPO)
Petrophyllia (PETR)
Phacelocyathus (PHAC)
Phyllangia (PHYL)
Physogyra (PHYS)
Physophyllia (PHYSP)
Placotrochides (PLACC)
Placotrochus (PLAC)
Platygyra (PLATG)
Platyrochus (PLAT)
Pleotrochus (PLEO)
Plerogyra (PLER)
Plesiastrea (PLES)
Pleuractis (PLEU)
Pocillopora (POCI)

Podabacia (PODA)
Polycyathus (POLYC)
Polymyces (POLYM)
Polyphyllia (POLY)
Porites (PORI)
Pourtalocyathus (POUR)
Pourtalopsammia (POURP)
Pourtalosmilia (POURS)
Premocyathus (PREM)
Psammocora (PSAM)
Pseudocyathoceras (PSEUC)
Pseudodiploria (PSEUD)
Pseudosiderastrea (PSEUS)
Rhizopsammia (RHIZP)
Rhizosmilia (RHIZS)
Rhizotrochus (RHIZ)
Rhombopsammia (RHOM)
Sandalolitha (SAND)
Scapophyllia (SCAP)
Schizoculina (SCHIL)
Schizocyathus (SCHI)
Sclerhelia (SCLE)
Sclerophyllia (SCLEP)
Scolymia (SCOL)
Seriatopora (SERI)
Siderastrea (SIDE)
Simplastrea (SIMP)
Sinuorota (SINU)
Solenastrea (SOLE)
Solenosmilia (SOLEO)
Sphenotrochus (SPHE)
Stenocyathus (STEN)
Stephanocoenia (STEPC)
Stephanocyathus (STEPY)
Stephanophyllia (STEP)
Stolarskicyathus (STOL)
Stylaraea (STYL)
Stylocoeniella (STYLC)
Stylophora (STYLP)
Sympodangia (SYMP)
Temnotrochus (TEMN)
Tethocyathus (TETH)
Thalamophyllia (THAL)
Thecopsammia (THEC)
Thrypticotrochus (THRY)
Trachyphyllia (TRAC)

Trematotrochus (TREM)
Trochocyathus (TROCC)
Trochopsammia (TROC)
Tropidocyathus (TROP)
Truncatoflabellum (TRUNF)
Truncatoguynia (TRUN)
Tubastraea (TUBA)
Turbinaria (TURB)
Turbinolia (TURBO)
Vaughanella (VAUG)
Zoopilus (ZOOP)

## Annexure Six: FSMMIP Environmental and Social Management Plan

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### Introduction

1. The Government of the Federated States of Micronesia (FSM) is applying to the World Bank for grant financing to undertake the *"Federated States of Micronesia Maritime Investment Project"* (FSMMIP). The FSMMIP will improve the safety, efficiency and climate resilience of maritime infrastructure and operations in the FSM in compliance with the International Ship and Port Facility Security (ISPS) Code to ensure safety and security arounds its port.
2. As part of the requirements of the submission to the World Bank, the Government of FSM is required to prepare environmental and social safeguards documentation as part of the Project Preparation Advance stage. The FSMMIP has been categorized as a Category B (Moderate Risk) project consistent with World Bank Environmental and Social Safeguard protocols. To fulfil the requirements of the World Bank, the Government of FSM has prepared this Environmental and Social Management Plan (ESMP) in support of the FSMMIP proposal.
3. The FSMMIP consists of four components:
  - a. Component 1: Maritime Infrastructure;
  - b. Component 2: Maritime Safety and Security;
  - c. Component 3: Technical Assistance for Port Planning and Project Management; and
  - d. Component 4: Contingent Emergency Response.
4. This ESMP is for the initial activities that will be undertaken for the project, which are described below. The ESMF applies to other activities and may require the development of additional ESMPs.

### Sub-project Description

5. This ESMP is for the following activities:
  - a. Component 1: Marine Infrastructure
    - o Leveling, subbase, drainage and hardening of primary terminal storage areas; and
    - o Rehabilitate utilities related to water supply, sewerage and power supply in container storage areas.
  - b. Component 2: Maritime Safety and Security
    - o Repair quay wall structures, replace quay furniture (fenders, bollards, ladders, curbs);
    - o Upgrade/provide fencing, gates, terminal lighting, backup generators, and CCTV systems to comply with ISPS requirements;
    - o Replace/upgrade Aids to Navigation;
    - o Spill Kits for principal ports and 150m containment boom system for Pohnpei Port;
  - c. Component 3: Technical Assistance for Port Planning and Project Management
    - o Prepare designs and supervise maritime infrastructure works;
    - o Review institutional and governance arrangements for port management;
    - o Prepare strategic development plans, review port operations, including development of security, site safety, efficiency, waste management, and compliance requirements, and maintenance regimes for Kosrae, Pohnpei, Chuuk, Yap Ports;
    - o Assess options to better organize and strengthen oversight of private vessels operating in Chuuk Lagoon;
    - o Employment opportunities for women;
    - o Project management support for DoFA's CIU; and
    - o Incremental operating costs for Project-related travel and communications.

### Environmental and Social Baseline

6. Detailed environmental and social baseline information is provided in the FSMMIP ESMF.

7. The activities will be undertaken on five existing port facilities in four states.
8. Land at the ports is flat. Drainage either passes directly into the coral soils or runs to marine environment. Operating port areas, both land and marine, are generally depauperate in terms of flora and fauna. Nearby habitats are less impacted, particularly at Tonoas.
9. The principal beneficiaries include the populations of all states.

## Legislative Context

10. The ESMF contains a list legislation, policies and agreements that are relevant to environmental and social issues in FSM. Of particular relevance to the proposed activities are:
  - FSM Legislation
    - National *Environment Protection Act* (revised Code 2014)
    - Relevant State Laws
  - World Bank Safeguard Policies
    - OP4.01 Environmental Assessment
    - OP4.04 Natural Habitats

## Occupational Health and Safety

### Federated States of Micronesia

11. FSM does not currently have Occupational Health and Safety (OH&S) legislation.
12. In the absence of local legislation, OH&S under this project will be regulated through the World Bank Group's Environmental, Health, and Safety Guidelines.

### World Bank General Environmental, Health, and Safety Guidelines

13. The World Bank Group's General Environmental, Health, and Safety Guidelines (EHS Guidelines) (World Bank Group, 2007) represent good international practice for managing occupational health and safety (OH&S) risks. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. The fundamental premise for OH&S under the EHS Guidelines is that *"Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers" and that "Companies should hire contractors that have the technical capability to manage the occupational health and safety issues of their employees..."*
14. The overall OH&S philosophy embodied in the EHS Guidelines is as follows:
  - a. Preventive and protective measures should be introduced according to the following order of priority:
  - b. Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc.;
  - c. Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc.;
  - d. Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
  - e. Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.
15. The EHS Guidelines also require that prevention and control measures to minimize occupational hazards should be based on comprehensive job safety analyses (JSA). The DoTCI Safeguards Advisor will assist the contractor in undertaking the JSA and preparing its Safety Management Plan.

## Environmental and Social Management Roles and Responsibilities

16. Refer to the FSMMIP ESMF (Section 8 and 11).

17. Environmental and social management capacity building (training) will be required.

## Potential Environmental and Social Impacts and Risks

18. The FSMMIP will undertake activities across four states at five ports in FSM. The activities will be undertaken in locations that are already disturbed. The environmental and social impacts envisaged for the FSMMIP are predominantly temporary in nature and are associated with construction and upgrading activities.

## Land Access

19. There will be no land acquisition. No activities will be undertaken on private property.

## Community and Occupational Health and Safety

### Community health and safety

20. The potential risks to community health and safety are associated with the project's construction phase and would mainly comprise minor dust and noise impacts and pedestrian/traffic hazards.
21. The works proposed are unlikely to result in a significant influx of workers due to their limited scale, none the less, some off-island workers may be required. Materials will be required to be imported. The additional shipping movements, although not significant in number, still represent potential for illegal movement of people e.g. human trafficking and/or the contribution to prostitution, harassment and violence.

### Occupational health and Safety

22. There are OHS hazards associated with construction work. Works over and around water increase hazards and construction methods, safety plans and training need to take this into consideration. The nature and duration of the works are such that OHS risks can be managed with good industry practices so that risks are minimized.

### Asbestos containing material

23. No asbestos containing material is anticipated to be encountered during the activities covered by this ESMP, although it is likely that such material exists within some of the port facilities.

## Waste Management

24. Any management of waste will need a specific waste management plan prepared, with minimization and recycling/reuse as well as treatment and disposal. This is for construction or for services where waste will be produced.
25. The quantities of waste generated from the FSMMIP activities covered by this ESMP are likely to be small. There will be some packaging, small quantities of residual excavated material from fencing earthworks and possibly minor concrete removal, old quay furniture (bollards etc.) will also require disposing of. While the waste quantities are expected to be limited it is important that all waste is stored, handled and disposed of securely to ensure no leakage into the environment. Any non-hazardous or contaminated waste shall be disposed of at an approved facility at a licensed and engineered landfill, with appropriate permits and approvals under international treaties such as Waigani. All hazardous waste must be exported for recycling/disposal at licensed facilities. No hazardous waste is anticipated.

## Spills and Emergency Incidents

26. Hydrocarbon (fuel, oil, grease) spills are a real threat in ports due to the volumes of fuel that are associated with shipping and the proximity of sensitive marine environments. The risk of spills as a result of the proposed project activities covered by this ESMP is small, however good industry practice should still be adhered to with respect to management and disposal of hydrocarbon products.
27. The project will be seeking to reduce the impacts of any spills through the development or updating of Port Master Plans, design of marine infrastructure (e.g. drainage systems that incorporate oil traps), waste management plans, oil spill contingency plans, training and the provision of oil spill kits.

## Noise Impacts

28. Primarily associated with construction and expected to be of relatively short duration.

29. Selection and installation of generators needs to be mindful of nearby receptors.

## Air Quality

30. Air quality is unlikely to be affected due to the limited exhaust emissions from construction vehicles and machinery. Installation of backup power generators should be such that exhaust emissions during operation do not cause nuisance to nearby receptors.

## Water Quality Impacts

31. Water quality impacts are not expected as a result of the activities covered by this ESMP.

## Flora and Fauna Impacts

32. There is unlikely to be any significant impacts on both terrestrial and marine ecology except potentially at Tonoas with the construction of a Roll on Roll Off facility.
33. The FSMMIP will involve the erection of security etc. lighting around the ports. Light pollution can affect wildlife e.g. turtles and birds. These effects may include adverse effects to marine zooplankton behavior, adverse effects from fish aggregations at artificial light sources, potential effects on invertebrate spawning behavior where lunar phase is used as a cue and displacement and/or disorientation of some marine wildlife (particularly marine turtles (hatchlings and adults) and marine birds).<sup>42</sup> Despite this, the impacts from the new lighting in the FSMMIP are expected to be acceptable, particularly given the existing artificial lighting already in the area. None the less, lighting design should consider potential impacts to marine fauna and ensure that light 'spill' is to be minimized.
34. All materials imported into FSM are subject to biosecurity regulations. As such, the risk of invasive pest introduction is small.

## Contractor bid documentation

35. Standard environmental and social contract clauses are to be used.

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<sup>42</sup> Davies, T.W., Duffy, J.P., Bennie, J. and Gaston, K.J., 2014. The nature, extent, and ecological implications of marine light pollution, *Frontiers in Ecology and the Environment*, 12(6), pp.347-355



## Risk Assessment and Mitigation Plan

36. An impact risk assessment was undertaken to assess the probability (expected, highly likely, moderately likely, not likely) and the impact of the risk (critical, severe, moderate, minor, and negligible). From this, a significance value was attributed to the potential impact (negligible, low, medium, high).

Score	Rating
5	Expected
4	Highly Likely
3	Moderately likely
2	Not Likely
1	Slight

Table 35 Rating of impact of risk

Score	Rating	Definition
5	Critical	Significant adverse impacts on human populations and/or environment. Adverse impacts high in magnitude and/or spatial extent (e.g. large geographic area, large number of people, transboundary impacts, cumulative impacts) and duration (e.g. long-term, permanent and/or irreversible); areas impacted include areas of high value and sensitivity (e.g. valuable ecosystems, critical habitats); adverse impacts to rights, lands, resources and territories of indigenous peoples; involve significant displacement or resettlement; generates significant quantities of greenhouse gas emissions; impacts may give rise to significant social conflict
4	Severe	Adverse impacts on people and/or environment of medium to large magnitude, spatial extent and duration more limited than critical (e.g. predictable, mostly temporary, reversible). The potential risk impacts of projects that may affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples are to be considered at a minimum potentially severe.
3	Moderate	Impacts of low magnitude, limited in scale (site-specific) and duration (temporary), can be avoided, managed and/or mitigated with relatively uncomplicated accepted measures
2	Minor	Very limited impacts in terms of magnitude (e.g. small affected area, very low number of people affected) and duration (short), may be easily avoided, managed, mitigated
1	Negligible	Negligible or no adverse impacts on communities, individuals, and/or environment

Table 36 Rating of probability of risk

Impact	5	High	High	High	High	High
	4	Medium	Medium	High	High	High
	3	Low	Medium	Medium	Medium	Medium
	2	Low	Low	Medium	Medium	Medium
	1	Low	Low	Low	Low	Low
			1	2	3	4
		Probability				

Figure 46 Risk matrix

37. Table 37 lists the proposed activities by component, identifies potential impact, the phase, the pre-mitigation risk (based on Figure 46), proposed mitigation measures to manage the risk, the residual risk (post-mitigation) and who is responsible for implementing the mitigations.

38. Table 38 provides a proposed monitoring plan. Both plans can be amended if required e.g. alternative responsible parties may be agreed upon.

Table 37 Mitigation Plan

Activity	Impact/s	Phase (design / construction / operation)	Pre-mitigation Risk	Mitigation Measure	Post-mitigation risk	Responsibility
<b>Component 1: Maritime Infrastructure</b>						
Leveling, subbase, drainage and hardening of primary terminal storage areas	Health and safety	C	Medium	<ul style="list-style-type: none"> <li>All work shall be in accordance with the World Bank Environment, Health and Safety Guidelines for Occupational Health and Safety.</li> <li>Contractors shall prepare and comply with an Occupational Health and Safety Plan, which will include a risk register and safe work method statements.</li> <li>Site-specific training to workers. PPE to be provided.</li> <li>Buoyance aids or life jackets to be available on vessels undertaking on and/or over water works. All workers to be aware of their location and trained in their use. Training attendance should be recorded.</li> <li>Contractors will be required to implement safety measures around construction sites to protect the public and dock workers and staff, including warning signs and information disclosure on potential safety hazards, and barriers to prevent public access to construction sites.</li> <li>Hindrance and obstacles for maintaining free access of the general public to local utilities, social gatherings and to public transport facilities will be minimized</li> </ul>	Low	Contractor
	Non-toxic solid wastes (metal, packing, etc.)	C	Low	<ul style="list-style-type: none"> <li>Solid Waste Management Plan will be fully implemented.</li> <li>Where possible, purchase pre-fabricated goods to reduce waste</li> <li>Metal, cardboard and plastic to be recycled, where local facilities exist.</li> <li>Any non-hazardous or contaminated waste shall be disposed of at an approved facility at a licensed and engineered landfill, with appropriate permits and approvals under international treaties such as Waigani.</li> </ul>	Low	Contractor
	Existing contamination	C	Medium	<ul style="list-style-type: none"> <li>Implement Erosion, Drainage and Sediment Control Management Plan and Contaminated Soil Disposal Management Plan</li> </ul>	Low	Contractor

				<ul style="list-style-type: none"> <li>Undertake Stage One Assessments and follow up</li> <li>All hazardous waste must be exported for recycling/disposal at licensed facilities.</li> </ul>		
	Concrete waste water and slurry	C	Medium	<ul style="list-style-type: none"> <li>Concrete will be prepared in bunded hard stand surface. Silt fences to be established</li> <li>All waste water from concrete production will be collected and treated to lower the pH and allow particulates to settle out before being recycled for construction purposes or disposed of according to Solid Waste Management Plan.</li> <li>Solid and cured concrete waste is considered safe to be reused by the community or the Government of FSM for infrastructure maintenance.</li> <li>The Contractor's will have a spill response plan in place to manage accidental spills or leakages of concrete waste water or slurry.</li> </ul>	Low	Contractor
	Importation of aggregate	D / C	Medium	<ul style="list-style-type: none"> <li>The FSMMIP will only use aggregate sourced from licensed quarries on the islands. The FSMMIP will not include the mining of aggregate from marine systems. If any aggregate is imported, where possible, it will be from Part 1 countries, no further due diligence required; If from Part 2 countries<sup>43</sup>, conduct due diligence on sources to ensure compliance with source government laws and regulations</li> <li>Any imported aggregate will be subject to customs and quarantine clearance by Government of FSM.</li> <li>Additional treatment of aggregate will be undertaken should this be required by the Government of FSM.</li> <li>Ballast water from any cargo vessel chartered by the Contractor will comply with IMO Convention and Protocols re ballast water</li> </ul>	Low	Contractor and Government of FSM
	Construction impacts (noise, air, dust, etc)	C	Medium	f. Contractor to develop a CEMP	Low	Contractor
	Laydown areas	C	Low	<ul style="list-style-type: none"> <li>Laydown areas will be sited on government leased land.</li> </ul>	Low	Contractor

<sup>43</sup> Part II Countries – Developing Countries including potential source PICs such as Palau, Nauru, Solomon Is., Fiji, Kiribati etc.

				<ul style="list-style-type: none"> <li>• Areas will be securely fenced and security in place.</li> <li>• Machinery should be washed down off site within a bunded location</li> <li>• Run off from these bunded areas will be collected, treated and tested before being either reused for construction purposes or allowed to discharge into the environment, away from the marine environment. Discharge will be at a rate to allow absorption without causing surface flooding</li> <li>• Stockpiles of sand shall be no more than 2m high, shall be bunded at the base using sandbags or similar to prevent sediment laden run off and erosion of stock piled materials. Stockpiles should be covered</li> <li>• Segregated storage for solid waste will be provided. This area will be clearly marked and designed to ensure that as waste is secure.</li> <li>• Worker inductions will include a tour of the laydown area and required practices from workers. Full compliance with PPE</li> <li>• Spill response kits will be onsite, and workers trained in their use.</li> </ul>		
Access to public areas during construction	C	Medium	<ul style="list-style-type: none"> <li>• Contractor to develop a CEMP</li> <li>• Identify key user groups during Stakeholder Engagement.</li> <li>• Conduct consultation with user groups to provide advice of planned disruptions to access.</li> <li>• Ensure working areas are securely fenced and security on site during construction.</li> <li>• Display notifications of predicted duration of disturbance of access and contact details for Grievance Redress Mechanism</li> </ul>	Low	Contractor	
Restricted access to Port facilities during safety improvement works	C	Low	<ul style="list-style-type: none"> <li>• Port Authority to issue Notice to Mariners, Port Operations, ferry operators, tourism operators, commercial fishing fleets, etc., advising of timing and extent of works.</li> <li>• Contractor to prepare work plan that enables Port access to be maintained</li> <li>• Implement Stakeholder Engagement Plan</li> </ul>	Low	DoTCI and Relevant Port Authority	
Labor conditions	C	Low	<ul style="list-style-type: none"> <li>• Employment conditions to comply with FSM law</li> </ul>	Low	Contractor	

				<ul style="list-style-type: none"> <li>• Seek opportunities to increase employment of women</li> </ul>		
	Disturbances to fauna	C	Low	<ul style="list-style-type: none"> <li>• There are limited benthic communities in proximity to the port. Activities associated with the construction could cause significant impacts.</li> <li>• Ensure all lighting is established so as it does not impact marine communities</li> <li>• Undertake monitoring of benthic habitats</li> </ul>	Low	Contractor
Rehabilitate utilities related to water supply, sewerage and power supply in container storage areas	Health and safety	C	Medium	<ul style="list-style-type: none"> <li>• All work shall be in accordance with the World Bank Environment, Health and Safety Guidelines for Occupational Health and Safety.</li> <li>• Contractors shall prepare and comply with an Occupational Health and Safety Plan, which will include a risk register and safe work method statements.</li> <li>• Site-specific training to workers. PPE to be provided.</li> <li>• Buoyance aids or life jackets to be available on vessels undertaking on and/or over water works. All workers to be aware of their location and trained in their use. Training attendance should be recorded.</li> <li>• Contractors will be required to implement safety measures around construction sites to protect the public and dock workers and staff, including warning signs and information disclosure on potential safety hazards, and barriers to prevent public access to construction sites.</li> <li>• Hindrance and obstacles for maintaining free access of the general public to local utilities, social gatherings and to public transport facilities will be minimized</li> </ul>	Medium	Contractor
	Non-toxic solid wastes (metal, packing, etc.)	C	Low	<ul style="list-style-type: none"> <li>• Solid Waste Management Plan will be fully implemented.</li> <li>• Where possible, purchase pre-fabricated goods to reduce waste</li> <li>• Metal, cardboard and plastic to be recycled, where local facilities exist</li> <li>• Any non-hazardous or contaminated waste shall be disposed of at an approved facility at a licensed and engineered landfill, with appropriate permits and approvals under international treaties such as Waigani. All hazardous waste must be exported for recycling/disposal at licensed facilities.</li> </ul>	Low	Contractor

Concrete waste water and slurry	C	Medium	<ul style="list-style-type: none"> <li>Concrete will be prepared in bunded hard stand surface. Silt fences to be established</li> <li>All waste water from concrete production will be collected and treated to lower the pH and allow particulates to settle out before being recycled for construction purposes or disposed of according to Solid Waste Management Plan.</li> <li>Solid and cured concrete waste is considered safe to be reused by the community or the Government of FSM for infrastructure maintenance.</li> <li>The Contractor's will have a spill response plan in place to manage accidental spills or leakages of concrete waste water or slurry.</li> </ul>	Low	Contractor
Construction impacts (noise, air, dust, etc)	C	Medium	Contractor to develop a CEMP	Low	Contractor
Laydown areas	C	Low	<ul style="list-style-type: none"> <li>Laydown areas will be sited on government owned and/or leased land.</li> <li>Areas will be securely fenced and security in place.</li> <li>Machinery should be washed down off site within a bunded location</li> <li>Stockpiles of sand shall be no more than 2m high, shall be bunded at the base using sandbags or similar to prevent sediment laden run off and erosion of stock piled materials. Stockpiles should be covered</li> <li>Segregated storage for solid waste will be provided. This area will be clearly marked and designed to ensure that as waste is secure.</li> <li>Worker inductions will include a tour of the laydown area and required practices from workers. Full compliance with PPE</li> <li>Spill response kits will be onsite, and workers trained in their use.</li> </ul>	Low	Contractor
Access to public areas during construction	C	Medium	<ul style="list-style-type: none"> <li>Contractor to develop a CEMP</li> <li>Identify key user groups during Stakeholder Engagement.</li> <li>Conduct consultation with user groups to provide advice of planned disruptions to access.</li> </ul>	Low	Contractor

				<ul style="list-style-type: none"> <li>• Ensure working areas are securely fenced and security on site during construction.</li> <li>• Display notifications of predicted duration of disturbance of access and contact details for Grievance Redress Mechanism</li> </ul>		
	Restricted access to Port facilities during safety improvement works	C	Low	<ul style="list-style-type: none"> <li>• Port Authority to issue Notice to Mariners, Port Operations, ferry operators, tourism operators, commercial fishing fleets, etc., advising of timing and extent of works.</li> <li>• Contractor to prepare work plan that enables Port access to be maintained</li> <li>• Implement Stakeholder Engagement Plan</li> </ul>	Low	DoTCI and Relevant Port Authority
	Labor conditions	C	Low	<ul style="list-style-type: none"> <li>• Employment conditions to comply with FSM law</li> <li>• Seek opportunities to increase employment of women</li> </ul>	Low	Contractor
	Disturbances to fauna	C	Low	<ul style="list-style-type: none"> <li>• There are limited important benthic communities in proximity to the port. Activities associated with the construction could cause significant impacts.</li> <li>• Ensure all lighting is established so as it does not impact marine communities</li> <li>• Undertake monitoring of benthic habitats</li> </ul>	Low	Contractor
Upgrade terminal superstructure, such as buildings and facilities in the primary cargo handling area, warehousing, reefer connections, incorporating environmental protective measures in works, and increasing energy efficiency	Health and safety	C	Medium	<ul style="list-style-type: none"> <li>• All work shall be in accordance with the World Bank Environment, Health and Safety Guidelines for Occupational Health and Safety.</li> <li>• Contractors shall prepare and comply with an Occupational Health and Safety Plan, which will include a risk register and safe work method statements.</li> <li>• Site-specific training to workers. PPE to be provided.</li> <li>• Buoyance aids or life jackets to be available on vessels undertaking on and/or over water works. All workers to be aware of their location and trained in their use. Training attendance should be recorded.</li> <li>• Contractors will be required to implement safety measures around construction sites to protect the public and dock workers and staff, including warning signs and information disclosure on potential safety hazards, and barriers to prevent public access to construction sites.</li> </ul>	Medium	Contractor



				<ul style="list-style-type: none"> <li>Hindrance and obstacles for maintaining free access of the general public to local utilities, social gatherings and to public transport facilities will be minimized</li> </ul>		
	Non-toxic solid wastes (metal, packing, etc.)	C	Low	<ul style="list-style-type: none"> <li>Solid Waste Management Plan will be fully implemented.</li> <li>Where possible, purchase pre-fabricated goods to reduce waste</li> <li>Metal, cardboard and plastic to be recycled, where local facilities exist.</li> <li>Any non-hazardous or contaminated waste shall be disposed of at an approved facility at a licensed and engineered landfill, with appropriate permits and approvals under international treaties such as Waigani.</li> </ul>	Low	Contractor
	Existing contamination	C	Medium	<ul style="list-style-type: none"> <li>Implement Erosion, Drainage and Sediment Control Management Plan and Contaminated Soil Disposal Management Plan</li> <li>Undertake Stage One Assessments and follow up</li> <li>All hazardous waste must be exported for recycling/disposal at licensed facilities.</li> </ul>	Low	Contractor
	Concrete waste water and slurry	C	Medium	<ul style="list-style-type: none"> <li>Concrete will be prepared in bunded hard stand surface. Silt fences to be established</li> <li>All waste water from concrete production will be collected and treated to lower the pH and allow particulates to settle out before being recycled for construction purposes or disposed of according to Solid Waste Management Plan.</li> <li>Solid and cured concrete waste is considered safe to be reused by the community or the Government of FSM for infrastructure maintenance.</li> <li>The Contractor's will have a spill response plan in place to manage accidental spills or leakages of concrete waste water or slurry.</li> </ul>	Low	Contractor
	Construction impacts (noise, air, dust, etc)	C	Medium	<ul style="list-style-type: none"> <li>Contractor to develop a CEMP</li> </ul>	Low	Contractor
	Access to public areas during construction	C	Medium	<ul style="list-style-type: none"> <li>Contractor to develop a CEMP</li> <li>Identify key user groups during Stakeholder Engagement.</li> </ul>	Low	Contractor

				<ul style="list-style-type: none"> <li>Conduct consultation with user groups to provide advice of planned disruptions to access.</li> <li>Ensure working areas are securely fenced and security on site during construction.</li> <li>Display notifications of predicted duration of disturbance of access and contact details for Grievance Redress Mechanism</li> </ul>		
	Restricted access to Port facilities during improvement works	C	Low	<ul style="list-style-type: none"> <li>Port Authority to discuss with port users, stevedores, commercial fishing fleets, etc., advising of timing and extent of works.</li> <li>Contractor to prepare work plan that enables Port access to be maintained</li> <li>Implement Stakeholder Engagement Plan</li> </ul>	Low	DoTCI and Relevant Port Authority
	Labor conditions	C	Low	<ul style="list-style-type: none"> <li>Employment conditions to comply with FSM law</li> <li>Seek opportunities to increase employment of women</li> </ul>	Low	Contractor
	Disturbances to fauna	C	Low	<ul style="list-style-type: none"> <li>There are limited terrestrial, aquatic and marine communities in proximity to the port. Activities associated with the construction could cause significant impacts.</li> <li>Ensure all lighting is established so as it does not impact marine communities</li> <li>Undertake monitoring of benthic habitats</li> </ul>	Low	Contractor
<b>Component 2: Maritime Safety and Security</b>						
Upgrade/provide fencing, gates, terminal lighting, backup generators, and CCTV systems to comply with ISPS requirements.	Health and safety	All	Medium	<ul style="list-style-type: none"> <li>As above</li> </ul>		
	Earthworks: Sediment runoff from stockpiled material on land to marine environment	C	Medium	<ul style="list-style-type: none"> <li>Obtain earthworks permit from FSM EPA</li> <li>Contractor to ensure runoff from material stockpiles is contained and treated prior to any discharge.</li> <li>Contractor to develop and apply an EDSC Plan and Contaminated Soil Disposal Management Plan</li> </ul>	Medium	Contractor
	Disturbances to fauna	D/C	Low	<ul style="list-style-type: none"> <li>Ensure all lighting is established so as it does not impact marine communities</li> </ul>	Low	Contractor

	Waste production	C	Medium	<ul style="list-style-type: none"> <li>Implement waste management plan</li> </ul>	Low	Contractor
	Construction impacts (air, noise, dust etc)	C	Medium	<ul style="list-style-type: none"> <li>Contractor to Develop CEMP</li> </ul>	Low	Contractor
	Labor conditions	C	Low	<ul style="list-style-type: none"> <li>Employment conditions to comply with FSM law</li> <li>Seek opportunities to increase employment of women</li> </ul>	Low	Contractor
	Access to public areas during construction	C	Medium	<ul style="list-style-type: none"> <li>As above</li> </ul>	Low	Contractor / DoTCI and Relevant Port Authority
	Community complaints	C / O	Low	<ul style="list-style-type: none"> <li>Implement Stakeholder Engagement Plan</li> <li>Implement GRM (ensure community aware of GRM)</li> </ul>	Low	DoTCI and Relevant Port Authority
	Failure to maintain infrastructure	O	Medium	<ul style="list-style-type: none"> <li>Develop O&amp;M plan</li> </ul>	Low	DoTCI and Relevant Port Authority
Replace/upgrade Aids to Navigation	Disturbances to reef and/or benthic communities	C	Medium	<ul style="list-style-type: none"> <li>Utilize existing infrastructure where possible to minimize new impacts</li> <li>For the repair and upgrading of navigation aids including but not limited to the attachment of buoys and blocks to the deeper seabed in the anchorage, mitigation measures will be planned on a case-by-case basis - but will be either:                             <ul style="list-style-type: none"> <li>the temporary relocation of coral heads/benthos for replacement when work is completed, and propagation of corals that may be damaged for return to the environment when work is completed; and/or</li> <li>removal of corals for later return, propagation of corals for later return and hardening of the impacted area to allow proper recolonization</li> </ul> </li> </ul>	Low	DoTCI and Relevant Port Authority
	Health and safety	C	High	<ul style="list-style-type: none"> <li>As above</li> <li>Safety plans to include Work Over Water procedures</li> </ul>	Medium	Contractor

	Coastal shipping – recreational boating and commercial shipping - disruption to shipping during project activities	C & O	Low	<ul style="list-style-type: none"> <li>Ensure Notice to Mariners and shipping notice are issued, advising of activities, dates, and safe clearance for other activities.</li> <li>Port Authorities to advise local shipping of activities and avoidance measures.</li> <li>Implement Stakeholder Engagement Plan</li> <li>Contractors to provide written statement that marine navigation lights and other national maritime measures are closely followed by contractors' vessel at all times.</li> </ul>	Low	DoTCI and Relevant Port Authority
	Construction impacts	C	Medium	<ul style="list-style-type: none"> <li>Contractor to prepare CEMP</li> </ul>	Low	Contractor
Spill Kits and 150m containment boom systems Pohnpei	Lack of training	O	Low	<ul style="list-style-type: none"> <li>Preparation and establishment of an emergency response plan following the template in the ESMF including but not limited to the Oil Spill Plan</li> <li>Undertake training in emergency procedures</li> </ul>	Low	DoTCI and Relevant Port Authority
	Storage and maintenance	O	Medium	<ul style="list-style-type: none"> <li>Appropriate locations and storage</li> <li>Develop and implement an O&amp;M plan</li> </ul>	Low	DoTCI and Relevant Port Authority
	Contaminated waste (when used)	O	High	<ul style="list-style-type: none"> <li>Develop a contaminated waste plan</li> <li>Train personnel in disposal</li> </ul>	Medium	DoTCI and Relevant Port Authority
<b>Component 3: Technical Assistance for Port Planning and Project Management</b>						
Prepare designs and supervise maritime infrastructure works	Range of environmental and social issues not considered	D	Low	<ul style="list-style-type: none"> <li>ToRs to include ESMF</li> <li>Target sustainable design/materials</li> </ul>	Low	DoTCI and Relevant Port Authority
	Climate change impacts	D	Low	<ul style="list-style-type: none"> <li>Include climate change adaptation measures in the design of safety improvement works</li> </ul>	Low	DoTCI and Relevant Port Authority
	Contaminated runoff	D	Low	<ul style="list-style-type: none"> <li>Drainage design to include sediment/gross pollutant, oil and grease traps</li> </ul>		DoTCI and Relevant Port Authority

	OHS	D & O	Low	<ul style="list-style-type: none"> <li>Comply with OHS requirements</li> <li>Undertake Safety In Design reviews</li> </ul>		DoTCI and Relevant Port Authority
Review institutional and governance arrangements for port management	Lack of capacity within institutions	D & O	Low	<ul style="list-style-type: none"> <li>Identify capacity deficiencies and provide training</li> </ul>	Low	DoTCI and Relevant Port Authority
Prepare strategic development plans, review port operations, including development of security, site safety, efficiency, waste management, and compliance requirements, and maintenance regimes	Impacts multiple and diverse port users	O	Low	<ul style="list-style-type: none"> <li>Range of potential issues raised in ESMF to be considered in planning.</li> <li>Consider existing, future port user (commercial and public) needs as well as climate change impacts in preparing Port Master Plans</li> <li>Ensure stakeholder engagement during plan development</li> <li>Gender Based Violence and Human Trafficking Code of Conduct training</li> <li>Prepare oil spill contingency plans</li> <li>Develop solid waste management plan recognizing limitations of waste disposal within FSM</li> <li>Consider opportunities for increasing role of women within maritime sector</li> </ul>	Low	DoTCI and Relevant Port Authority
	Failure to fully integrate port practices	D	Medium	<ul style="list-style-type: none"> <li>Implement Stakeholder Engagement Plan</li> <li>Ensure plans consider existing and future needs</li> <li>Incorporate climate change impacts into plans</li> <li>Incorporate best practices from ports elsewhere</li> <li>Review and update training programs</li> </ul>	Low	DoTCI and Relevant Port Authority
	Critical issues missed	D / O	Low	<ul style="list-style-type: none"> <li>Engage appropriately skilled and experienced personnel to undertake studies</li> <li>Consult widely – implement Stakeholder Engagement Plan</li> <li>Draw on lessons learnt from existing and other ports</li> <li>Independent technical review of plans</li> </ul>	Low	DoTCI and Relevant Port Authority

Capacity building initiatives to better operate and regulate the project docks (SAR awareness, ISPS training, use of spill kits & booms, etc.).	Loss of skills through staff movement	0	High	<ul style="list-style-type: none"> <li>Diverse training – multi-level</li> <li>Train-the-trainers to assist in sustainability of training</li> <li>Implement mentoring system to build capacity and succession planning</li> </ul>	Medium	DoTCI and Relevant Port Authority
	Training not targeted at correct people	0	Medium	<ul style="list-style-type: none"> <li>Undertake needs assessment</li> <li>Ensure selection of trainees is appropriate and equitable</li> <li>Train a diversified mix of personnel (age, sex, level of authority)</li> </ul>	Low	DoTCI and Relevant Port Authority
	Failure to engage	0	Medium	<ul style="list-style-type: none"> <li>Implement Stakeholder Engagement Plan</li> </ul>	Low	DoTCI and Relevant Port Authority
	Failure to continue to train / upskill staff	0	Medium	<ul style="list-style-type: none"> <li>Develop an ongoing training program</li> <li>Undertake regular practice exercises eg spill scenario drills</li> </ul>	Low	DoTCI and Relevant Port Authority
	Gender issues ignored	0	Medium	<ul style="list-style-type: none"> <li>Implement Gender Action Plan</li> </ul>	Medium	DoTCI and Relevant Port Authority
Assessment of options to better organize and strengthen oversight of private vessels operating in Chuuk Lagoon	Failure to engage	0	Medium	<ul style="list-style-type: none"> <li>Implement Stakeholder Engagement Plan</li> </ul>	Low	DoTCI and Relevant Port Authority
	Restriction of normal access	0	Medium	<ul style="list-style-type: none"> <li>Port Authority to issue Notice to Mariners, Port Operations, ferry operators, tourism operators, commercial fishing fleets, etc., advising of changes</li> <li>Implement Stakeholder Engagement Plan</li> </ul>	Low	DoTCI and Relevant Port Authority
	Failure of proposed changes unable to be implemented through community backlash or mere refusal given number of vessel movements	0	Medium	<ul style="list-style-type: none"> <li>Enforcement by DoTCI and DoTC</li> <li>Implement Stakeholder Engagement Plan</li> </ul>	Medium	DoTCI and Relevant Port Authority

Employment opportunities for women.	Lack of local capacity	D / C / O	Medium	<ul style="list-style-type: none"> <li>Engage with CBOs and NGOs</li> <li>Develop gender sensitive training programs</li> <li>Develop mentoring system</li> <li>Set employment targets and encourage women to apply for roles</li> </ul>	Low	DoTCI and Relevant Port Authority
	Sexual discrimination and bullying	O	High	<ul style="list-style-type: none"> <li>Implement Gender Action Plan</li> </ul>	Medium	DoTCI and Relevant Port Authority
	Ingrained practices	O	Medium	<ul style="list-style-type: none"> <li>Engage with CBOs and NGOs</li> <li>Implement Gender Action Plan</li> </ul>	Medium	DoTCI and Relevant Port Authority
Project management support.	Lack of local skills	D / C / O	Medium	<ul style="list-style-type: none"> <li>Recruit for required skills</li> <li>Develop mentoring / training program to help build local skills</li> </ul>	Low	DoTCI and Relevant Port Authority
	Lack of E&S skills	C / O	Medium	<ul style="list-style-type: none"> <li>Utilize DoTCI Safeguards Advisor to help build capacity</li> </ul>	Low	DoTCI and Relevant Port Authority
Incremental operating costs for Project-related travel and communications.	Budget blowouts Corrupt practices	C / O	High	<ul style="list-style-type: none"> <li>Annual budget reviews</li> <li>Plan travel to maximize shared transport or use of existing commercial travel</li> <li>Implement cost control measures (approval processes etc)</li> </ul>	Medium	DoTCI and Relevant Port Authority

## Public Consultation and Information Disclosure

### Stakeholder Engagement Plan

39. See ESMF Section 9

### Grievance Redress Mechanism

40. See ESMF Section 10



Table 38 Monitoring Plan

Issue	What parameter is to be monitored	Where is the parameter to be monitored	How is the parameter to be monitored/type of monitoring equipment	When is the parameter to be monitored – frequency of measurement or continuous	Responsibility
Design and Pre-Construction Phase					
Solid and hazardous waste	Approved Solid Waste Management Plan established		Audit	Prior to construction	Safeguards Advisor
Health and safety	Gender Based Violence and Human Trafficking Code of Conduct training and acknowledgements have been conducted		Review of records / audits	At time of training / audits	Safeguards Advisor
	Occupational Health and Safety Management Plan in place		Review of plan		DoTCI and Relevant Port Authority / Contractor
	All workers have undergone appropriate Occupational Health and Safety training		Review of records / Audit	Prior to construction	Contractor
Earthworks	EPA permit for installation works is approved		Issue of permit	Prior to construction commencing	Contractor
	EDSC and Contaminated Soil Disposal Management Plans established				Contractor
Soil and water pollution	Appropriate spill response plan in place				DoTCI and Relevant Port Authority
	EDSC and Contaminated Soil Disposal Management Plans established				DoTCI and Relevant Port Authority

FSMMIP Environmental and Social Management Framework

Materials Supply	All imported materials to comply with appropriate biosecurity clearances				DoTCI and Port Relevant Authority
Laydown areas	Laydown areas established on pre-approved sites	On-site		Prior to construction	Contractor
	Bunding to be established (if required)	On-site			Contractor
	Fencing and/or appropriate signage in place to restrict access	Construction sites	Site inspection	Prior to construction	
Construction / Implementation Phase					
Health and Safety	OHS plans / JSAs complied with		Safety Audits	Quarterly	Safeguards Advisor
	Workers have access to, and using appropriate, PPE for the task.		Site inspections	Daily	Contractor
	All workers have undergone appropriate Occupational Health and Safety training. A register to be kept		Safety Audits	Quarterly	Contractor
	Proper briefing of staff before undertaking work activities		Safety Audits	Daily	Contractor
	Public notified of activities/closures that may affect use of port and surrounds				DoTCI and Port Relevant Authority
	Public signage of complaints procedure				DoTCI and Port Relevant Authority
	Signs and fences restrict or direct pedestrians and public where appropriate				Contractor
Soil and water pollution	Full compliance with EDSC Plan and Contaminated Soil Disposal Management Plan				
	Appropriate spill response plan/kit in place for waste area				DoTCI and Port Relevant Authority / contractor

FSMMIP Environmental and Social Management Framework

	No visible spills on soil or uncovered ground. Any spills immediately reported and managed				Contractor
	Drainage, water treatment and soakage systems clear and fit for purpose				Contractor / DoTCI and Relevant Port Authority
Solid and hazardous waste	Approved Solid Waste Management Plan effectively implemented				Contractor
	Waste collection area is secure, well signed and clean				Contractor / DoTCI and Relevant Port Authority
	Hazardous waste is stored according to SWMP				Contractor
	Good housekeeping around MIMIP sites				Contractor / DoTCI and Relevant Port Authority
Operations Phase					
Safety					
Waste					
SEP					

## Annexure Seven: Sub-project Screening Form

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## Safeguards Screening Form

This form is to be used by DoTCI to screen potential environmental and social safeguards issues in subprojects and determine which safeguard instrument/s is to be prepared prior to implementation.

Screening Questions	Answer			If 'Yes', WB policy triggered.	Documents required if 'Yes'
	Yes	No	N/A		
Are the project impacts likely to have significant adverse environmental impacts that are sensitive <sup>44</sup> , diverse or unprecedented? <sup>45</sup> Please provide brief description.				<i>OP 4.01 Environmental Assessment Category A</i>	Not eligible for funding under FSMMIP
Do the impacts affect an area broader than the sites or facilities subject to physical works and are the significant adverse environmental impacts irreversible? Please provide brief description.				<i>OP 4.01 Environmental Assessment Category A</i>	Not eligible for funding under FSMMIP
Is the proposed project likely to have no adverse environmental impacts? <sup>46</sup> Please provide brief justification.				<i>OP 4.01 Environmental Assessment Category C</i>	Nothing further required

<sup>44</sup> Sensitive (i.e., a potential impact is considered sensitive if it may be irreversible, e.g., lead to loss of a major natural habitat, or raise issues covered by OP 4.04, Natural Habitats; OP 4.36, Forests; OP 4.10, Indigenous Peoples; OP 4.11, Physical Cultural Resources; or OP 4.12, Involuntary Resettlement; or in the case of OP 4.09, when a project includes the manufacture, use, or disposal of environmentally significant quantities of pest control products).

<sup>45</sup> Examples of projects where the impacts are likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented are large scale infrastructure such as construction of new roads, railways, power plants, major urban development, water treatment, waste water treatment plants and solid waste collection and disposal, etc.

<sup>46</sup> Examples of projects likely to have minimal or no adverse environmental impacts are supply of goods and services, technical assistance, simple repair of damaged structures, etc.

FSMMIP Environmental and Social Management Framework

Questions	Answer			If 'Yes', WB policy triggered	Documents required if "Yes"
	Yes	No	N/A		
Is the project neither a Category A nor Category C as defined by the Bank? <sup>47</sup> Please provide brief justification.				OP 4.01 Environmental Assessment Category B	ESIA or limited ESIA, and ESMP
Are the project impacts likely to have significant adverse social impacts that are sensitive, diverse or unprecedented? <sup>48</sup> Please provide brief description.				OP 4.01 Environmental Assessment Category A	Not eligible for funding under FSMMIP
Will the project involve the discharge of pollutants into air, water, soil and/or storage of chemicals, hazardous materials, etc. that pose risks to environmental and public health?				OP 4.01 Environmental Assessment Category A/B	ESIA or Limited ESIA to determine risk level- only Cat B eligible for funding under FSMMIP - ESMP with Waste / Hazardous Materials Management Plan

<sup>47</sup> Projects that do not fall under Category A or Category C can be considered as Category B. Examples of Category B subprojects include small scale in-situ reconstruction of infrastructure projects such as road rehabilitation and rural water supply and sanitation, small schools, rural health clinics, etc.

<sup>48</sup> Generally, subprojects with significant resettlement-related impacts should be classified as Category A. Application of judgment is necessary in assessing the potential significance of resettlement-related impacts, which vary in scope and scale from subproject to subproject. Subprojects that would require physical relocation of residents or businesses, as well as subprojects that would cause any individuals to lose more than 10 percent of their productive land area, often are classified as Category A. Scale may also be a factor, even when the significance of impacts is relatively minor. Subprojects affecting whole communities or relatively large numbers of persons (for example, more than 1,000 in total) may warrant Category A, especially for projects in which implementation capacity is likely to be weak. Subprojects that would require relocation of Indigenous Peoples, that would restrict their access to traditional lands or resources, or that would seek to impose changes to Indigenous Peoples' traditional institutions, are always likely to be classified in Category A.

Questions	Answer			If 'Yes', WB policy triggered	Documents required if "Yes"
	Yes	No	N/A		
Will the project site be located near <sup>49</sup> , waterways or water bodies/ponds?				OP 4.01 Environmental Assessment Category A/B	ESIA or Limited ESIA to determine level of risk/impact – only Cat B eligible for funding under FSMMIP
Will the project adversely impact physical cultural resources? <sup>50</sup> Please provide brief justification.				OP 4.11 Physical Cultural Resources Category B	ESMP with PCR Management Plan and/or Chance Find Procedures (CFP)
Will any physical works be sited on private freehold (customary), Crown or state land? Will this be acquired through market-based lease, government lease or sublease, purchase, or voluntary donation? Please provide a brief explanation:				OP 4.12 Involuntary Resettlement Category C	Evidence of Land Title or Voluntary Land Donation Protocol
Will any physical works be sited on communal or collective land? If so, is the land more than 5% of the community's area, and/or do gardens, crops or fixed assets exist on the nominated land? Please provide a brief explanation.				OP 4.12 Involuntary Resettlement Category A/ B	Resettlement no acceptable under FSMMIP

<sup>49</sup> In the riparian zone or within 20 meters from a body of water.

<sup>50</sup> Examples of physical cultural resources are archaeological or historical sites, including historic urban areas, religious monuments, structures and/or cemeteries, particularly sites recognized by the government.

Questions	Answer			If 'Yes', WB policy triggered	Documents required if "Yes"
	Yes	No	N/A		
Does the project involve the donation of land (in-kind) from project-affected persons for facilities or investments that will be of benefit to the broader community? Please provide a brief explanation.				OP 4.12 Involuntary Resettlement Category C	No land acquisition proposed under FSMMIP  All activities to be undertaken on FSM Government Land
Will any physical works be located on land that is used or occupied by persons?				OP 4.12 Involuntary Resettlement Category B	FSMMIP proposed for government owned and/or-leased land only.  Land access agreement
Does the project involve large-scale <sup>51</sup> involuntary land acquisition or physical relocation of people? Please provide brief explanation				OP 4.12 Involuntary Resettlement Category A	Not eligible for financing under FSMMIP
Does the project involve minor involuntary land acquisition, loss of assets or access to assets, or loss of income sources or means of livelihood? Please provide brief explanation				<i>OP 4.12 Involuntary Resettlement</i> Category B	No land acquisition under FSMMIP

<sup>51</sup> Physical and/or economic displacement of more than 200 affected people and/or more than 10% of productive assets are lost.



## Annexure Eight: Environmental and Social Management Plan Template

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This template is relevant for any subproject under the FSMMIP that requires a stand-alone ESMP (without an ESIA).

Use this as a guide for preparing an ESMP that will satisfy World Bank safeguards policy OP/BP4.01 Environmental Assessment. It should also be sufficient for FSM-EPA's requirements for EA under the EIA Regulation and State laws.

### Introduction

A brief overview of the project, environmental and social context and purpose of the ESMP.

### Sub-project Description

A description of the investment, the location, the works required, what will happen during operation, and any important issues regarding decommissioning. Include project components that may have an environmental or social impact, such as:

- Types of materials required (aggregates, fresh water)
- Transportation of materials during construction
- Waste management
- Hazardous materials
- Demolition of structures, removal of sand, soil or silt
- Proposed improvements or benefits from upgrades to the local economy, culture, community

### Environmental and Social Baseline

Description of the land ownership and leasing arrangements, description of the locality and land use, closest dwelling(s), water body that will receive drainage, natural habitats, protected areas, significant or relevant ecosystems, flora and /or fauna in the area.

Describe the community, local social and governance or council structures. Describe the existing impacts and benefits of the facility/asset/site. The social context should also describe occupations and sources of livelihood, gender roles and issues, land tenure and connections to land, and the socio-economic conditions, including any commentary on poverty, vulnerability due to gender, ethnicity or culture group, age or disability in the community, resource allocation and access and income distribution, where relevant.

### Legislative Context

Provide an overview of the relevant laws, regulations and policies and how this document provides the relevant information for an environmental permit and other approvals.

Provide an overview of how the ESMP meets the requirements of the World Bank safeguard policies.

Provide commentary on any international environmental agreements that FSM is party to, relevant to the project.

Identify relevant legally protected areas and traditional or customary protected areas.

### Significant Impacts and Mitigation Plan

Provide a summary of significant environmental and social impacts and how the project will manage them to incorporate applicable safeguards policy and regulatory requirements. Table 39 can be used as a template for developing the impacts and mitigations matrix.

Table 40 provides a format for identifying monitoring requirements.

### Public Consultation and Information Disclosure

Follow stakeholder consultation plan

## Grievance Redress Mechanism

Implement GRM

## References

## Annexes

Any supporting information, design drawings, technical reports etc

Table 39 Impacts and Mitigations

Activity	Impact	Phase	Pre-mitigation Risk	Mitigation Measure	Post-mitigation risk	Responsibility
Design and Pre-construction Phase						
Construction / Implementation Phase						
Operational Phase						
Decommissioning Phase						

Table 40 Monitoring Plan

Issue	What parameter is to be monitored	Where is the parameter to be monitored	How is the parameter to be monitored/type of monitoring equipment	When is the parameter to be monitored – frequency of measurement or continuous	Responsibility
Design and Pre-Construction Phase					
Construction / Implementation Phase					
Operations Phase					

Annexure Nine: Community Consultation and Stakeholder Engagement Plan

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Acronyms and Abbreviations

CBO	Community Based Organization
CIU	Central Implementation Unit
DoFA	Department of Finance and Administration
DoTCI	Department of Transportation, Communication and Infrastructure
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FSM	Federated States of Micronesia
FSMMIP	FSM Maritime Investment Project
NGO	Non-Governmental Organization
PMU	Project Management Unit
PPA	Project Preparation Advance
ToR	Terms of Reference
WB	World Bank

## Introduction

### 1.1 Background and context

The Government of the Federated States of Micronesia (FSM) has received a Project Preparation Advance (PPA) from the World Bank (WB) to assist in the preparation of the FSM Maritime Investment Project (FSMMIP). The PPA is used to fund the preparation of the necessary technical, economic, design, and environmental and social studies for the projects, as well as establishing the operational framework within which the project will be implemented.

An essential part of project preparation is the consultative process with stakeholders and the development of safeguards instruments. The project requires an assessment of environmental and social issues and impacts and the subsequent preparation of safeguards instruments in compliance with World Bank safeguards policies for Category B projects and the relevant FSM National and State laws and regulations. Therefore, a draft Stakeholder Engagement Plan (SEP) has been developed in accordance with the World Bank (WB) requirements.

The objective of the project SEP is to assist the State Port Authorities, Department of Transportation, Communication & Infrastructure (DTC&I) and Department of Finance and Administration (DoFA) to consult broadly and to effectively engage with all stakeholders who have an interest in, or will be affected by, the project components in each State. This SEP describes the planned stakeholder consultation and engagement process for the project. It outlines a systematic approach to stakeholder engagement that will assist Port Authorities, DTC&I, and DoFA develop and maintain over time, a constructive relationship with their stakeholders throughout the duration of the project. The document also summarizes a Grievance Redress Mechanism (GRM) for stakeholders to raise their concerns about the project with the Port Authorities, DTC&I, DoFA and World Bank.

The draft SEP was reviewed by Port Authorities, DTC&I, DoFA and the World Bank and the comments were adapted into the final Stakeholder Engagement Plan. This Update provides records of stakeholder consultations conducted in January 2019 during the scoping stage of the PPA.

### 1.2 Project description

The FSM are located between Palau and the Philippines to the west and the Marshall Islands to the east. The country is made up of four, semi-autonomous states (Chuuk, Kosrae, Pohnpei, and Yap). FSM has more than 600 islands scattered over an area of about 2.6 million km<sup>2</sup> and has a total land area of only 700 km<sup>2</sup>. The overall population is about 102,500 (est. 2016), with approximately 45% living in Chuuk, 37% in Pohnpei, 11% in Yap, and 7% in Kosrae.

The FSM are highly dependent on their maritime services for both international and domestic trade. In addition, maritime services support inclusive economic growth and social development by providing communities with reliable access to economic opportunities, services and information. As such, the provision of safe, efficient, reliable and affordable sea transport services is considered essential for both countries' basic economic and social functions, and to achieving national development plans.

To enhance the safety and efficiency of maritime operations, the FSM are developing projects that will focus on improving maritime infrastructure and services. The DTC&I will implement the FSMMIP. The current components as part of the project are as follows:

- a. Repairs and improvements to existing quay structures and anchoring systems;
- b. Levelling, subbase and pavement works at container storage areas;
- c. Repairs and improvements to terminal superstructure, such as buildings, reefer connection points, offices, and storage areas (where the responsibility of the relevant government authority and not a private stevedoring company);
- d. Rehabilitation of terminal lighting and other utilities, as needed;
- e. Improvements to fencing, gates and lighting to enable compliance with International Ship and Port Facility Security Code requirements;
- f. Developing waste management arrangements;
- g. Improving search and rescue awareness; and
- h. Installation of Aids to Navigation.

In undertaking the assessment, technical assistance will be provided to assess:

## FSMMIP Environmental and Social Management Framework

- a. Maritime Waste Management;
- b. Institutional Arrangements;
- c. Enhancing Search and Rescue Awareness;
- d. Capacity Building;
- e. Human Trafficking and Gender-Based Violence; and
- f. Private vessels for hire in Chuuk.

The approximate location of components at each port and proposed upgrade activities are presented in maps in Annex A.

### 1.3 Summary of expected impacts

Given the known likely nature of the project activities, there are unlikely to be significant environmental and social impacts. Maintenance and upgrades will be carried out at primary ports across the four States. Screening<sup>52</sup> has identified the following potential negative social and environmental impacts resulting from the construction phase of each project:

- o Seabed disturbances where aids for navigation are installed,
- o Health and safety of port users and workers, and
- o Influx of foreign workforce during construction and in case of increased fishing fleets, potentially causing harm or harassment (including sexual harassment) to host communities.

Potential positive impacts identified include:

- o Increased security and safety for port users and the public;
- o Reduced water quality and waste issues from port facilities operation.

### 1.4 Regulatory requirements

Key relevant regulatory requirements in the FSM at the federal and state level are presented in Annex B. In summary, a 30-day public review and comment period is required for projects that pass initial assessment stage into a full EIA stage. Traditional land and sea owners and resource users are recognized, and thus specific consultations will be conducted with this stakeholder group, in all states but Kosrae, where the traditional ownerships systems were modified by the Church in 1800s.

World Bank Project Information Document/Integrated Safeguards Data Sheet (PID/ISDS) Concept Stage Document of February 12, 2018 classifies the proposed project as a Category B, where the impacts are considered moderate and readily prevented and mitigated. The assessment was conducted under the old safeguards system rather than the new WB Environmental and Social Framework, hence ISDS identified the following policies that might apply:

**Environmental Assessment OP/BP 4.01:** An Environmental and Social Management Framework (ESMF) and Environmental and Social Management Plan (ESMP) will be prepared to document the assessment (commensurate with the nature and scale of impacts), including physical investments and technical assistance activities. Social impacts will be a key focus; the ESMF and ESMP will include a Stakeholder Engagement Plan, social assessment and a baseline assessment of social issues such as gender-based violence. It will identify the likely size of any imported vs local workforce required to complete the works based the potential location, type and scale of physical investments.

**Natural Habitats OP/BP 4.04:** An assessment of the impact of physical works and technical assistance on the marine ecosystem is required. The ESIA will confirm the presence of natural habitats in areas of influence and the potential for impacts from physical works or future operations as a result of this project.

**Physical Cultural Resources OP/BP 4.11:** The physical investments will all be carried out within the footprints of port areas or the immediate marine environment. PCR are not anticipated.

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<sup>52</sup> World Bank: Project Information Document/Integrated Safeguards Data Sheet (PID/ISDS) Concept Stage Document of February 12, 2018

## FSMMIP Environmental and Social Management Framework

**Indigenous Peoples OP/BP 4.10:** Almost the entire population of each state is indigenous (Chuukese, Yapese, Mehn Pohnpei, Kosraean) and therefore 'indigenous' population is comprehensively represented in all state mechanisms. However, given the importance of traditional social organization in Chuuk, Pohnpei and particularly Yap, comprehensive consultation with the relevant Council of Chiefs will be conducted.

**Involuntary Resettlement OP/BP 4.12:** The project will involve physical investments. However, there will be no need for any involuntary land acquisition or resettlement as all activities will be undertaken on Government/Port Authority land.

# FSMMIP Environmental and Social Management Framework

## Stakeholder engagement activities prior to development of SEP

Several consultations, information disclosure and planning meetings have been completed during the FSMMIP initial project design stages and in development of environmental and social scope of works through an inception phase undertaken by ESIA Consult during November 2018.

A Project kick-off meeting was held on 26<sup>th</sup> November 2018 and was attended by 20 representatives from government agencies and other project partners. The way forward for the development of the ESMF, ESMP, Gender Plan and other related documents was discussed, including plans for the field missions and data requirements. Further details of the inception meeting including list of attendees are presented in Consultation Record 1 (Annex G).

Stakeholders from government and non-government sector consulted prior to PAA stage and during PAA inception are listed in Box 1.

### Box 1. FSMMIP Stakeholders consulted before SEP development

#### Federal and international level:

DoFA

DTC&I

Department of Environment, Climate Change and  
Emergency Management

Central Implementation Unit

Public Information Office

Division of Social and Health Service

The World Bank regional office

#### State level:

Kosrae Project Management Office

Kosrae Port Authority

Kosrae Department of Transport and Infrastructure

Yap Department of Public Works & Transportation

Chuuk Department of Transport

Pohnpei Port Authority



## Stakeholder identification and analysis

Stakeholder analysis determines the likely relationship between stakeholders and the Project and helps to identify the appropriate consultation methods for each stakeholder group during the life of the project. The following four groups of stakeholders are identified for this project:

- a. Project partners;
- b. People or groups likely to be affected by the project (project-affected parties);
- c. Other interested parties that may have an interest in the project; and
- d. Vulnerable segments of population.

Each of the groups specified here is further described in the following sections. Stakeholder identification and analysis will continue throughout the Project cycles and will remain dynamic.

## Project partners

Project partners are defined as stakeholders that contribute to the execution and implementation of the Project. Project partners as identified for the Project Preparation stage are:

1. DoFA
2. DTC&I
3. Customs and Immigration
4. State Port Authorities
5. State Environmental Protection Authorities
6. The World Bank Regional Office
7. ESIA Team (ESIA Consult)

As suggested in the introduction, the list of partners will likely change over the project life cycle and hence will be updated accordingly.

## Project Affected Parties (PAPs)

Individuals, groups, local communities, and other stakeholders that may be directly or indirectly affected by the project, positively or negatively, will be identified during the stakeholder identification and analysis stage of the SEP development.

As the project component designs progress, impact zones will be mapped against local communities in order to refine the project's area of influence and hence the potentially affected parties (PAPs). The PAPs are not limited to the land owners and land occupiers, but also include people with the small businesses or livelihoods at or near the ports, dock / transport users, and customary (traditional) or legal rights holders to foreshore and seabed. Groups of PAPs identified to date are listed in Annex C. The list of PAPs will be continuously updated as it is likely to change as new groups become identified or the activities or designs change.

## Other interested parties

Other interested parties include a wide range of broader stakeholders who may be interested in the project because of its location, its proximity to natural or other resources, or because of the sector or parties involved in the project. These may be local government officials, community leaders, civil society organizations (particularly those who work in or with the affected communities), private sector, development agencies, and media.

Moreover, civil society and Non-Governmental (NGO) and/or community based (CBO) organizations may have in-depth knowledge about the environmental and social characteristics of the project area and the nearby populations, and can help play a role in identifying risks, potential impacts, and opportunities to consider and address in the assessment process.

Broader stakeholders (other interested parties) identified for this project to date are listed in Annex C. The list of other interested parties is likely to be expanded as new groups become identified and hence will be continuously updated.

## Disadvantaged/vulnerable individuals or groups

This project has a strong gender component and will aim at achieving gender mainstreaming in its design, management and implementation. Gender-based violence rates are high in FSM and women are vulnerable to trafficking, illegal sex work, unwanted pregnancies, harassment and violence. Imported and transient workforces such as the fishing industry and construction industry are known to contribute to these issues. Gender analyses will be conducted during the project design stage, and the findings will be incorporated into action planning for implementation stage. Other vulnerable groups, such as elderly and disabled, will be consulted. Attention will be paid to specific vulnerabilities as well as specific benefits that projects can bring to women and other vulnerable members of society. Specifically, the project will continue identifying vulnerable or disadvantaged individuals or groups and the limitations they may have in participating and/or in understanding the project information. Additional support or resources needed to enable these people to participate in the consultation process will be provided.

In addition to gender analysis, an analysis of the potential for human trafficking will also be conducted. According to UNODC<sup>53</sup>, three types of human trafficking activities are occurring in the Pacific:

**Sexual exploitation:** There are indications that trafficking in persons for sexual exploitation possibly occurs in parts of the Pacific region, including in individual states of the FSM. Such activities reportedly have close links to local and regional commercial and extractive industries, including fishing, logging and mining. According to reports, trafficking for sexual exploitation is prevalent in key port cities, where crews from foreign fishing vessels allegedly exploit both local and girls and women from East Asia (Chinese, Pilipino and more recently, Thai).

**Labor exploitation:** There have been reports of widespread labor exploitation of individuals from the Pacific region by distant water operators licensed to fish within the Pacific waters. Such activities possibly have links to human trafficking in and through the Pacific. In addition to workers from the Pacific region, there are reports of fishermen from Asian countries including China, Indonesia, the Philippines and Viet Nam being exploited in the Pacific region on fishing vessels originating from East Asia.

**Migrant smuggling:** Most recorded cases of migrant smuggling in the Pacific have been large numbers of people travelling via boat. For example, in November 2014, the FSM detected a vessel near Yap carrying 53 individuals, primarily from India and Nepal, who had paid for transit to the United States.

Currently identified representatives of vulnerable people and groups are listed in Annex C. The list will be expanded and updated as new groups become identified.

## Stakeholder engagement approach

### Principles

This SEP has been developed in accordance with the World Bank (WB) requirements. The objectives of participation in this project are thus not only to disseminate information about the project, but also to elicit input and advice from a range of stakeholders who might be affected by the project or might have specific expertise in the subject area, consequently:

- Creating confidence and trust;
- Ensuring local ownership;
- Including different types of stakeholder groups in participation processes and benefit distribution;
- Providing avenues for conflict resolution by consensus;
- Disseminating results and lessons learned to the wider community, including both government and non-government; and
- Generating, and responding to, feedback.

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<sup>53</sup> The United Nations Office on Drugs and Crime (UNODC) Transnational Organised Crime in the Pacific: A Threat Assessment from September 2016

## FSMMIP Environmental and Social Management Framework

### Box 2. FSMMIP Good Engagement Practice Principles

Working closely with partners, ensure all are committed to a participatory approach and roles and financial accountability for implementing the SEP are well understood.

Identify stakeholders from wide range of areas ensuring diversity and representativeness and identify and highlight key stakeholder interests.

Combine a range of consultation methods, procedures and mechanisms (including specific methods for women and vulnerable groups), in a timely, understandable, accessible and appropriate manner and format.

Plan carefully, ensuring opportunities for consultation in the key steps of the design, implementation and review process.

Set clear objectives for consultation and be clear what project and partners can influence.

Enable two-way engagement by taking stakeholders' views into account in project design and environmental and social performance.

Clarify how the Grievance Redress Mechanism will be integrated.

Maximize transparency, follow up and keep process dynamic.

Participation is expected to allow the Project to:

- Relate better to the local context;
- Provide technical excellence;
- Follow international good practice;
- Harmonies with other development partners; and
- Reflect a broad range of information and perspectives.

Principles of good engagement practice will be observed in FSMMIP (Box 2). Mechanisms for consultation will take into account the diverse local values, traditions and culture.

Participation is central to the World Bank Environmental and Social Standards. Majority of people in each of four States are indigenous people and therefore all consultations will be conducted with the indigenous people. Their customary resource use rights will be specifically taken into account and any potential impacts by the project will be addressed. There is no expected land acquisition or resettlement associated with this project, but this aspect will be confirmed during the ESIA process. Any potential for livelihood change and hence economic resettlement will be explored and reported on as required. Participation will be gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups, and good practice in engagement principles will also be observed in relation to development of social and gender action plans.

### Techniques

A critical element in planning a participation and consultation strategy is selection of participation techniques to meet desired objectives. Considering wide geographic spread of the interventions selected for implementation, and potential resource constraints, the following participation techniques will be considered:

**Information Dissemination and Information Sharing:** this technique can be used to inform the stakeholders on the Project and Project status, action taken, results of Program/Project activities and similar. This technique can use either written (emails, fact sheets, newsletter, website) or face to face methods (meetings, workshops etc). For information dissemination to community representatives, use culturally appropriate techniques and local language;

**Information Gathering:** quantitative and qualitative information about projects, needs, best practices, lessons learnt, potential synergies etc., can be gathered either in written form (i.e. questionnaire surveys) or in face to face interactions (meetings, focus group discussions). When dealing with information elicited from community representatives, use culturally appropriate techniques such as focus group discussions; women's gatherings etc., in local language; and ensure that information is collected separately from different segments of community (elders, youth, women etc.);

## FSMMIP Environmental and Social Management Framework

**Awareness techniques:** awareness, particularly of communities, about the forthcoming implementation process and projects can be raised using oral and culturally appropriate techniques in local language (including information boards);

**Two-way knowledge and information exchange** should be applied throughout the Project with all key stakeholder representatives and potentially affected or involved communities.

Specific engagement techniques proposed for this Project are listed in Annex D.

Particular attention will be towards identification and engagement with the vulnerable groups. Additional support or resources that might be needed to enable vulnerable people to participate in the consultation process will be identified (such as translation into a minority language, choosing accessible venues for events, providing transportation, choosing appropriate time of the day, having small, focused meetings where vulnerable stakeholders are more comfortable asking questions or raising concerns).

### Action Plan

For the continuation of the PPA phase, engagement activities with stakeholder representatives will continue in order to:

- Further identify stakeholders related to the Project;
- Introduce the project and ESIA process to key stakeholders;
- Consult with communities and their representatives;
- Ensure that views and needs of vulnerable segments of communities, including but not limited to poor, women, elderly; are addressed by projects;
- Gather stakeholder opinions on the proposed project and impacts and proposed management and mitigation measures. Ensure that these opinions are fed into the assessment process;
- Gather stakeholder feedback on the development of management and mitigation measures; and
- Identify and gain access to relevant data for the baseline.

Specific details for each activity listed above, including methods; frequency timelines; roles and responsibilities; and reporting requirements, can be found in Annex E.

At the completion of the PPA phase, the objective of engagement will be to provide feedback to the stakeholders on the draft impact assessment and associated management/mitigation measures (disclosure); and to gather their input on the initial impact assessment and identified mitigation and enhancement measures (consultation).

Engagement activities during the implementation phase of the project will include:

- Maintaining effective communication between project management unit and agencies/ organizations implementing project components;
- Raising awareness of project activities among potential beneficiaries;
- Maintaining consultation processes with all potentially affected communities and beneficiaries;
- Monitoring, evaluating and reporting on community involvement; and
- Agreeing on operations and maintenance systems.

### Review of comments

At the end of each engagement activity specified in the Action Plan stakeholder (written and oral) suggestions, comments, requests for clarification, etc. will be gathered, reviewed and actioned; and the action will be reported in the Consultation Records attached to this SEP. At the next engagement opportunity, the decision and a summary of how comments were taken into account will be reported back to the stakeholder group initiating the original action.

In its final form, this SEP for the PPA phase will provide details of consultation, communications, attendee's details, key discussion points and outcomes, stakeholder requests actioned, photos and compendium of consultation materials. It will become an integral part of the ESMP and ESMF.

## FSMMIP Environmental and Social Management Framework

In addition, concerns voiced by the stakeholders and commitments consequently made by the project will be recorded in the SEP Commitment Registrar (Annex F).

## Implementation of SEP

### Roles and responsibilities

During the PPA phase of the project the SEP implementation by State Port Authorities, DCT&I and DoFA will be assisted by ESIA Consult, with ESIA Consult responsible for carrying out, recording and reporting each of the stakeholder engagement activities. ESIA Consult will also set up the project stakeholder datasheet (Annex C) and Project Commitments Registrar (Annex F). An adequate budget has been allocated toward stakeholder engagement during the PPA phase.

During the implementation phase, it is anticipated that the safeguards officer will oversee each activity. In addition, a safeguards specialist has been engaged by the DoFA to further assist with institutional capacity building and will undertake the overall safeguards responsibilities for the project during project implementation. This position will act as a coordinating role for safeguards across the various stakeholders and components which will provide consistency and cohesion.

### Grievance Redress Mechanism

A formal Grievance Redress Mechanism (GRM) has been developed for this project as a part of the ESMF. The GRM takes into account culturally appropriate ways of handling community concerns. Processes for documenting complaints and concerns have been specified, including time commitments to resolve issues.

The GRM has been and will continue to be communicated to all stakeholder groups during each planned engagement activity. Special communications will be held with the vulnerable groups identified at each location.

### Monitoring and Reporting

Procedures to monitor the progress of implementation of the ESMF and ESMP and relevant social safeguards, will be established and maintained throughout the Project. These will include, but not be limited to, monitoring of engagement outcomes related to gender.

During PPA phase, performance will be evaluated against activities specified in the Action Plan (Annex E).

Recording and monitoring of the engagement in the implementation phase of the projects should be carried out by the agencies involved in implementation, in collaboration with the Program Management Unit (PMU) and should occur at regular intervals. Regular reporting of such information to other Project partners should also be established, including to people in the project areas.

Monitoring and Reporting should be conducted by qualified and experienced national experts, with the potential assistance from NGOs and international consultants. No involvement of potentially affected communities is planned. Six-monthly reporting back to stakeholder groups should continue throughout the implementation stage. Stakeholders should always be reminded of the availability of the grievance mechanism

The PMU will maintain and regularly update this SEP detailing all public consultation, disclosure information and grievances collected throughout the project, which will be available for public review on request. Stakeholder engagement should be periodically evaluated by senior management, assisted by the Safeguards Officer including:

- Engagement activities completed, reported and recorded; and
- Grievances received and how they have been addressed.

## Record of stakeholder engagement activities under this SEP

### Scoping mission

A range of stakeholder meetings were held in January and early February 2019 with the objective of identifying and documenting any major risks, as well as stakeholders' attitudes towards the project. In total, stakeholders from 50 organizations/agencies and additional 22 special interests' groups (including those related to gender, youth, and human trafficking) were consulted, as follows:

State	Information Dissemination and Consultation Meeting	Meeting with Special Interests Groups (gender, youth, and human trafficking)
Yap	12 organizations	7 organizations
Chuuk	10 organizations	4 organizations
Pohnpei	12 organizations (includes federal level)	7 organizations
Kosrae	16 organizations	4 organizations

Details of the meetings, including summaries of the discussions, agenda, presentation and the lists of attendees, can be found in Annex F. All stakeholders have indicated that the project benefits far outweighed any negative risks or impacts.

The following emerging themes identified in discussions were similar across all states:

Port projects:

- a. Legal requirements for prioritizing local employees over foreign labor;
- b. Existing environmental issues such as waste, oil spills etc;
- c. Construction related environmental issues water quality, noise, dumping of materials;
- d. Timing and staging of the works so as not to impact on port users;
- e. Safety (fuel lines, cables, etc.); and
- f. Funding/timelines (general logistics).

Human trafficking including migration issues/labor exploitation:

- a. Engagement of local companies during construction;
- b. Education and awareness campaigns considered more valuable than assessments;
- c. Increasing community/public awareness, using culturally appropriate approaches and education methods (e.g. use "outside world" examples to soften people to the topic before discussing exploitation at local level);
- d. Ensure education and awareness is available at various levels: youth, women's groups;
- e. Education of foreign workers to know their rights;
- f. Increase customs official/police presence in ports;
- g. Capacity building and training in relevant government agencies/labor sections, including education, health, etc;
- h. Resources for victims in follow-up (counselling, re-integration into community, etc.);
- i. Enhanced security measures (more CCTV, lights, police, security personnel, authority to conduct inspections of fleets/ships, etc.); employment of Gender officer in ports, could help bring issues to light; and
- j. Engagement of local entities for assessments, awareness and capacity building.

## FSMMIP Environmental and Social Management Framework

Stakeholder concerns specific to a particular State include:

### Chuuk

- a. Funding and collaboration of state and national levels; and
- b. Tax issues.

### Kosrae

- a. Safety requirements, cables and unmarked fuel lines;
- b. Impacts on access to airport (trucks on shared causeway);
- c. High cost of anchorage for small vessels (yachts), negative impacts on tourism;
- d. Visiting fishing fleet, hence related issues of prostitution and possible sexual exploitation; and
- e. Grant money decisions.

### Pohnpei

- a. Impacts on access to airport (trucks on shared causeway);
- b. Visiting fishing fleet, hence related issues of prostitution and possible sexual exploitation;
- c. Anchorage area: less monitored than Port and illegal activities more likely than in Port itself. Trained personnel should be authorized to inspect anchorage area;
- d. Issues of leakages, oil spills and waste water in anchorage area; and
- e. Patrol boat for anchorage areas.

### Yap

- a. Environmental issues (unprotected fuel line crossing the bridge);
- b. Collaborations of different projects in same space;
- c. Education and training of customs and port officials to better handle illegal immigrants; and
- d. Increase in numbers of customs officials/police officers in ports.

Findings of the scoping mission are also reported in a relevant document, namely, Environmental and Social Management Framework, and Gender and Human Trafficking Report.



## Annex A. Project Details

Chuuk State:

*Proposed upgrades at Weno*

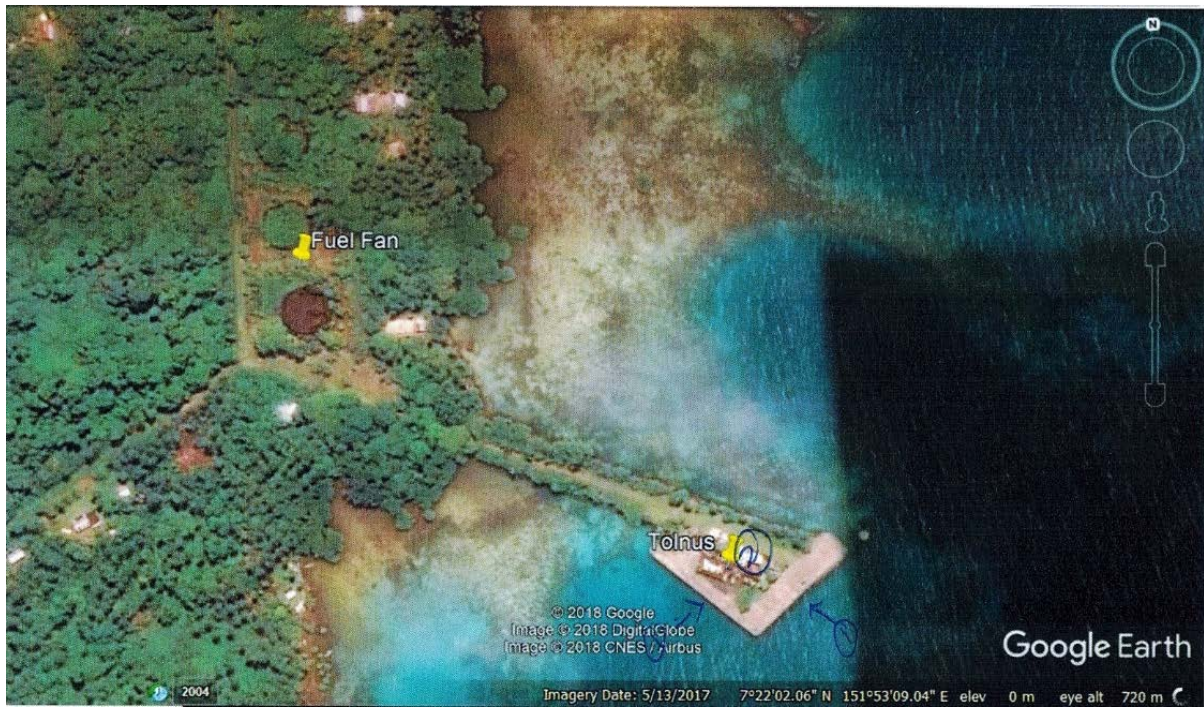


Weno:

1. Repair and Upgrade existing Security Fence at Weno Commercial Dock;
2. Bulk Head, Quay side Repair;
3. Weno Commercial Dock Fenders replacement;
4. Repair and upgrade existing lighting system, add more lighting where needed;
5. Repair and upgrade Cargo Sheds;
6. Additional removable/portable fence to segregate ISPS vessels and domestic vessels per Port Security Plan;
7. Construct shed for Back Up Generator and Electric Vault for Sea Port;
8. Replace/Upgrade 8 existing fixed ATON Markers (Northeast Pass Channel Markers and obstruction markers) structures: dayboards and solar powered beacons;
9. Upgrade fuel bunkering pit at dock A; and
10. Repair, upgrade and secure shed for main fuel manifold.

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Proposed upgrades at Ichimanton port on Tonoas



Tonoas:

1. Install new fenders; and
2. Repair/upgrade of the existing warehouse

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## Kosrae State

Proposed upgrades at Okat port in Kosrae:



1. Repair and replace aids to navigation;
2. Remove abandoned range structures;
3. Install perimeter security lighting;
4. Prepare port masterplan;
5. Replace bollard and cleats at dock;
6. Replace cracked rubber fenders at dock (approximately five (5));
7. Remove sunken vessel at east side of dock;
8. Install new power supply to dock warehouse, lighting and refrigerator container area;
9. Repair dock cargo warehouse. Roll up doors are the priority as well as structural works and roofing. The port would greatly appreciate the input from an architect if possible;
10. Provide dedicated office for seaport manager;
11. Construct a parking area for dock employees;
12. Expand and repair existing concrete hardstand within the container yard. This would involve filling, grading and compacting the remaining gravel surfaces;
13. Improve drainage across the site with relevant gross pollutant traps etc;
14. Repair asphalt pavement on the access road inside main gate;
15. Repair/replace defective water meters, valves and fittings at dock face (approximately three (3));
16. Fence off Luen Thai warehouse (side facing dock);

## FSMMIP Environmental and Social Management Framework

17. Recommend appropriate solid waste containers and disposal of vehicles; and
18. Provide an independent review of management and governance structures.

## Pohnpei State

### Proposed upgrades at Pohnpei port:



1. Construct new bitumen pavement to unpaved terminal areas;
2. Work push boat/rigged for fire hose pump;
3. Pilot launch boat;
4. Main quay fender and bollard replacement;
5. Fire ring main and hydrants;
6. Terminal lighting;
7. Navigational aids including new lead line markers;
8. Approach channel dredging;
9. Quay wall condition survey;
10. Improve fishing wharf bunker;
11. Install CCTV camera;
12. Utility truck;
13. Backup Generator;
14. Refrigerator container hookup;
15. Improve port access gate with shelter;
16. Perimeter fence lighting;
17. Turning basin dredging;
18. Survey condition of sheet pile wall;
19. Demolish old warehouses and build new warehouses;

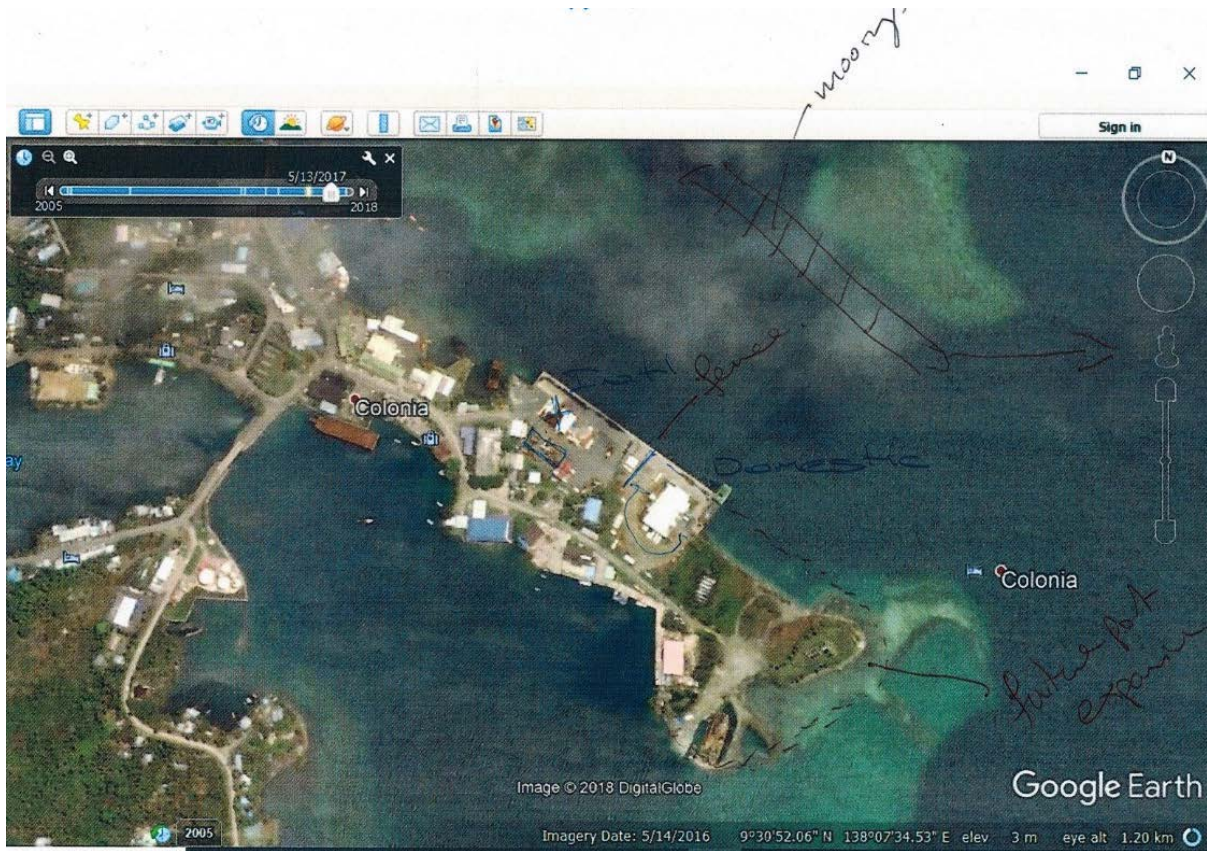
## FSMMIP Environmental and Social Management Framework

20. Container wash down area;
21. Removal of coral heads anchorage area;
22. Sewer discharge area for vessels;
23. Improve water supply hook area for vessels; and
24. Improve drainage and sewer line.

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## Yap State

Proposed upgrades at Colonia port on Yap:



1. Warehouse demolition and reconstruction
2. Rubber fenders
3. Channel markers
4. Anchorages
5. Security fence to separate domestic and international
6. Boat (22 Footer) with Outboard Motor (ATON Boat)
7. VHF/UHF Base Radio
8. VHF/UHF Radio Repeater
9. Orange Traffic Cones
10. Security Boat (22 footer with center console & canopy)
11. Outboard Motor (75 horse power)
12. Outboard motor fuel tank & hose
13. Spot Light
14. Law Enforcement Emergency Hazard Flashing Strobe Light/ Bar Light
15. Police Siren
16. Emergency Lantern
17. 10'x10' foot Tent

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18. Security Uniform (Shirt & Pants)
19. Shoes (tactical Boots)
20. Top lifter 45 tons
21. Fork lift 5 tons 2 each
22. For lift 25 tons 1 each
23. Reach Stacker/top loader 2 each
24. Fork lifter 45 tons 2 each



# FSMMIP Environmental and Social Management Framework

## Annex B: Regulatory Environment

	Consultation Requirements for EIA	Customary use of inshore coastal and marine resources
<b>Federal Level</b>	<p>Federated States of Micronesia Environmental Protection Act protects the environmental quality of air, land and water in Micronesia. The Secretary of Health, Education and Social Affairs (HESA) is given general authorization to control and prevent pollution while the Secretary administers a permit system for this purpose and is also authorized to enter into cooperative agreements with the States to implement environmental programs at the State level. In cases where decision to conduct EIA beyond initial assessment is made, the project proponent shall provide at least a 30-day period for public agencies and the general public to review and comment on a draft ETA Statement. The project proponent shall grant a reasonable extension of the comment period if the request is justified and received before the close of the comment period. A public hearing on the draft EIA Statement shall be held if the project proponent or Secretary determines it would facilitate public involvement or it is anticipated that there will be substantial controversy. Adequate notice shall be given of all public hearings in a timely manner. The project proponent and Secretary shall evaluate comments received from persons who reviewed the draft EIA Statement or attended a public hearing. The project proponent shall prepare a final EIA Statement.</p> <p>There is no national EPA, but there is a national Office of Environment and Emergency Management.</p> <p>The states generally have jurisdiction over the following relevant aspects: (1) all mining, minerals, and marine resources within 12-miles of island baselines; (2) zoning and regulation of earthmoving; (3) agriculture; (4) forestry; (5) watershed protection; and (6) protection of ecosystems and animal life. The national government can intervene in most of the above areas when certain conditions are identified, such as threats to public health or clear effects on foreign and interstate commerce.</p>	<p>National government legislation governs the management of FSM's Economic Exclusive Zone (EEZ) which extends out to 200 nautical miles.</p> <p>Within the EEZ, the distribution of legislative power between National government and States is largely determined on a geographical basis. Article IX, section 2(m), of the Constitution stipulates that the National Government is empowered "to regulate the ownership, exploration, and exploitation of natural resources within the marine space of the Federated States of Micronesia beyond 12 miles from island baselines." Conversely, state governments have jurisdiction over fisheries in the territorial sea and internal waters.</p> <p>Each of the states has its own legislation dealing with fisheries management and development. These include:</p> <ul style="list-style-type: none"> <li>• Chuuk State: Fisheries Act;</li> <li>• Kosrae State: Marine Resources Act of 2000;</li> <li>• Pohnpei State: Marine Resources Conservation Act 1981 and Fisheries Protection Act 1995; and</li> <li>• Yap State: Public Law 06-01-07.</li> </ul> <p>Therefore, the States are ultimately responsible for protection of their marine resources within the 12-mile limit. However, national legislation associated with resource management within this zone is mandatory at the state level.</p>
<b>Yap:</b>	<p>Yap's EPA is an autonomous agency administered by the state and is responsible for enforcing environmental regulations in the marine sector. The state agency has limited capacity with just four staff to carry out all EPA responsibilities throughout the state.</p>	<p>Yap State's Marine Resources Management Division (MRMD) is mandated to manage the States inshore marine resources in collaboration with other State government divisions and agencies with laws provide various levels of protection and management of coastal and marine resources.</p> <p>In Yap, almost all land and aquatic areas are owned or managed by individual estates and</p>

## FSMMIP Environmental and Social Management Framework

	<p>Yap State EPA FSM Regulations on Environmental Impact Assessment Article 3.4. specifies the following Notice and Distribution:</p> <p>(a) The project proponent shall submit two copies of the Draft EIS to the EPA Board. Upon receipt of a completed Draft EIS, the EPA Board shall notify the public by a radio announcement stating a. That a Draft EIS has been submitted to the EPA Board; b. Where the Draft EIS may be inspected; and c. That any person may submit written comments to the EPA Board regarding the Draft EIS within a period not less than thirty (30) calendar days from the date the notice was first announced.</p> <p>(b) The project proponent shall send a copy of the Draft EIS to all persons and public agencies who, in the opinion of the EPA Board, may be affected or interested, and advise each person that written comments must be received within the date specified in Section 3.4(a) above.</p> <p>(c) The EPA Board may hold a public hearing on the Draft EIS if it determines that such a hearing is necessary to facilitate public involvement. EPA must hold a public hearing if requested in writing by twenty (20) persons, by a governmental subdivision or agency, or by an association having not less than twenty (20) members. The public hearing shall be arranged following: (1) Notice in writing to the project proponent; (2) Notice to the public through radio announcement; (3) Notice in such public places as the EPA Board determines including Yap Post Office, Yap State Court and Yap Office of the Governor.</p>	<p>usage is subject to traditional control. A key agency associated with the development of community-based conservation areas is the Yap Community Action Program, or YapCAP. This agency mission is to operate, or support programs aimed at environmental and cultural preservation and other sustainable economic and social development programs in the pursuit of self - reliance for all Yap citizens.</p>
<p><b>Chuuk</b></p>	<p>Chuuk's Environmental Protection Agency (EPA) is an autonomous agency administered by the state and is responsible for enforcing environmental regulations in the marine sector.</p>	<p>The Department of Marine Resources Development (DMRD) is governed by the Chuuk State Law 5-92. The Chuuk State Constitution recognizes all traditional rights and ownership over all reefs, tidelands, and other submerged lands subject to legislative regulation of their reasonable use. Tidelands traditionally are those lands from the dry land to the deep water at the edge of the reef and must be shallow enough for Chuukese women to engage in traditional methods of fishing.</p> <p>The Chuuk State Fishery Zone Act of 1983 promotes economic development and management and conservation of living sea resources within the jurisdiction of the State of Chuuk. The Act establishes a State Fishery Zone, grants additional powers to the Micronesia Maritime Authority to regulate the conservation and management of all marine living resources in the Zone, provides with respect to protection of the traditional fishing</p>

## FSMMIP Environmental and Social Management Framework

		over submerged reefs and regulates foreign fishing.
<b>Pohnpei</b>	<p>Pohnpei Environmental Protection Act of 1992 Signed into law on November 19, 1992, with an amendment passed on October 12, 1993</p> <p>Environmental Impact Assessment Regulations, effective since April 3, 1995.</p>	<p>Marine resources in Pohnpei State are regulated through the Marine Resources Conservation Act 1981 and Fisheries Protection Act 1995. The Act among other provisions requires traditionally recognized subsistence fishing rights in submerged reef areas to be preserved and respected.</p> <p>Provisions of Pohnpei Marine Sanctuary and Wildlife Refuge Act 1999 created seven marine sanctuaries in the State. The Act makes biodiversity conservation a priority, specifically identifies seven areas of high conservation value, and provides for their monitoring. The significant administrative and regulatory burden placed upon the agencies responsible for the Act's implementation is addressed with the employment of eight Marine Conservation Officers. Further, partnerships forged between the Pohnpei Conservation Society, communities of resource owners and agencies of the Pohnpei State Government, built around ongoing and cooperative stakeholder dialogue, has enabled the Act to provide a workable legal framework for a successful program of community-based marine protected area management. Led by the Conservation Society of Pohnpei (CSP) since 2001 there have been seven additional Marine Protected Areas (MPAs) declared under the Act. These newer MPAs are "community-based" in that they have been established with the agreement of the communities of resource owners residing in the adjacent localities following substantial periods of discussion and planning Pohnpei.</p>
<b>Kosrae Island:</b>	<p>Environmental Impact Assessment in the State of Kosrae was developed by the Resource Management Authority in 2014. In accordance with the Step 5 (Draft EIS and Consultation), Kosrae Island Resource Management Authority (KIRMA) retains right to determine whether a public hearing or consultation is required. This will be the case if the project is likely to create public controversy or meets the criteria in Regulation 4.1. In this case, the project proponent will be required to provide the completed draft EIS to Kosrae Islands Resource Management Authority (KIRMA), key stakeholders (such as other government departments and community members who indicate their objection to the project) and make it available for public consultation. Stakeholders and the community will have a minimum of 30 days to provide comments on the proposal. KIRMA will compile these comments, together</p>	<p>Marine resources in Kosrae State are regulated in Marine Resources Act of 2000.</p> <p>Kosrae State Code (a) gives interpretation related to protection and conservation of marine resources of the State of Kosrae; (b) defines the sovereign rights of the State relative to exploring, exploiting, conserving, managing, and developing living and non-living resources within the fishery waters; (c) charges the Department of Agriculture, Land and Fisheries with the administration of the management, conservation and development of state fishery waters; (d) grants regulation-making powers to the Director of the Department for these purposes; and (e) requires a person wishing to carry out an activity that may affect to quality of fishery water to inform the Director who may require an environmental impact assessment to be submitted. Customary subsistence fishers are exempt from licensing system.</p>

## FSMMIP Environmental and Social Management Framework

	with comments from its own Units, and provide these to the project proponent.	
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Further details are available at <http://www.spc.int/CoastalFisheries/CFM/LegalText/ByJurisdiction>

## FSMMIP Environmental and Social Management Framework

### Annex C. FSMMIP Project Stakeholders:

NOTE: This Annex is completed to the extent possible and will be continuously updated with the new information throughout the ESMF and ESMP phases.

#### Project Partners:

DoFA

DTC&I (Department of Transportation, Communication & Infrastructure)

Customs and Immigration

State Port Authorities

Environmental Protection Authority and Marine Resource Management

State Environmental Protection Agencies

The World Bank Regional Office

ESIA Team (ESIA Consult)

#### Project Affected Parties PAP:

	Chuuk	Yap	Kosrae	Pohnpei
Communities:	Tonos and Weno municipal government  Catholic Church near the port		Tafunsak Municipal Government  Walung Community	Sokehs Municipal Government  Nett District Government
<i>Traditional resource users and rights holders:</i>	Chuuk Traditional Clan leaders	Council of Pilung (Yap Main Island Chief Council)  Council of Tamol (Outer Island Chief Council)	Yela Environmental Landowners Authority	Council of Chiefs
Other natural resources users		-		Sustainable Fishers Group Menin Katengesed
Dock/transport users and Businesses	TRANSCO  Pacific Coast  Seaventure  Vitol (Petrol)  3 dive liveaboard operators  CPUC (public utility)	Mariana Express Lines	Matson Lines  Kyowa Lines  Luen Thai Fishing Venture  Tayang Fishing Company  Kutkut Wo (Recycling)	Fishing Companies  Matson Lines  Kyowa Lines  Tayang Fishing Company
Stevedores		Stevedoring company	Kosrae Terminal and Stevedoring Company  Marine Pilots	Federated Shipping Company

# FSMMIP Environmental and Social Management Framework

## Other Interested Parties:

### *FSM National Government:*

Ministry of Labor

Department of Youth and Civil Affairs

Department of Justice - Human Trafficking Unit

Attorney General's Office

National Oceanic Resource Management Authority

Development agencies

Department of Health and Social Services

Department of Resources and Development

Office of Environment and Emergency Management

Pacific Adaptation to Climate Change

FSM Customs and Tax

Conservation Trust

Maritime Institute

VOAA

Attorney General's Office - Human Trafficking Taskforce

## FSMMIP Environmental and Social Management Framework

*State level:*

	Chuuk	Yap	Kosrae	Pohnpei
Government agencies	<p>Dept of Justice Human Trafficking Unit, Chuuk</p> <p>Chuuk Conservation Society</p> <p>Chuuk small boat operators</p> <p>Chuuk EPA</p> <p>Customs, Immigration, Quarantine (CIQ)</p> <p>Dept of Youth and Civic Affairs</p> <p>Police</p> <p>Health and Sanitation</p> <p>Attorney General Office</p>	<p>Yap Fishing Authority</p> <p>PMO State level</p> <p>EPA and Marine Resources Management</p> <p>DPW&amp;T – Department of Public Work &amp; Transportation</p> <p>Department of Youth and Civic Affairs</p> <p>Police; Immigration; Customs</p> <p>Office of the Attorney General</p> <p>Health and Sanitation; Quarantine</p> <p>Yap Public Service Corp</p> <p>MPC</p> <p>Marine Resources</p>	<p>Department of Health Services</p> <p>Department of Resources and Economic Affairs</p> <p>Department of Transportation and Infrastructure</p> <p>Municipal Resource Management</p> <p>Disaster Coordination Office</p> <p>Kosrae Island Resource Management Authority</p> <p>Kosrae Utilities Authority</p> <p>Division of Immigration &amp; Labor</p> <p>Police</p>	<p>FSM Department of Transportation, Communication &amp; Infrastructure</p> <p>Department of Public Work &amp; Transportation</p> <p>Pohnpei EPA</p> <p>Department of Health and Social Services, Women's Affairs Section</p> <p>Dept. R&amp;D Pohnpei State</p> <p>Department of Health and Social Services, Women's Affairs Section</p> <p>State Office of Fisheries and Aquaculture</p> <p>R&amp;D/ DWNRM</p> <p>Attorney General's Office</p>
Governor, Mayors and Municipal organizations	<p>Mayors of both Weno and Tonoas;</p> <p>Governor's Office</p>	<p>Governor</p> <p>Yap Legislature</p> <p>Yap State Congress Delegates</p> <p>Municipalities</p> <p>Mayor Office</p>	<p>Governor</p> <p>Municipal governments</p> <p>Municipal fishing associations</p> <p>Municipal recreation associations</p>	<p>Sokehs Municipal Government</p> <p>Nett District Government</p>
Traditional leaders		<p>Council of Pilog</p> <p>Council of Tumol</p>		
NGOs	<p>Conservation Trust</p> <p>Red Cross</p> <p>Micronesia Legal Services</p> <p>Island Pride</p>	<p>PWAT</p> <p>Yap CAP (Yap Community Action Program)</p> <p>R2R - Ridge to Reef Program (UNDP funded under National Government) Project</p> <p>TRTC</p>	<p>Kosrae Conservation and Safety Organization</p> <p>Kosrae Fishing Club</p> <p>Kosrae Youth Development Association</p>	<p>Conservation Society</p> <p>Sustainable Fishers Group</p>

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Private sector / Chamber of commerce	Shipping agents Chamber of Commerce	Visitors Bureau (Cruise ships) Chamber of Commerce	Kosrae Village Ecolodge Nautilus Resort Pacific Treelodge Resort and Micronesia EcoDive Vital Energy Chamber of Commerce	Chamber of Commerce Shipping Agents CFC PTNS
Media	Dept of Public Affairs (Media)	Division of Media within Dept of Youth and Civic Affairs		Dept of Public Affairs (Media)

### Representatives of vulnerable and disadvantaged groups:

Municipal church groups

Human Trafficking Taskforce

International Office for Migration IOM

	Chuuk	Yap	Kosrae	
<b>Women</b>	Chuuk Women's Council	Yap Women's Association Women's Interests Office (WIO) Human Trafficking Taskforce	Kosrae Women's Association Kosrae Women's Christian Association	Pohnpei Woman's Council / Dept of Social Services
<b>Youth</b>	Church youth groups Chuuk Youth Council	Church youth groups Dpt of Youth and Civic Affairs	Church youth groups	



## FSMMIP Environmental and Social Management Framework

### Annex D: Proposed Specific Engagement Techniques

Information Boards	Establish Information Boards in each Project activity area.
Correspondence by phone/email/messaging	Distribute project information to government officials, organizations (NGO – CBO), agencies and companies.  Invite stakeholders to meetings.
Print, media, television and radio announcements	Disseminate project information to large audiences, and stakeholders with limited literacy /time.  Inform stakeholders about consultation meetings.
One-on-one interviews	Solicit views and opinions.  Enable stakeholders to speak freely and confidentially about controversial and sensitive issues.  Build personal relations with stakeholders.  Recording of interviews.
Formal meetings	Present project information to a group of stakeholders.  Allow the group of stakeholders to provide their views/opinions.  Build impersonal relations with high level stakeholders  Distribute technical documents  Facilitate meetings using PowerPoint presentations  Record discussions, comments/questions raised and responses
Public meetings	Present project information to a large audience of stakeholders, and in particular communities  Allow the group of stakeholders to provide their views and opinions  Build relationships with neighboring communities  Distribute non-technical project information  Facilitate meetings using PowerPoint presentations, posters, models, videos and pamphlets or project information documents  Record discussions, comments/questions raised and responses
Workshops	Present project information to a group of stakeholders  Allow the group of stakeholders to provide their views and opinions  Use participatory exercises to facilitate group discussions, brainstorm issues, analyses information, and develop recommendations and strategies  Recording of responses
Focus group meetings	Allow a smaller group of between 8 and 15 people to provide their views and opinions of targeted information  Build relationships with neighboring communities  Use a focus group interview guideline to facilitate discussions  Record responses
Surveys	Gather opinions and views from individual stakeholders

## FSMMIP Environmental and Social Management Framework

	Gather baseline data
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Technique	Description	Target audience	Phase of the project
One-on-one interviews and surveys	<p>Solicit views and opinions</p> <p>Enable stakeholders to speak freely and confidentially about controversial and sensitive issues</p> <p>Build personal relations with stakeholders</p> <p>Gather baseline data</p>	Project-affected parties (PAPs), in particular service users, natural resources users and vulnerable groups	<p>Project preparation</p> <p>Design</p>
Information Boards	Establish Information Boards in each Project activity area	Project-affected parties (PAPs), in particular service users and natural resources users	<p>Design</p> <p>Implementation</p>
Print, media, television and radio announcements	<p>Disseminate project information to large audiences, and stakeholders with limited literacy /time</p> <p>Inform stakeholders about consultation meetings</p>	All, in particular PAPs and vulnerable groups	<p>Project preparation</p> <p>(ESIA disclosure process)</p> <p>Key milestones during:</p> <p>Design</p> <p>Implementation</p>
Focus group meetings	<p>Allow a smaller group of between 8 and 15 people to provide their views and opinions of targeted information</p> <p>Build relationships with neighboring communities</p> <p>Use a focus group interview guideline to facilitate discussions</p> <p>Record queries</p>	All, in particular PAPs and vulnerable groups	<p>Project preparation</p> <p>Design</p> <p>Implementation</p>
Public meetings	<p>Present project information to a large audience of stakeholders, and in particular communities</p> <p>Allow the group of stakeholders to provide their views and opinions</p> <p>Build relationships with neighboring communities</p> <p>Distribute non-technical project information</p>	All, in particular PAPs and vulnerable groups	<p>Project preparation</p> <p>(ESIA disclosure process)</p>

## FSMMIP Environmental and Social Management Framework

	<p>Facilitate meetings using PowerPoint presentations, posters, models, videos and pamphlets or project information documents</p> <p>Record discussions, comments/questions raised and responses</p>		
Correspondence by phone/email/messaging	<p>Distribute project information to government officials, organizations (NGO – CBO), agencies and companies</p> <p>Invite stakeholders to meetings</p>	<p>Project partners</p> <p>Other interested parties</p>	<p>Project preparation</p> <p>Design</p> <p>Implementation</p> <p>Operations</p>
Formal meetings	<p>Present project information to a group of stakeholders</p> <p>Allow the group of stakeholders to provide their views/opinions</p> <p>Build impersonal relations with high level stakeholders</p> <p>Distribute technical documents</p> <p>Facilitate meetings using PowerPoint presentations</p> <p>Record discussions, comments/questions raised and responses</p>	<p>Project partners</p> <p>Other interested parties</p>	<p>Project preparation</p> <p>Design</p> <p>Implementation</p>
Workshops	<p>Present project information to a group of stakeholders</p> <p>Allow the group of stakeholders to provide their views and opinions</p> <p>Use participatory exercises to facilitate group discussions, brainstorm issues, analyses information, and develop recommendations and strategies</p>	<p>Project partners</p>	<p>Design</p>

Annex E. Stakeholders Engagement Action Plan

## FSMMIP Environmental and Social Management Framework

Objective	Method	Frequency	Timelines	Responsibility	Target group	Completed, recorded?
<b>PPA Stage of the Project</b>						
Identify stakeholders related to the Project	One on one interviews Formal meetings Workshops during January and February 2019 mission	Commencement of the project and throughout	November 2018, January and February 2019	ESIA Consult	All SH	Yes  November 2018, January 2019
Introduce the project and safeguards process to stakeholders	One on one interviews Formal meetings Focus group discussions	At the start of the project	November 2018, January and February 2019	ESIA Consult	All SH	Yes  November 2018, January 2019
Consult with communities and their representatives	Face to face meetings with community representatives Focus group discussions	At the start of the project	November 2018, January and February 2019	ESIA Consult	Potentially Affected People	Yes  January 2019
Ensure that views and needs of vulnerable segments of communities, including but not limited to the poor, women and the elderly, are addressed by projects	Face to face meetings with representatives Focus group discussion with vulnerable people	At the start of the project and throughout	November 2018, January and February 2019	ESIA Consult	Vulnerable groups and their representatives	Yes  January 2019
Gather stakeholder opinions on the proposed project and impacts and proposed management and mitigation measures. Ensure that these opinions are fed into the assessment process	Correspondence One on one interviews Formal meetings Public meetings Focus group discussions	Field mission and design Consultation stage	January-Feb 2019 March 2019	ESIA Consult	All SH	Yes  January 2019

## FSMMIP Environmental and Social Management Framework

Identify and gain access to relevant data for the baseline	Correspondence One on one meetings Formal meetings	Preparation for field mission  Field mission and design	Throughout project	ESIA Consult	Government agencies  Institutes	Yes  November 2018, January 2019
<b>Implementation Stage of the Project</b>						
Maintaining effective communication between project management unit and agencies/ organizations implementing project components	Electronic and face-to-face communication with representatives of relevant agencies/ organizations	Minimum monthly for the duration of each project		PMU	Project partners	
Raising awareness of project activities among potential beneficiaries	Media advertising and targeted campaigns	Throughout, during main project activities, as required		PMU	All SH	
Maintaining consultation processes with all potentially affected communities, vulnerable groups and beneficiaries	Face to face meetings with PAPs representatives (including town officers, women's representatives etc); where appropriate, surveys and analysis of project's impacts on vulnerable populations	Minimum biannual meetings with PAPs		PMU	PAP  Vulnerable groups  Beneficiaries	
Monitoring, evaluating and reporting on community involvement	Collation of progress reports; Updates to this document; Self-evaluation by project team	Annually throughout the Project		PMU	Project Partners	
Agreeing on operations and maintenance systems	Electronic or face to face communication	Minimum one meeting with each relevant SH group		PMU	Project Partners  Key NGO and government agencies  PAP representatives	





# FSMMIP Environmental and Social Management Framework

## Annex G. Consultation Record: Kick Off Meeting



### FSM Maritime Project

Kick Off Meeting – 26 November 2018

### Objectives of ESIA Consult's Work

- Prepare the appropriate documentation consistent with the World Bank's Environmental and Social Safeguards Framework to allow approval of the project by the World Bank Board in May 2019
- Allow FSM to have a mechanism for assessing all components of the project, both known and unknown
- Practical and implementable safeguard measures
- Improve capacity within FSM for future projects

### Scope of Works

From Terms of Reference

1. Environmental and Social Assessment
2. Environmental and Social Management Plan and Environmental and Social Management Framework
3. Stakeholder Consultation and Engagement
4. Provide expert advice on environmental and social risks
5. Assist DOFA to prepare the safeguards details of the Project Operations Manual
6. Conduct gender gap analysis

### Scope of Services from ESIA Consult

1. Prepare safeguards instruments to support project appraisal for the projects, in accordance with World Bank safeguards policies and Micronesia's environmental and social laws and regulations
2. Undertake the environmental and social assessment on the existing facilities and proposed physical investments and technical advisory tasks of the proposed projects;
3. Facilitate the stakeholder engagement process with DoFA and port authority - include the public disclosure process and the preparation of a Stakeholder Engagement Plan; and
4. Provide expert advice on environmental and social risks to the implementing partners and other Government agencies/departments - include assisting DOFA to prepare the safeguards details of the Project Operations Manual; and
5. Conduct gender gap analysis in the maritime transport sector related to the four pillars of WB's Gender Strategy 2018-2023, provide recommendations for activities that could be undertaken under the project to address gender gaps identified in gender gap analysis, and propose monitoring and evaluation framework to assess progress of activities in addressing the identified gender gaps.

### World Bank ESS Framework

- ESS1 Assessment and Management of Environmental and Social Risks and Impacts
- ESS 2 Labor and Working Conditions
- ESS3 Resource Efficiency and Pollution Prevention and Management
- ESS4: Community Health and Safety
- ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities
- ESS8: Cultural Heritage
- ESS9: Financial Intermediaries
- ESS10: Stakeholder Engagement and Information Disclosure



### ESIA Consult's International Study Team



Pete



Phillip



Glenn



Silva



Duncan



Daryl

# FSMMIP Environmental and Social Management Framework

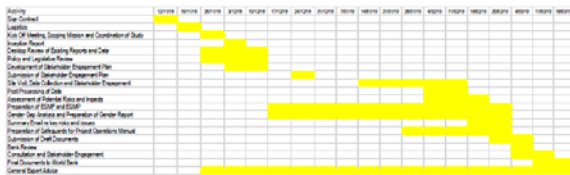
## Information Requirements

- What works are actually proposed?
- Where are the works eg main islands or outer islands?
- When will the works be undertaken?
- What studies, engineering designs etc have previously been done, eg ADB Pohnpei Port work?
- How do they impact the environment and community?
- Are there any land issues?

## What and When

- Kick Off meeting today – learn more about what you are trying to do
- Inception report and Stakeholder Engagement Plan – before Christmas
- Desk top review – between now and Christmas, learn more about the issues
- Field Work – starting around 21<sup>st</sup> January – Yap, Chuuk, Pohnpei, Kosrae
- Post processing of data – early February
- Preparation of reports – start asap and completed by late February
- Submission of reports – end February
- Stakeholder Engagement – early March
- Final documents – mid March

## Study Plan and Timing



## Key Deliverables and Outputs

Output	Timeframe
Inception Report	1 month from contract signing
Draft Stakeholder Engagement Plan	1 month from contract signing
Summary email with key risks/issues as per the email of Gary Venus on 23 October 2018	22 February 2019
Draft ESMPs and ESMFs	1 March 2019
Draft Gender Report and Presentation	1 March 2018
Consultation with Stakeholders on Draft ESMPs, ESMFs and Gender Report	6-16 March 2019
Final Stakeholder Engagement Plan, ESMPs, ESMFs and Gender Report	17 March 2019
Project Operations Manual sections on Safeguards	2.5 months from contract signing

## Key Challenges

- Delays in information being provided
- Logistics
- Weather
- Comments on documents – timely and consolidated
- Over consultation – eg small scale infrastructure at existing locations
- are there any NEW locations

## Key Contacts

Peter Wulf – [pete@esiaconsult.com](mailto:pete@esiaconsult.com)

Phillip Hawes – [phillip@esiaconsult.com](mailto:phillip@esiaconsult.com)

# FSMMIP Environmental and Social Management Framework

## FSM Kick Off Workshop List of Attendees

26 November 2018

	Name	Organization
1.	Ms. Patricia Pedus	DECEM
2.	Mr. Bruce Howell	Kosrae PMO
3.	Mr. Jesse Tulensru	Kosrae Port Authority
4.	Mr. Jonathan Marmar	Yap DPN&T
5.	Mr. Osamu Nedlic	Kosrae DT&I
6.	Mr. John Tiegmai	FSM DTC&I
7.	Mr. Wilmer Kilmete	FSM DTC&I
8.	Mr. Mayday Narruhn	DOT Chuuk
9.	Mr. Bronson Sam	PPA
10.	Mr. Pius Roby	PPA
11.	Mr. Richard Clark	Public Information Office
12.	Ms. Beulah Daunakamakama	CIU, DoFA
13.	Mr. Steve Lindsay	CIU, DoFA
14.	Mr. Kester James	Div. Social Services, Health Service, PNI
15.	Mr. Robert Goodwin	PMU
16.	Mr. Kalio Edwin	PMU
17.	Mr. Dickson Wilchep	TC&I
18.	Mr. Rob Solomon	DoFA
19.	Mr. Phillip Hawes	ESIA Consult
20.	Mr. Peter Wulf	ESIA Consult

## Annex H. Consultation Record: Scoping Mission

Stakeholder Engagement Meetings – Yap

### Project Information Dissemination and Consultations Meeting with the Yap Stakeholders

Meeting with the stakeholders identified for the FSMMIP in the State of Yap was conducted on January 24, 2019 in Colonia, Yap State. An example of a meeting agenda is provided in Appendix 1 to this record.

The meeting was attended by 27 participants and presented a very good cross-section of stakeholder groups. In addition to the Governor and Lt Governor, the meeting was attended by four Senators from the Yap State Legislature (YSL) and the representatives of the:

- Government
  - FSM DTC&I – FSM Department of Transportation, Communication & Infrastructure
  - YFA – Yap Fishing Authority
  - DPW&T – Department of Public Work & Transportation
  - EPA – Environment Protection Agency
  - OAG – Office of the Attorney General
  
- PAPs
  - Community representative from Gachpar village
  - COT – Council of Tamol (Outer Island Chief Council)
  - COP – Council of Pilung (Yap Main Island Chief Council)
  
- Businesses
  - MEL – Mariana Express Lines
  
- NGOs
  - PWAT
  - Yap CAP (Yap Community Action Program)
  - R2R - Ridge to Reef Program (UNDP funded under National Government) Project

In addition, face to face consultations were held with the representatives of the following highly relevant agencies/bodies:

- WIO – Women’s Interests Office (government body), special interest: vulnerable group
- Department of Youth and Civic Affairs, special interest: vulnerable group
- Human Trafficking Taskforce, special interest: human trafficking and vulnerable groups
- FSM Immigration and Labor Force, special interest: human trafficking
- FSM Customs and Tax, special interest: human trafficking
- Council of Tamol (Outer Island Chief Council), special interest: traditional right owners and resource users

## FSMMIP Environmental and Social Management Framework

- Council of Pilung (Yap Main Island Chief Council), special interest: traditional right owners and resource users

The list of attendees can be found in Appendix 3.

The meeting started with welcome and introductions and was followed by the introduction of the project overall, specific proposed interventions for Yap Port, potential positive and negative impacts of such interventions, and the expected timelines. Example of the presentation (similar presentation was used in each State, with the change to relevant Port details) can be found in Appendix 2. Clarifications section followed, and the questions raised by stakeholder and discussed included:

- Clarification on timelines (project preparation (PPA) stage versus implementation stage)
- Question about possibility of channel dredging being conducted as a part of this project: it was clarified that dredging would be classified as a high-risk activity (in environmental terms) and would thus need to be applied for under separate funding and EIA; but can be included in the Port Master Plan
- Discussion on funds available from other projects (e.g. WB funded PROP Fisheries project) for possible funds allocated to navigational aids and the need for projects operating in similar 'space' to collaborate.
- Concerns about current location and condition of the fuel line, as the open pipe currently crosses the causeway bridge and is particularly vulnerable to damage resulting in possible leakage into the lagoon during typhoons.
- In terms of potential social impacts, the participants voiced strong preference for local companies and local labor to be engaged during the implantation. In addition, representative from the Yap State Legislature (YSL) pointed this to be a legal requirement for the project, in accordance with the FSM Code Title 51, Chapter 1, Subchapter 1, Section 114 provision:

*§ 114. Preference. Resident workers shall be given preference in employment in the Trust Territory in any industry or occupation for which such workers are qualified and available. Nonresident workers shall be employed only to supplement the labor force of available and qualified resident workers.*

The meeting proceeded with the introduction of the safeguards process, Stakeholder Engagement Plan, human trafficking issue in the context of maritime interventions, and the stakeholders' rights. Next, a list of potential additional stakeholders (not present at the meeting) was elicited and recorded, and Annex C to the SEP was consequently updated. All participants agreed to be a part of the 'Yap SH mailing group' thus receiving future key information and project documents. Proposed Grievance Mechanism was also discussed and agreed in principle. In terms of human trafficking and exploitation, preference for local companies to be engaged in the implementation was repeated. Participants recommended that a strong component of education and awareness on the subject should be included in the project activities, both for the community/NGOs and for the government employees. In addition, it was suggested to conduct further consultations with the Yap Human Trafficking Taskforce.

In closing, all participants voiced their consent with the project, with the perception that the project is going to bring benefits to all the people in the State, with the little or no negative impacts.



Photo: Project Information Dissemination and Consultations Meeting: Project presentation (left) and discussion (right) in Yap

### Follow-up meetings

- Women's Interests Office (WIO) / Human Trafficking Taskforce

Key informant interview was conducted with the representatives of the WIO. The WIO clarified its position under the Department of Youth and Civic Affairs and its role as a Human Trafficking Taskforce member.

Main current activities of the WIO include age consent issues and awareness of internet risks for young people.

In terms of women's interest in general, it was strongly recommended that an 'equal employment opportunity' and in particular 'equal career progression' strategies and policies be incorporated into the project and become an integral part of the capacity building with the government departments, as well as a principle in the Master Plans.

In terms of Taskforce, it was noted that it has become rather inactive over years (after formation in 2015). The only case of suspect activity reported and recorded (about 2 years ago) was of a Guam company conducting employment recruitment interviews in Colonia, but quickly leaving the state after concerns about its legitimacy were voiced, so no investigation was conducted. There appears to be a strong interest in re-activating the Taskforce, with current activities in that direction underway. It was strongly recommended that awareness campaigns on the trafficking should be included in the project activities, and that they include both government employees and the community. Communities on the outer islands were perceived as potentially the ones observing suspect behavior at land or sea, but with no understanding of the potential significance of reporting such behavior nor of the reporting process.

- Immigration and Customs

Participants were introduced to the project and project's interest in understanding potential for human trafficking.

First, roles and responsibilities of the Immigration and Customs officers were clarified, including direct reporting of any incidents to the FSM level and the State and National Police.

In terms of past experiences, an episode with the Indonesian migrant/refugee vessel that landed in Yap in 2014/15 was noted. A taskforce was created to provide food and shelter for the refugee status seekers (mainly from Nepal), which was assisted by the generous donations of food and necessities by the community members. Local Hospital staff was mobilized to provide medical assistance and quarantine. Refugee status seekers remained on the island of Yap for a year, after which time they were transferred to the care of National government and further processed.

This episode pointed at the lack of preparedness on the island to deal with such incidents, both in terms of institutional (procedural) preparedness as well as general awareness and logistics. Immigration officers at Ports and Airports receive occasional training on the procedural requirements in dealing with illegal migrants, however, it was suggested that such training should be in a form of a regular capacity building, and more comprehensive in content. In addition to training and capacity building within the government agencies, it was suggested that education and awareness campaigns should be re-initiated with the communities, in terms of both recognizing suspicious behavior at land and sea and in terms of reporting procedures.

In addition to this, occasional smuggling of weapons (rifles and bullets) is intercepted by Customs, but this is occurring at the airport. There is very little Customs presence at the Port, other than in tax collection.

Also, it was suggested that if the fishing fleets are to be re-hosted in the Port in the future, comprehensive capacity building would need to be conducted with the agency staff to build their understanding of potential risks and issues related specifically to fishing fleets (including labor/sexual exploitation).

Lack of any Immigration/Customs facilities at the current port was also discussed and it was recommended that Port upgrade should include a provision of an office for the Immigration/Customs/Police officers. A need for potential increase in staff, dependent on potential future increase in the Port traffic, was also discussed.

- Traditional land owners and resource users: Council of Pilung

Representatives of the Council of Pilung, the Council of Tamol and the community were present at the main stakeholder meeting. However, a follow up visit was organized to the Council of Pilung, who are traditional rights owners and resource users in the area of the Yap main island (project area). The purpose of this visit was to ensure that the traditional owners' representatives were satisfied with the information they received during the meeting and that they have no objections to the proposed, and to elicit and remaining queries, comments or questions. During the meeting Council representatives reiterated their support for the project, their willingness to remain engaged with the project, and their consent with the proposed activities.



OFFICE OF THE COUNCIL OF TAMOL  
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Ramon Peyal  
Chairman, COT

March 20, 2019

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Mr. Jonathan Marmar  
Director, Public Work & Transportation  
Colonia Yap FM 96943

**RE: *Environment and Social Management Framework and Environmental and Social Management Plan***

Dear Director Marmar,

Our office of the Council of Tamol have reviewed and understand the report submitted to us on the subject matter, prepared by the FSM Department of Finance and Administration, with funding from the International Development Association, World Bank and prepared by ESIA Consult Pty Ltd, Hong Kong, dated 25<sup>th</sup> February 2019.

The COT would like to acknowledged its support and concurrence on the report and basically supportive to any of your future plans in the development of our Yap State Port facilities and infrastructure.

Respectfully yours,

Hilary Tacheliol  
Acting Chairman, COT

## Stakeholder Engagement Meetings – Chuuk

### Project Information Dissemination and Consultations Meeting with the Chuuk Stakeholders

Meeting with the stakeholders in the Chuuk State was held on January 29, 2019 on Weno Island. An example of a meeting agenda is provided in Appendix 1 to this document. The meeting was attended by 16 participants from the following organizations and groups:

- Government
  - FSM DTC&I – FSM Department of Transportation, Communication & Infrastructure
  - FSM Customs and Tax
  - Social Affairs, Governor's office
  - Health
  - State Department of Transport / Port
  - Department of Marine Resources
  - Public Works
  
- Businesses
  - Transco
  
- NGOs / CBO / Programs
  - International Migration Office (IOM)
  - Chuuk Conservation Trust

In addition, face to face or follow-up consultations were held with the representatives of the following highly relevant agencies/bodies:

- FSM Police/ Human Trafficking Taskforce, special interest: human trafficking and vulnerable groups
- Chuuk Women's Association, special interest: vulnerable group
- Department of Youth and Civic Affairs, special interest: vulnerable group
- Environmental Protection Agency (EPA)
- Council of Chiefs, special interest: traditional right owners and resource users

The list of attendees can be found in Appendix 4.

The meeting started with welcome and introductions and was followed by the introduction of the project overall, specific proposed interventions for Chuuk Port, potential positive and negative impacts of such interventions, and the expected timelines. Example of the presentation (similar presentation was used in each State, with the change to relevant Port details) can be found in Appendix 2. The following questions and clarifications were raised by stakeholders:

- Clarification that the Port Master Plan will be funded under this project
- Discussion on importance of public consultations (of communities and port users) for the Master Plan development; and the consultation process during the project implementation stage



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- Concerns and discussion of the national PMO office and implementing agencies capacity to deal with public consultations, the need for full-time presence of the environmental and social safeguards officers in the national government, and building of the national capacity
- Discussion on private vessels and the use of areas designated to the local boat traffic during the construction phase
- Clarification of collaboration of state and national levels for this project
- Tax issues during implementation (specifically for imported assets and equipment) were discussed
- Discussion on source and where necessary the import of the aggregate
- Although there are no foreign commercial fishing fleets utilizing the port at the moment this could however start within the project lifetime; therefore, importance of rising awareness of both government officials and people about potential impacts of the fleet was discussed – in terms of port usage, access to the airport (air freight sashimi grade tuna (long liners) and potential social impact.
- Strong preference for local companies and local labor to be engaged during the implantation, to minimize potential social impacts, was voiced. Stakeholders were of opinion that there is a State law that gives preferential treatment to local employment. Extremely high youth unemployment on Chuuk was also discussed, as well as relatively low capacity of local companies to engage in such projects.

The meeting proceeded with the introduction of the safeguards process, Stakeholder Engagement Plan, human trafficking issue in the context of maritime interventions, and the stakeholders' rights. Next, a list of potential additional stakeholders (not present at the meeting) was elicited and recorded in Annex C to the SEP. All participants agreed to be a part of the 'Chuuk SH mailing group' thus receiving future key information and project documents. Proposed Grievance Mechanism was also discussed and agreed in principle.

In terms of human trafficking and exploitation, preference for local companies to be engaged in the implementation was repeated. Incidences of trafficking of local people for sexual and labor exploitation were discussed, including child trafficking and role of foreign business owners and role of social media. Participants recommended that a strong component of education and awareness on the subject, in particular with young people in Chuuk, is needed and should be included in the project activities. Capacity building of the government employees, as well as culturally sensitive discussions with community elders, were also recommended. In terms of migrant smuggling, there was some concern of this happening in FSM via fishing fleets.

In closing, all participants voiced their consent with the proposed, with the perception that the project is going to bring benefits to all the people in the State.



Photo: Project Information Dissemination and Consultations Meeting: Project presentation (left) and discussion (right) in Chuuk

## Follow-up meetings

- Anti-Human Trafficking Program, FSM Department of Justice

Key informant interview was conducted with the coordinator of the program. This is a national level program with presence in each state, however the main coordinator is located in Chuuk.

Sexual exploitation was discussed first. For example, in 2016, GPPC construction company was engaged for a road construction and brought in Phillipino workforce; after several reports of girls being brought to barracks, workers accommodation was raided, and 5 girls were found held against their will. Case was brought to court and the first conviction was issued in 2018. This incident led to easier access to approvals to undertake investigations.

In Chuuk, there is a very low awareness of the issues related to human trafficking. Radio program in Chuukines was recently run by the Taskforce, with the stories of various trafficking experiences from FSM, and was particularly useful for remote communities where radio is still a very common 'link' to the outside world. Taskforce also operates a phone hotline in Chuuk.

It was also noted that in Pohnpei there are incidences of both prostitution (employment in bars) and sexual exploitation (of underage women/girls). Also, taxi drivers in Pohnpei provide service of finding girls for the fishing vessels. Although those girls appear to engage in the activities willingly, they tend to be under age and therefore this is an offence. Although the above activities prevalent, this is something that is not reported and not talked about.

Ports are the biggest vulnerability in each state and therefore there is a need to increase port security. Police need better understanding of what happens when the fleet comes to port, i.e. there is a need for FSM Police to have a presence in the Port when the fleet is in and also to have opportunity to inspect. In Pohnpei vulnerability is not only in the Port but also in anchorage area that is currently not being policed nor patrolled at all.

A first Conference with a range of different government agencies was recently held and needs for training and community awareness were discussed. In particular, there is a need for culturally appropriate awareness programs as the tradition and the legal framework sometimes clash, for example, in relation to parents right to 'marry' the girl.

Internal issue of capacity (agencies) in terms of procedural, training and anti-corruption; as well as community awareness of both potential harm to them and potential harm to others (helping police), were discussed as areas needed further funding/activities. In terms of work with the communities, there is a low level of reporting of illegal activities within community if done by community members, and there is often higher respect for rules of culture than rules of law. Thus, any successful community awareness campaign must be culturally sensitive, and presented not a punishment but as protection measures for youth and children. Use of culturally appropriate methods as well as context is crucial (cultural literacy).

In terms of labor exploitation, there is a perception that 'local people have no trades', however, even when they are skilled up or finish trade courses, construction companies still prefer to bring cheaper labor in from India, Nepal, Bangladesh, Philippines. Although local labor force is prioritized in hiring, foreigners are still being brought in as 'specialists'; in reality their main 'advantage' is that they are cheaper than local workforce as they are paid below FSM minimum wage. During their stay in FSM they are kept in workers camps and then shipped back home if they complain about anything. Their salaries are paid directly at home so there is no financial benefit (multipliers) from any of these activities to FSM.

Labor section of the Department of Immigration and Labor is responsible for foreign workers; however, it was seen as not very strong, with complaints to Labor Section remaining undocumented and uninvestigated. There is little understanding in the Section of issues those workers face; while on the other hand, foreign workers receive no information about their rights while in FSM. The need for interventions in the area of labor was therefore seen both ways, as capacity building of Labor Section as well as information and rising awareness on foreign workers themselves.

It was also discussed that if the fishing fleets are to be re-hosted in Yap or Chuuk in the future, comprehensive capacity building would need to be conducted with the agency staff to build their understanding of potential risks and issues related specifically to fishing fleets (including labor and sexual exploitation).

- Chuuk Women's Council

Two of the participants in the stakeholder meeting/follow up meetings are also members of the Women's Council. They have committed to disseminating the information about the project and its potential impacts on women during the next Council meetings.

Chuuk Women's Council is an NGO that receives grants for various gendered activities, from agriculture to health. They are very much engaged with education on risky behaviors, gender-based violence, and with providing counselling. They have also signed a

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Memorandum of Understanding with the medical clinics on the island on the issue of guaranteed privacy for girls. Women's Council is working with the Police Taskforce on equipping and maintaining Victim Shelter next door to the FSM Police compound.

- Youth Council Representative

A member of the Youth Council committed to sharing the information with the Council members as a follow-up.

- Environmental Protection Agency (EPA)

A follow up visit was undertaken by the CIU Safeguard Advisor with key staff at the Chuuk State EPA. A general description of the project was provided, and in-depth discussions were undertaken on the protocols, and procedures required for the implementation of WB projects and roles and requirements of state EPA. The officers had a sound understanding of these processes, however identified shortage of staff and resources can hinder the delivery of their services and capacity development and hands on training would be very beneficial to fully understand the WB safeguards and how they are linked to state regulations. The EPA is a key regulator during all phases of the project and need to be included in all discussions.

- Traditional land owners and resource users: Council of Chiefs

A follow-up visit was organized to the Council of Chiefs, traditional rights owners and resource users in the Port area. The purpose of this visit was to disseminate information about the project; discuss any queries, comments or questions they might have; and to ensure that the traditional owners' representatives have no objections to the proposed activities. During the meeting Council representatives reiterated their support for the project, their willingness to remain engaged with the project, and their consent with the proposed activities.

Stakeholder Engagement Meetings – Pohnpei

### Project Information Dissemination and Consultations Meeting with the Pohnpei Stakeholders

Meeting with the stakeholders identified for the FSMMIP in the State of Pohnpei, as well as national level stakeholders, was conducted on January 31, 2019 at the Port Authority meeting room in Kolonia, Pohnpei State. An example of a meeting agenda is provided in Appendix 1 to this record.

The meeting was attended by 18 participants and presented a good cross-section of government, NGO and industry stakeholders:

- FSM DTC&I – FSM Department of Transportation, Communication & Infrastructure
- DTPW&T – Department of Public Work & Transportation
- EPA – Environment Protection Agency, national and state levels
- National Fisheries
- Conservation Society
- CFC
- PTNS
- R&D/ DWNRM
- Dept. R&D Pohnpei State
- OFA – State Office of Fisheries and Aquaculture
- Pohnpei Woman's Council / Dept of Social Services
- FSCO
- Nett District Government
- Sokehs Municipal Government
- Department of Justice FSM

In addition, face to face consultations were held with the representatives of the following highly relevant agencies/bodies:

- IMO- International Migration Office of UN special interest: human trafficking
- Department of Health and Social Services, Women's Affairs Section special interest: human trafficking and vulnerable groups
- Sokehs Municipality special interest: PAPs and resource users
- Sustainable Fishers Group Menin Katengesed special interest: PAPs and resource users
- Human Trafficking Taskforce special interest: human trafficking
- Attorney General's Office special interest: human trafficking

The list of attendees can be found in Appendix 5.

The meeting started with welcome by Port General manager and introductions. Pohnpei port is different to previously visited ports of Yap and Chuuk which are under Public Works, Pohnpei Port is a separate Authority. Meeting proceeded with the introduction of the project overall, specific proposed interventions for Pohnpei Port, potential positive and negative impacts of such interventions, and the expected timelines. Example of the presentation (similar presentation was used in each State, with the change to relevant Port details) can be found in Appendix 2. The meeting proceeded with the introduction of the safeguards process, Stakeholder Engagement Plan, human trafficking issue in the context of maritime interventions, and the stakeholders' rights. Discussion followed, and the questions raised by stakeholder and discussed included:

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- Clarifications of potential environmental impacts: there will be no channel dredging nor port extension as a part of this project, however there is a possibility of damage to substrate, water quality, noise, as well as potential dumping of materials. Clarification of the activities under proposed JICA financing for port extension.
- Considerations of potential impacts on airport as air and seaport share common causeway; trucks during construction of the seaport might disturb car traffic to the airport.
- Discussion on use of foreign labor versus domestic workforce, and strong preference for local employment.
- Discussion of potential impacts to Tempe and Molok communities and need to engage them during implementation phase.
- Discussion on anchorage area as this is perceived by stakeholder as the key vulnerability of the Port. There is currently no presence of any of the government agencies nor Port at the anchorage area and it is suspected that any illegal activities would take place there rather than in Port itself. Stakeholders reported ample examples of environmental pollution (waste and oil dumping) as well as taking of girls to the ships while at anchor. It was highly recommended by stakeholders that Port Authority should have a boat and trained personnel so that they can conduct inspections of the anchorage area.
- Issue of a tanker taking a girl illegally onboard was discussed, the employment of the captain was terminated as a result.
- Issues of bars and hotels around Kolonia downtown who are known to act as brothels, but no action is taken against them.
- Further, there was a discussion on need for the fishing company to conduct all hires for the vessels, rather than allowing captains to do hires; this has created several issues in the past.



Photos above:

Project Information Dissemination and Consultations Meeting:  
Project presentation (left) and discussion (right)

Photo left: visit to the Sustainable Fishers Group 'Menin  
Katengesed'



A list of potential additional stakeholders (not present at the meeting) was elicited and recorded, and Annex C to the SEP was consequently updated. All participants agreed to be a part of the 'Pohnpei SH mailing group' thus receiving future key information and project documents. Proposed Grievance Mechanism was also discussed and agreed in principle. In closing, all participants voiced their consent with the project, with the perception that the project is going to bring benefits to all the people in the State, with the little or no negative impacts.

### Follow-up meetings

- Project Affected People: Municipality and fishers

Representatives of the Sokehs Municipal Government (SM6) and the Menin Katengesed Fishers Group were interviewed as representatives of the potentially impacted people. Their main concern is related not to the Port dock itself, but to the port anchorage area, that was already mentioned by part stakeholder as the key vulnerable area of the Port.

Representatives reported incidents of oil leakages, waste oil spills and waste water being released at the anchorage areas. Also, Palikir Pass which is close to the anchorage is a protected area but gets impacted by oil spills. Monitoring is the responsibility of the State EPA; however, Mayors Office is very keen to be involved in monitoring of the water quality in this area. Possibility for a community-based monitoring of water quality was discussed, and the stakeholders enquired about potential hand-held devices and other water quality measuring equipment, and the capacity building, to be provided as the part of this project activities. Also, there was a discussion of designating a smaller anchorage area that could be better monitored in the future, as the current arrangements allow little control.

PAP representatives also enquired about upgrades to navigational aids throughout the lagoon, not just at the main channel. Current aids in place need maintenance and repair of lights, and this is a very pertinent safety issue for the community.

Shipwrecks on the reef (in particular one on the northern reef) were also discussed as they were seen to represent an environmental hazard. Some hazardous materials do get removed after the collisions, but community is not convinced that this suffice.

In terms of human trafficking, community representatives are aware of boats leaving shore for the anchorage area, but it is difficult to determine if this is prostitution or illegal activities take place. Rising community awareness of what might be happening was seen as very important. Also, a need for a patrol boat for the anchorage area was reiterated, however, the issue of potential for corruption of those patrolling the area was also raised.

- International Office for Migration (UN Migration)

The main requirement raised at this meeting was a need for a comprehensive assessment of the migration (legal and illegal) in the region. There is currently no data and little understanding of what really goes on. A comprehensive program funning from 2014-2016 provided some capacity building (i.e. for law enforcement agencies on fake IDs), and the State Taskforce and National Plan with the Department of Justice were developed. Also, several cases (local minors for sex trafficking and illegal foreign labor cases) were brought forward in this period. Training for CAP (capacity, attitudes, perceptions) evaluations were also conducted.

In terms of Human Trafficking Assessment, participants were of opinion that it would need to be done by local entities, maybe Taskforce members in cooperation with women's and youth organizations or similar. This would both build local capacity, but also ensure that all contacts and explorations are done in culturally sensitive way and over a longer period of time (3-6months), so that trust can be established. Evaluation of the capacity of the Department of Health and the Ports in each state to do quarantine when required, should also be assessed.

Another area for assistance is related to the follow-up of the victims. Even when they are identified, there is no resources for their referrals, mental health counselling, and re-integration in the community.

Migrant Resource Center was established under JICA grant and provided support and information to FSM nationals going overseas for work. However, this center is no longer functional and such support tis no longer provided.

- Women's Section of the Department of Health and Social Services

The Department consists of sections on women, youth, disability and senior citizens. After presenting the project, particular interest was voiced towards engagement of the Department during the Port Master Plan development.

There are about 30 women's organizations working together under Women's Council, including those from Department of Health, Education, and Church groups. Domestic Violence Law of 2017 is a good development but is not being implemented. And there are some restrictions to implementation. Department is collaborating with the Attorney General's office on issues of sexual engagement, in particular distinguishing instances of willing versus forced/coerced sexual engagement.

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There is currently a building set aside for victim rehabilitation but is not equipped in any way. In the recent case of children (trafficked by their own family members) there was no facilities to house the children, so they went to care of Department of Education. So, the Department is very interested in getting a Shelter/ Crisis Center going.

Public awareness of human trafficking is very low, and taskforce is working on this. However, before conducting any activity there is a need to meet with the Molen Vas (Council of Chiefs) and get their approval. One of the recent women's activities was not approved by chiefs of two municipalities as they did not want such issues discussed in their area. "Culture" is often stated as a reason why gender and sexual exploitation issues are not talked about, but this is not right. When the potential benefits are well explained to Chief and they support them, their support is very important as they are very influential in the communities. This is very important for any project entering this space to understand.

FSM Women Conference held in August 2018 was a great success, important capacity building gathering. Further activities are planned for March 8<sup>th</sup> (women's day) and planning for the next conference is under way (planned for July 2019), with proposed training for law enforcement staff and the community representatives.

- Department of Justice, Attorney General's Office

Proposed project activities were presented first. Lighting and fencing of the port were perceived as very beneficial.

The need for an assessment of the extent of human trafficking was discussed, and it was reiterated that any such assessment would need to be conducted by local staff, so that potential reporters are comfortable and have trust in people who are eliciting information. It certainly should not be performed by law enforcement officers, but preferably by members of the community. Also, importance of having male-male interviews and female-female interviews was noted. In addition, the person eliciting information would need to be very aware of existing family ties, as people will not talk about bad behavior if there is any link to their family. Youth and women's group members and health professionals were seen as the best candidates for training on how to conduct assessments, and then should be given ample time to do it in their communities/island.

Next, the need for ongoing capacity building in the agencies, and awareness campaigns in the communities, was discussed, and such activities were highly recommended for the project. Also, there was a suggestion for gender officer or similar in the Ports: at the moment very few port employees are women, and women need to be involved in port security: they are seen as more willing to talk about what is going on and could also be trained to provide resources for individuals who might need assistance. Port workers are quiet and do not report what is going on. There is also a corruption aspect for keeping the issue quiet.

Next, the need to work with the vessels was discussed. Vessel Licensing Agreements should include information about trafficking and an overview of legal frameworks in FSM (i.e. legal consent age and similar). There is also a need for awareness and capacity building at vessels: how this could be done needs to be explored and included in the process.

Anchorage area was again presented and discussed as the most vulnerable area. It was noted that it has up to 15 vessels and sometimes vessels are wide spread – there is a need to put the vessels into a smaller Port limited area.

The issue of environmental pollution reports by community were also mentioned. Oil and waste pollution incidents are being reported to EPA, but no action is taken. Preference for a community-based monitoring and reporting was stated, but it is currently not clear how this would be operationalized.

Also, it was noted that the Port needs extra manpower – ideally there would be an officer on each ship.

In terms of national patrol boats, the current 3 national patrol boats will be replaced by 2 larger boat in 2020 and those will be more often based on outer islands (i.e. Yap). Hopefully this will provide some deterrence for some illegal activities.

In closing, the Justice Department had confirmed their interest in collaborating on the potential initiatives against human trafficking, and a visit to meet Attorney General and inform him of project (if approved) was recommended.

- Traditional land owners and resource users: Council of Chiefs

A follow up visit was organized to the Council of Chiefs, who are traditional rights owners and resource users in the area. The purpose of this visit was to ensure that the traditional owners' representatives were informed about the proposed project and that they have no objections to the proposed. It was agreed that the Project Information Dissemination be included on the Agenda of the next Council meetings.

Stakeholder Engagement Meetings – Kosrae

### Project Information Dissemination and Consultations Meeting with the Kosrae Stakeholders

Meeting with the stakeholders identified for the FSMMIP in the State of Kosrae was conducted on February 4<sup>th</sup>, 2019 at the State Government meeting room in Lelu, Kosrae State. An example of a meeting agenda is provided in Appendix 1 to this record.

Prior to the main stakeholder meeting the team was invited for a meeting with the State Governor, who was informed about proposed and extended his support for the project. Traditional land and sea ownership system in Kosrae was modified in the 1800s and therefore State Government administers both the land and the seascape around the port, while the Port itself is administered by Kosrae Port Authority (KPA).

The meeting was attended by 23 participants and presented a very good cross-section of government, NGOs and industry stakeholders and vulnerable groups representatives:

- Kosrae State Government
- KIRMA
- Immigration
- TMG
- Customs and Tax
- KSIA Quarantine
- Kosrae Women's Association
- KFC
- FSMAHTP
- KPA
- Tropical Breeze Shipping Agency
- FSM DTC&I
- KYDA (Youth)
- Red Cross
- DSMPC
- DREA
- Conservation society

In addition, a targeted consultation meeting was held with the representatives of the following highly relevant agencies/bodies:

- Women's Association special interest: human trafficking and vulnerable groups
- Kosrae Youth (KYDA) human trafficking and vulnerable groups
- Immigration special interest: human trafficking
- Human Trafficking Taskforce special interest: human trafficking

The list of attendees can be found in Appendix 5.

The meeting started with welcome, followed by introduction of the project overall, specific proposed interventions for Kosrae Port, potential positive and negative impacts of such interventions, and the expected timelines. Example of the presentation (similar presentation was used in each State, with the change to relevant Port details) can be found in Appendix 2. The meeting proceeded with the introduction of the safeguards process, Stakeholder Engagement Plan, human trafficking issue in the context of maritime interventions, and the stakeholders' rights (including grievance mechanism). Discussion followed, and the questions raised by stakeholder and discussed included:



## FSMMIP Environmental and Social Management Framework

- Clarifications on International Ship and Port Facility Security Code (ISPS) and the minimum safety requirements specified in the Code.
- Installing of lights and CCTV was highly supported.
- Issue of electricity cables currently running across shipyard, spread by port users, and the need for the cables to be buried as the part of the proposed project.
- Fuel lines are buried but there is no signage of their location, this would need attention.
- Clarifications of potential environmental impacts: there will be no channel dredging nor port extension as a part of this project.
- Outside of the main port, it was noted that the Port authority is also responsible for Lelu anchorage, which is in dare need of upgrades to channel markers.
- Note was made that sailing vessels using Lelu anchorage have been charged by Port authority exorbitant fees for anchoring in the past, which has resulted in significant decrease of visiting sailing vessel, damaging State's budding tourism industry.
- Clarification on proportions of grant money among states: how is this going to be decided?
- Strong support for preferential employment of local workforce for construction stage was voiced by all participants.
- Discussion on human trafficking: reported issues of underpayments on fishing fleets and coerced labor.
- Sexual exploitation on the island was noted with the 'houses' providing brother services; there are 'known' issues of underpayments to girls with the house owner retaining bulk of moneys. It is at this stage unknown if any of the girls providing services are underage.

Next, a list of potential additional stakeholders (not present at the meeting) was elicited and recorded, and Annex C to the SEP was consequently updated. All participants agreed to be a part of the 'Kosrae SH mailing group' thus receiving future key information and project documents. Proposed Grievance Mechanism was also discussed and agreed in principle. In closing, all participants voiced their consent with the project, with the perception that the project is going to bring benefits far greater than potential negative impacts.



Photos: Project Information Dissemination and Consultations Meeting: Project presentation (left) and discussion (right), in Kosrae

### Follow-up meeting

- Representatives of vulnerable groups

A special targeted meeting was held with the representatives of the Kosrae Women's Association; Kosrae Youth and Development Associations; Department of Immigration and the Human Trafficking Taskforce. The issue of human trafficking was already discussed at the main meeting; however, it was further explored with this special interest group.

The need for an assessment was discussed first and the participants were of opinion that it would be of little use: the people are likely to be unwilling to talk to strangers about such activities, in particular if they are illegal activities or if them or their families might be involved in any way. The issue of family connections should not be underestimated as people will not report family members, and 'family' is a very broad concept in the Pacific. However, it was acknowledged that a training for an assessment would be good, with local staff of the agencies/organizations currently engaged in anti-trafficking conducting assessment in a form of a baseline and then annual reports. Anti-trafficking conferences that take place, with the next one being organized for July 2019 (mentioned previously by stakeholders in other States), were seen as a very good opportunity for training and putting in place of the baseline assessment.

It was also noted that results of a CAP (capacity, attitudes, perceptions) survey conducted a few years ago (and facilitated by women's and youth organizations) were never communicated back to any stakeholders in the State, including organizations that facilitated the survey. Hence there was quite a bit of reluctance to endorse 'yet another' information gathering activity (assessment) of which community saw no utility in the end.

Building of the capacity and awareness campaigns on the other hand were activities much preferred to assessment. Raising awareness of the communities needs to be done in culturally appropriate way using right channels; and preferably should start by popularizing cases of local people exploited by 'outside world'. This would get everyone on board, and once the subject is socialized and talked about, it can be broadened to include exploitation of locals by other locals/ FSM nationals.

Women's group representative reported good working relationship with the IOM where they have organized awareness meetings with the various women's groups throughout the state to talk about procedures for notification and getting help for the victims. In general, they facilitate organization and then special resources people, such as staff from Attorney General office (Taskforce) and IOM come to talk about the issues, as the women groups themselves do not have capacity to conduct campaigns themselves. Both youth and women' groups also help organize various presentations, campaigns, performances, plays etc., collaborating with agencies in organizing awareness on a range of issues (such as HIV).

Youth representative pointed at importance of talks in schools. This is typically done by providing training and a range of materials to about 20 educators on a specific topic, and then they return to their schools with the resource kits (campaign materials) and roll out programs. This is a particularly good approach in terms of sustainability of if, where each new generation of students coming through school go through awareness campaign. Providing unified training, campaign materials and resource kits also ensures that a unified message is delivered throughout the State.

Need to rise capacity of the relevant government agencies (from immigration to health) to identify victims was also seen as very important. Participants also made a note that Kosrae State does not currently have social services department within government (it used to be under community affairs but was cut due to lack of finding), hence providing even less capacity and support to deal with the exploitation issues.

# FSMMIP Environmental and Social Management Framework

## Appendix 1.

FSM Maritime Investment Project

Stakeholder Meeting Agenda (Example; Similar agenda was used in all States)

Goal:

The goal of this meeting is to provide stakeholders (SH) with the outline of the proposed project activities and timelines; and elicit and collate their opinions, concerns and suggestions.

Objectives:

- Consult with SH on the proposed project activities and timelines;
- Agree on the general content of the Stakeholder Engagement Plan (SEP), including SH lists and grievance process;
- Collated input on project design and SEP; and
- Consult on potential project progress indicators.

NOTE:

- each meeting is expected to last about 3 hours, as per outline below.

Agenda:

00:00-00:30	Welcome and introductions
00:30-01:00	Project overview - Government / Port Authority with ESIA Consult support <ul style="list-style-type: none"><li>• Overview presentation of proposed project activities, with maps</li><li>• Potential impacts (positive and negative) of each proposed activity</li><li>• Project timelines and next steps</li></ul>
01:00-01:30	Project overview discussion – Led by Government / Port Authority with ESIA Consult support
01:30-02:00	Break
02:00-02:30	Stakeholder Engagement – Led by ESIA Consult <ul style="list-style-type: none"><li>• Draft Plan overview</li><li>• Stakeholder identification activity</li><li>• Agreement of Grievance Mechanism proposed</li></ul>
02:30-3:00	Discussion – Led by Government / Port Authority with ESIA Consult support <ul style="list-style-type: none"><li>• How can this project support your work – how can you support the project</li><li>• How can the project be designed to be of grates value to you and others?</li><li>• How would you like to be involved/ informed in the future?</li><li>• Potential indicators of project success</li><li>• Wrap up</li></ul>

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### List of stakeholder meeting attendees, Yap State

Federate States of Micronesia Maritime Investment Project

Stakeholder Consultations

Date: 24 of January 2019

State: Yap

#### Project Information Dissemination and Consultation Meeting Participant List

No	First Name	Last Name	Role	Organization	Sex
1	Wilmer	Kilmete	Project manager	FSM DTC&I	M
2	Silva	Larson	Social safeguards	ESIA Consult	F
3	Steve	Lindsay	PMO safeguards	National government	M
4	Lazarus	Melelul	Accountant	YFA	M
5	Tom	Gorong		Community Rep	M
6	Willie	Banua	Manager	Mariana Express Lines	M
7	Jerry	Fagolimul	Senator	YSL	M
8	John	Mafel	Senator	YSL	M
9	Joseph	Giliko	Senator	YSL	M
10	Jonathan	Marmar	A. Director	PWAT	M
11	Jesse	Salalu	Lt. Governor	Yap State Government	M
12	Henry	Falan	Governor	Yap State Government	M

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13	Vincent	Figir	Legislator	YSL	M
14	Andy	Tafileichig	EPDO	Yap Cap	M
15	Roplitino	Yarowe	TransOps Office	PW&T	M
16	Sabino	Sauchomal	Yap Cap Diver	Yap Cap	M
17	Janice	Tamangided	TRCT	TRCT	F
18	Vitt	Foneg	TRCT	TRCT	M
19	Tony	Tareg	COT Rep	COT Rep	M
20	James	Limar	COP	COP	M
21	Carrie	Greenshields	AAG	OAG	F
22	James	Sarmog	Chief	DPW&T	M
23	Kensley	Ikosia	Senator	YSL	M
24	Debra	Laan	Coordinator	R2R Project	F
25	Jonathan	Fathal	Coordinator	Gachpar	M
26	Jacob	Falan	Yap EPA/ PSHE	Yap EPA	M
27	Sylvester	Yaiuglig	Yap Cap IT	Yap Cap	M

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### Additional key informants interviewed

28	Nina	Van Breugel	Social worker	WIO	F
29	Linda	Teteth	Officer	WIO	F
30	Dominic	Tafleicheng	Officer	Immigration and Labor office	M
31	Francin	Gilpong	Border Control	FSM Customs and Tax	M

## FSMMIP Environmental and Social Management Framework

### List of stakeholder meeting attendees, Chuuk State

Federate States of Micronesia Maritime Investment Project

Stakeholder Consultations

Date: 29 of January 2019

State: Chuuk

#### Project Information Dissemination and Consultation Meeting Participant List

No	First Name	Last Name	Role	Organization	Sex
1	Kertas	Herman		DPS	M
2	Lucille	Sain	Climate Change Coordinator	Chuuk Conservation	F
3	Wilmer	Kilmete	Project manager	FSM DTC&I	M
4	Steve	Lindsay	PMO safeguards	National government	M
5	Peter	Wulf	Managing Director	ESIA consult	M
6	John	Smeth		DOT	M
7	Silva	Larson	Social safeguards	ESIA Consult	F
8	Tos	Nakayama		DoT and Port	M
9	Enjoy	Rain	Coordinator	DMR	M
10	Cathy	Mori	FSM Customs	Dept of Customs and Tax	F
11	Mayday	Narruhn	PFSO/Harbor Pilot	DoT	M
12	Mondale	Tim	SAG Social affairs	Governor's office	M

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13	MJ	Martin	Health inspector	Health	M
14	Gideon	Bisalen	General Manager	TRANSCO	M
15	Johnny	Andrew	Cro III	FSM Customs	M
16	Jackson	Faylim	Program Assistant	IOM	M

**Additional key informants interviewed:**

17	Dionisia	Bernard	Coordinator	Anti-Human Trafficking Program, Department of Justice	F
18	Bradford	Mori		EPA	M
19	Picho	Cheida		EPA	F
20	Elina	Raymond		EPA	F
21	Jamie	Fritz		EPA	M
	Lucille	Sain		For Women's Group	F
	Mayday	Narruhn		For Youth Group	M



## FSMMIP Environmental and Social Management Framework

### List of stakeholder meeting attendees, Pohnpei State

Federate States of Micronesia Maritime Investment Project

Stakeholder Consultations

Date: 31 of January 2019

State: Pohnpei

#### Project Information Dissemination and Consultation Meeting Participant List

No	First Name	Last Name	Role	Organization	Sex
1	Peter	Sitan	President/CEO	National Fisheries	M
2	Engly	Ioanis	Chief of Agriculture	R&D, State	M
3	Eugene	Joseph	Director	Conservation Society	M
4	Marko	Kamber	CEO	CFC	M
5	Joe	Vitt	General Manager	PTNS	M
6	Nick	Solomon	Director	Dept. R&D State	M
7	Peter	Wulf	Managing Director	ESIA consult	M
8	Robert	Goodwin	Program Manager	PMU/ FSM DTC&I	M
9	Scotty	Malakai	Fisheries Specialist	R&D/ DWNRM	M
10	Charlene	Phillip	President/CEO	FSCO	F
11	Silva	Larson	Social safeguards	ESIA Consult	F
12	Wilmer	Kilmete	Project manager	FSM DTC&I	M

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13	Kalio	Edwin	Information specialist	FSM DTC&I	M
14	Daniel	Edgar	Project Coordinator	Nett District Government	M
15	Brad	Soram	Inspector	EPA	M
16	Elson	Elias	Inspector	EPA	M
17	Whymrick	Solomon	Operations Manager	FSCO	M
18	Albert	Augustine	Administrator	OFA – State Office of Fisheries and Aquaculture	M

### Additional key informants interviewed

No	First Name	Last Name	Role	Organization	Sex
19	FransiscoT.	Sohl	Secretary	Menin Katengesed Fishers	M
20	Michael	Lieman	Chief Magistrate	Sokehs Municipal Government	M
21	Nathan	Glancy	COP	IOM	M
22	Dudley	Lorrin	National Program Officer	IOM	M
23	Genevieve	Gross	Program Support	IOM	F
24	Lululeen	Santos	Coordinator	Pohnpei Woman's Council / Dept of Social Services	F
25	Abigail J	Avoryie	Assistant Attorney General	Department of Justice FSM	F

## FSMMIP Environmental and Social Management Framework

### List of stakeholder meeting attendees, Kosrae State

Federate States of Micronesia Maritime Investment Project

Stakeholder Consultations

Date: 4<sup>th</sup> of February 2019

State: Kosrae

#### Project Information Dissemination and Consultation Meeting Participant List

No	First Name	Last Name	Role	Organization	Sex
1	Carson	Sigrah	Governor	Kosrae State Government	M
2	Blair	Charley	Administrator	KIRMA	M
3	Renton	Renton	Officer	Immigration	M
4	Jackson	Albert	Mayor	TMG	M
5	William	Mongkeya	DAS	Customs and Tax	M
6	Roland	Isisaki	Quarantine	KSIA Quarantine	M
7	Mary	Livaie	KWA VP	Kosrae Women's Association	F
8	Romney	Tilfas	Chairman	KFC	M
9	Lelean	Kephas	Assistant coordinator	FSMAHTP	F
10	Waden	Kinere	Airport Manager	KPA	M
11	Robert	Weilbacher	Owner	Tropical Breeze Shipping Agency	M
12	Silva	Larson	Social safeguards	ESIA Consult	F

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13	Jesse	Tulensru	Seaport Manager	KPA	M
14	Andy	George	KPA Board	KPA	M
15	Delia	Sigrah	KPA Administrator	KPA	F
16	Kaiulani	Mongkeya	Admin Assistant	KPA	F
17	Norlin	Livaie	Board Member	KPA Board	M
18	Hans	Skilling	President Coordinator	KYDA (Youth) Red Cross	M
19	Gibson	Siba	Manager	DSMPC	M
20	Heidi	Floyd	Admin	DREA	F
21	Peter	Wulf	Managing Director	ESIA consult	M
22	Wilmer	Kilmete	Project manager	FSM DTC&I	M

### Additional key informants interviewed

No	First Name	Last Name	Role	Organization	Sex
23	Shrue	Kephas	President	Kosrae Women Association	F
24	Hans	Skilling	President Coordinator	KYDA (Youth) Red Cross	M
25	Mary	Livaie	KWA VP	Kosrae Women's Association	F

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26	Renton	Renton	Officer	Immigration	M
27	Lelean	Kephas	Assistant coordinator	FSMAHTP	F

Annexure Ten: Gender and Human Trafficking Report and Action Plan

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Acronyms and Abbreviations

CEDAW	Convention of the Elimination of All Forms of Discrimination Against Women
DHSA	Department of Health and Social Affairs
FSM	Federated States of Micronesia
FSMMIP	FSM Maritime Investment Project
HT	Human Trafficking
IOM	International Organization for Migration
NGO	Non-Governmental Organization
PMU	Project Management Unit
PLGED	Pacific Leaders Gender Equality Declaration
PPA	Project Preparation Advance
SDG	Sustainable Development Goal
STDs	Sexually Transmitted Diseases
WB	World Bank

# FSMMIP Environmental and Social Management Framework

## Introduction

### 1.1 Background and context

The Government of the Federated States of Micronesia (FSM) has received a Project Preparation Advance (PPA) from the World Bank (WB) to assist in the preparation of the FSM Maritime Investment Project (FSMMIP). The PPA will be used to fund the preparation of the necessary technical, economic, design, and environmental and social studies for the projects, as well as establishing the operational framework within which the project will be implemented.

Imported and transient workforces such as the fishing industry and construction industry are known to contribute to issues of human trafficking, prostitution, harassment and violence<sup>54</sup>. Insuring that this project does not exacerbate any of these issues, and where deemed appropriate, provides education and awareness on the issues, will therefore be an integral part of the project implementation.

### 1.2 Project description

The FSM are located between Palau and the Philippines to the west and the Marshall Islands to the east. The country is made up of four, semi-autonomous states (Chuuk, Kosrae, Pohnpei, and Yap). FSM has more than 600 islands scattered over an area of about 2.6 million km<sup>2</sup> and has a total land area of only 700 km<sup>2</sup>. The overall population is about 102,500 (est. 2016), with approximately 45% living in Chuuk, 37% in Pohnpei, 11% in Yap, and 7% in Kosrae.

The FSM are highly dependent on their maritime services for both international and domestic trade. In addition, maritime services support inclusive economic growth and social development by providing communities with reliable access to economic opportunities, services and information. As such, the provision of safe, efficient, reliable and affordable sea transport services is considered essential for both countries' basic economic and social functions, and to achieving national development plans. To enhance the safety and efficiency of maritime operations, the FSM are developing projects that will focus on improving maritime infrastructure and services.

### 1.3 Potential for gendered impacts and human trafficking considerations

Given the nature of the project activities, which essentially consist of maintenance and upgrades to existing infrastructure at primary ports across the four States, there are unlikely to be significant environmental and social impacts<sup>1</sup>. However, influx of foreign workforce during the implementation phase; and the increase in visiting fishing fleets during post-implementation, have a potential to cause causing harm or harassment to host communities, including incidents of human trafficking.

### 1.4 Gathering information of relevance to this report

Information summarized in this report was gathered during the scoping field visit to FSM in February 2019, and as a desk-top activity between December and March 2019.

Consultations were held with the relevant stakeholders and special interest groups at each State. Full record of stakeholder meetings can be found in FSMMIP Stakeholder Engagement Plan, while Annex A to this document provides a summary of organizations consulted.

Policy and operational documents relevant to both gender and human trafficking (HT) were reviewed for the purpose of this report and the review summaries are presented in the next section.

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<sup>54</sup> World Bank: Project Information Document/Integrated Safeguards Data Sheet (PID/ISDS) Concept Stage Document of February 12, 2018

### Policy environment

#### Gender

##### 2.1. FSM Gender Policy

The Policy<sup>55</sup> was developed in response to Government's commitments to gender set out in the Strategic Development Plan 2004-2023, and in line with the Convention of the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Pacific Leaders Gender Equality Declaration (PLGED) recommendations, both of which FSM endorses. Budget for the implementation of the Policy is placed within the gender division of the Department of Health and Social Affairs (DHSA).

The following six goals are agreed upon, with goals 1; 4 and 6 deemed applicable to this project:

1. Better representation of women in decision-making
2. Elimination of gender-based violence
3. Improved education outcomes
4. Address barriers facing women in workforce
5. Women have better healthcare and improved choices over their fertility and
6. FSM and state government mainstream gender.

###### Goal 1: Better representation of women in decision-making

The results sought under this Goal include both men and women being perceived as legitimate and effective leaders; mechanisms established for engaging men and women in leadership and political processes; women applying for management positions; and government bodies achieving gender balance.

In 2017 (Gender Policy baseline year), there were no women ever elected to the National government, and there were only two female senators, one each in Pohnpei and Chuuk legislatures. Presence of women in higher positions in management and government is also rare. Gender norms that curtail women's opportunities to speak out and participate in decision-making are still strong.

This project provides an opportunity to support this goal by building capacity and awareness and promoting presence of women in higher positions in partner government organizations. The project could also contribute to the key Policy action of rising awareness of the contribution of women to decision making, via FSM and State Women's Councils.

###### Goal 4: Address barriers facing women in the workforce

The Policy specifies *economic empowerment* as one of the most powerful routes for women to reach their potential and advance their wellbeing. Further it points that women are more likely to invest their income in children and contribute to families and communities. Economies also miss out when they do not benefit fully from women's innovation, financial management skills, and hard work.

Importantly, girls in FSM are actively participating in education, with 8 girls gaining scholarships for every one boy (in 2015) and the College of Micronesia having more female than male students. However, employment is a challenge for both men and women, and in particular youth. The overall labor force participation in FSM was only 57% at the 2010 Census.

Intersectionality of vulnerabilities for women and youth includes large-family background and lower education. Lack of access to employment is also compounded for girls and women as they face home-based duties. Once in employment, women face environment with no laws prohibiting sexual harassment in the workplace, and uneven maternity leave provisions.

Results sought under this Goal include improved jobs and income for women; more women in the paid employment; reduced pay gap; more women self-employed; taking parenting needs into account; broader range of jobs and businesses opened for women; and improved participation of youth in post-school trainings.

This project can assist by ensuring that both male and female employees of participating agencies have equal opportunity to participate in capacity building. The project should also support gender mainstreaming in partner agencies by including gender

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<sup>55</sup> FSM Gender Policy of September 6, 2017 (version 3)



## FSMMIP Environmental and Social Management Framework

concerns into main agency documents as well as future Port Master Plans; and by promoting equal employment opportunity, equal career progression opportunity and the harassment-free workplaces.

Goal 6 FSM and state government mainstream gender

The key results under this Goal include reflections of gender perspective in decisions and policies; and understanding of gender mainstreaming as integral to sustainable development, with suitable processes and reporting in place.

The Policy states that, despite commitments to gender in the Strategic Development Plan 2004-2023, there is very little awareness across government sectors about the existing legal and policy framework for gender equality. In addition, it found that gender issues were not reflected in a meaningful way across government policies and plans.

FSMMIP will contribute to this Goal by ensuring that gender and social inclusion issues are mainstreamed in the project. As a part of its capacity building activities, it will provide gender mainstreaming training in all participating agencies. The Project will also ensure that gender is mainstreamed into all policies and plans developed, including Port Master Plans and other relevant policy development at State and national level.

### a. DEFINITION OF GENDER MAINSTREAMING IN FSM

FSM National Gender Policy uses the United Nations definition of gender mainstreaming, as

'the process of assessing the implications for women and men of any planned action, including legislation, policies and programs, in all areas, and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally, and inequality is not perpetuated. The ultimate goal is to achieve gender equality.'

United Nations Report of the Economic and Societal Council for 1997, A/52/3 of September 1997

## 2.2 Federal and State Regulations

FSM Public Service System Regulations (FM 96941 of 1979) and the State-level public services regulations, as well as the Port Authority personnel systems, were reviewed for this report.

Although not specifically mentioning 'gender', all documents reviewed contain provisions for equal employment opportunities or similar in nature; and a commitment to employment and career progression based on merit. In addition, provisions for maternity leave and continuation of employment after the maternity leave, are included.

Preferential employment is given to State residents and the nationals of FSM.

## 2.3 The World Bank Group Gender Strategy

At the center of the World Bank (WB) agenda on gender equality, poverty reduction and inclusive growth is the achievement of the Sustainable Development Goal (SDG) 5 on gender equality and empowerment of all women and girls. The WB Strategy<sup>56</sup> focuses on four objectives:

1. Improving human endowments - health, education and social protection
2. Removing constraints for more and better jobs
3. Removing barriers to women's ownership of and control over assets
4. Enhancing women's voice and agency and engaging men and boys

This Project is well placed to provide support for improvements under Objective 2, which is similar in nature to the FSM Government Policy Goal 4 of increasing women's participation in the labor force; and Objectives 4 similar in nature to Goal 1 Better representation of women in decision-making. Given that WB Group gives strong emphasis on strengthening country-driven approaches, this Objectives of the World Bank Group Gender Strategy will be addressed in this document as a part of FSM government Policy Goal 1 and 4.

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<sup>56</sup> World Bank Group Gender Strategy 2016-2023: Gender equality, poverty reduction and inclusive growth

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### 2.4 International Maritime Organization (IMO)

IMO is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships. Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented. IMO has in 2019 launched a new campaign for its Women in Maritime program as a part of its mission to support Sustainable Development Goal number 5.

Human Trafficking

### 2.5 FSM Human Trafficking Law

Title 11 of the Code of the Federated States of Micronesia (as amended by Public Law No. 11-72) was further amended by inserting a new subchapter II under chapter 6, entitled "Trafficking in Persons", as contained in the Congressional Bill number 17-78 and the Public Law 17-38.

For the purpose of this law, a "child" is defined as any person below the age of eighteen (18) at the time of the commission of an offense. "Exploitation" means: (a) the obtaining of financial or other material benefit from the prostitution of another person; (b) the exaction of forced labor or services, or the obtaining of labor or services through deceit, fraud, or by means of a material misrepresentation; (c) slavery or practices similar to slavery. Offense of human smuggling is defined as knowingly or recklessly arranging or assisting another person's illegal entry into any country, including the Federated States of Micronesia, of which the other person is not a citizen and has no lawful right to enter.

The law proceeds to set maximum jail sentences and penalties for associated crimes.

### 2.6 The World Bank Group Social Development Note on Human Trafficking

Social Development Note 122 from 2009<sup>57</sup> provides an overview of the World Bank approach to human trafficking, based on the principles of prevention. The following specific actions are listed as the key to preventing human trafficking:

- a. Social protection: Enhancing a safety net system to target those who are vulnerable to trafficking in the project area.
- b. Employment: Providing job training and creating more jobs in the community at risk of trafficking so that vulnerable populations do not necessarily need to go to the city or abroad to obtain a job.
- c. Labor safeguards: Ensuring labor safeguards that include an anti-trafficking component in development projects for the following sectors that are particularly common for labor trafficking – mining, fisheries, agriculture, logging, and construction.
- d. Education: Incorporating information on human trafficking, child labor, migration, and skill development into school curricula and training programs to educate children and young adults about the danger of human trafficking and their human/labor rights, and also to develop useful skills to have sustainable employment.
- e. Health: Improving access to healthcare for vulnerable groups of human trafficking (such as sex workers and illegal migrant workers) and educating on HIV/AIDS and sexually transmitted diseases.
- f. Migration: Raising awareness about human trafficking and informing about the risks and consequences of work abroad and their labor rights.
- g. Access to law and justice: The Access to Justice for the Poor strategies empowers the vulnerable people to assert, enforce and access their individual and property rights. Most trafficking victims are not aware of their rights, and even if they know their rights, they are afraid of testifying against traffickers who might threaten and harass them and their family. The Global Alliance Against Traffic in Women (GAATW) points out two important components of access to justice for trafficked victims: the right to information and victim protection.

### 2.7 International Organization for Migration (IOM)

The IOM is an intergovernmental organization that provides services and advice concerning migration to governments and migrants, including internally displaced persons, refugees, and migrant workers. In September 2016, it became a related

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<sup>57</sup> Makisaka, Megumi. 2009. Human trafficking: a brief overview. Social Development Notes; no. 122. Conflict, crime and violence. Washington, DC: World Bank

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organization of the United Nations. IOM is committed to the principle that humane and orderly migration benefits migrants and society, and acts with its partners in the international community to:

- a. Assist in meeting the growing operational challenges of migration management.
- b. Advance understanding of migration issues.
- c. Encourage social and economic development through migration.
- d. Uphold the human dignity and well-being of migrants.

United Nations Office for drugs and crimes (UNODC)<sup>58</sup> differentiates three types of human trafficking activities as occurring in the Pacific:

**Sexual exploitation:** There are indications that trafficking in persons for sexual exploitation possibly occurs in parts of the Pacific region, including in individual states of the FSM. Such activities reportedly have close links to local and regional commercial and extractive industries, including fishing, logging and mining. According to reports, trafficking for sexual exploitation is prevalent in key port cities, where crews from foreign fishing vessels allegedly exploit both local and girls and women from East Asia (Chinese, Pilipino and more recently, Thai).

**Labor exploitation:** There have been reports of widespread labor exploitation of individuals from the Pacific region by distant water operators licensed to fish within the Pacific waters. Such activities possibly have links to human trafficking in and through the Pacific. In addition to workers from the Pacific region, there are reports of fishermen from Asian countries including China, Indonesia, the Philippines and Viet Nam being exploited in the Pacific region on fishing vessels originating from East Asia.

**Migrant smuggling:** Most recorded cases of migrant smuggling in the Pacific have been large numbers of people travelling via boat. For example, in November 2014, the FSM detected a vessel near Yap carrying 53 individuals, primarily from India and Nepal, who had paid for transit to the United States.

This differentiation was used when discussing human trafficking with the stakeholders.

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<sup>58</sup> The United Nations Office on Drugs and Crime (UNODC) Transnational Organised Crime in the Pacific: A Threat Assessment from September 2016

## FSMMIP Environmental and Social Management Framework

### Findings of the primary data collection

#### 3.1 Gender

Gender based violence is relatively low in FSM. As reported by ADB in 2016<sup>59</sup>, estimated 33% of women have experienced physical and/or sexual violence by their intimate partner (compared to for example 37% of women in Australia); while 10% had experienced violence by someone other than a partner. However, stakeholders reported that Domestic Violence Law of 2017 is not being implemented. Victim protection facilities are non-existent (in some states there are reported designated safe houses however they are not equipped for habitation) and protection processes are unclear. The normalisation of violence has specific implications for women's trafficking risk: with limited sexual agency and high dependency on families, young women are acutely vulnerable to sexual coercion and trafficking. Also commonly reported during consultations was age consent issue, as age of consent regulations are not enforced. The consent age has been recently lifted to 16; however, Human Trafficking law defines a "child" as any person below the age of eighteen.

"Culture" is often stated as a reason why gender and sexual exploitation issues are not talked about, however, when the potential benefits are well explained to traditional leaders and they support them, that support is very important as traditional leaders are highly influential in the communities. This is an important consideration for any project proposing to commence work in this space.

In terms of labor participation, 66% of male and 48% of female population of working age are reported as employed; with relatively good women's share in non-agricultural employment at 38%<sup>5</sup> (compared to for example 47% in Australia). Total labor participation rates are however somewhat low, mainly due to high unemployment of youth. It is therefore youth unemployment (of both sexes) and not women's lack of employment opportunities that is an issue in FSM - a very common occurrence in the Pacific, indeed. With 58% of population aged under 24 at the 2010 Census<sup>60</sup>, the youth unemployment trend is unfortunately likely to persist.

Stakeholders were also of opinion that employment is typically merit based, with women potentially facing obstacles when progressing into positions of power and decision-making. Further, maritime sector is traditionally a male dominated sector and improvement of image and 'visibility' of women working in the sector might be beneficial.

Most overwhelmingly, however, stakeholders insisted on project providing strong preference for local companies and local labor to be engaged during the implantation and in construction activities. Preferential employment of State residents and nationals is institutionalized in both state and FSM legislation; however, foreigners can be employed if the skill is lacking. Stakeholders argued against the perception that 'local people have no trades'; rather, even when local skilled people are available, construction companies still prefer to bring cheaper labor in from China and the Philippines. Although local labor force is prioritized in hiring, foreigners are still being brought in as 'specialists'; in reality their main 'advantage' is that they are cheaper than local workforce as they are paid below FSM minimum wage. During their stay in FSM they are kept in workers camps and then shipped back home if they complain about working conditions. Their salaries are paid directly at home so there is no financial benefit (multipliers) from any of these activities to FSM.

Benefits of preferential local employment/tendering of local firms is perceived as twofold:

- a. Providing an employment but also skills development opportunity to high numbers of local unemployed youth; and
- b. Minimizing social impacts likely to result from the influx of foreign workforce, including introduction of sexually transmitted diseases (STDs), harassment and potential increase in disorderly behaviors.

#### 3.2 Human Trafficking

Consultations with relevant stakeholders confirmed presence or anecdotal presence of all forms of trafficking, namely, for sexual exploitation, labor exploitation, and smuggling; both of the foreigners and of FSM nationals.

There were some differences in concerns voiced in different states. For example, stakeholders in Yap were mainly concerned with the age consent issues and awareness of internet risks for young people (for their own communities); and with the migrant smuggling (of foreigners into Guam). In this respect, communities on the outer islands were perceived as potentially the ones

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<sup>59</sup> Asian Development Bank ADB 2016. Gender Statistics: The Pacific and Timor-Leste

<sup>60</sup> Office of Statistics, Budget & Economic Management, Overseas Development Assistance and Compact Management 2010: FSM-Wide Census of population and housing

## FSMMIP Environmental and Social Management Framework

observing suspect behavior at land or sea, but with no understanding of the potential significance of reporting such behavior or of the reporting process. The episode of a migrant ship landing on Yap shores a few years ago pointed at the lack of preparedness on the island to deal with such incidents, both in terms of institutional (procedural) preparedness as well as general awareness and logistics.

In Chuuk, the issues were seen mainly in terms of potential sexual and labor exploitation of young Chuukines and the participants recommended a strong component of education and awareness on the subject. Capacity building of the government employees, as well as culturally sensitive discussions with community elders, were also recommended. In terms of migrant smuggling, there was some concern of this happening in FSM via fishing fleets. Awareness of the issues related to human trafficking is seen as very low in Chuuk. Radio program in Chuukines was recently run by the Taskforce, with the stories of various trafficking experiences from FSM, and was particularly useful for remote communities where radio is still a very common 'link' to the outside world. Taskforce also operates a phone hotline in Chuuk.

In Pohnpei and Kosrae discussions were mainly related to the resident fishing fleet. Both incidences of prostitution (employment in bars and 'houses') and sexual exploitation (of underage women/girls) have been recorded in the past, however, there is a need to distinguish between the two. General opinion is that the sex-related activities are prevalent, however, this is something that is not reported and not talked about.

Ports are seen as the biggest vulnerability in each state and therefore there is a need to increase port security. Police need better understanding of what happens when the fleet comes to port, i.e. there is a need for FSM Police to have a presence in the Port when the fleet is in and also to have opportunity to inspect. In Kosrae but in particular in Pohnpei vulnerability is not only in the Port but also in anchorage area that is currently not being policed nor patrolled at all. Community representatives from villages near the anchorage area reported women on boats leaving shore for the anchorage area, but it is difficult to determine if this is prostitution or illegal activities take place. Also, a number of bars and hotels around Kolonia downtown are known to act as brothels but no action is taken against them. Port workers are quiet and do not report what is going on. There is also a corruption aspect for keeping the issue quiet.

In addition, in Kosrae there were reports of underpayments on fishing fleets and coerced labor. Sexual exploitation on the island was noted with the 'houses' providing brothel services; and there are 'known' issues of underpayments to girls with the house owner retaining bulk of moneys. It is at this stage unknown if any of the girls providing services are underage.

Need to raise both awareness of the communities (in particular youth) and the need to build capacity of the relevant government agencies (from immigration to health) to identify and deal with the victims, were reiterated as the most important type of the activities needed. Another area for assistance is related to the follow-up of the victims. Even when they are identified, there is no resources for their referrals, mental health counseling, and re-integration in the community.

Also, a Migrant Resource Center was established under JICA grant and provided support and information to FSM nationals going overseas for work. However, this Center is no longer functional and such support is no longer provided.

Potential assessment of the human trafficking activities was discussed with all special interest groups. The overwhelming response was that the project should go beyond the assessment and actively engage in implementation of awareness campaigns for public and the capacity building trainings for the agencies. If undertaken, it was reiterated that any such assessment would need to be conducted by local staff, so that potential reporters are comfortable and have trust in people who are eliciting information. It certainly should not be performed by law enforcement officers, but preferably by members of the community. Also, importance of having male-male interviews and female-female interviews was noted. In addition, the person eliciting information would need to be very aware of the existing family ties, as people will not talk about 'bad behavior' if there is any link to their family. Youth and women's group members and health professionals were seen as the best candidates for training on how to conduct assessments, and then should be given ample time to do it in their communities/island.

It was also noted that results of a CAP (capacity, attitudes, perceptions) survey conducted a few years ago (and facilitated by women's and youth organizations) were never communicated back to stakeholders, including organizations that facilitated the survey. Hence there was quite a bit of reluctance to endorse 'yet another' information gathering activity (assessment) of which community saw no utility in the end.

The main capacity in country related to HT is seen with the staff from Attorney General Office (the Taskforce). IOM is perceived as an important source of materials and people with special skills. Typically, awareness campaigns are organized and facilitated by Women's and/or Youth group representatives, and then special resources people, such as Taskforce members or IOM staff, come to talk about the issues. Both youth and women' groups also help organize various presentations, campaigns, performances, plays etc., collaborating with agencies in organizing awareness on a range of issues (such as STDs/HIV).

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### Recommendations for project engagement

Potential areas, in terms of policy, legal reform, or program interventions in the maritime transport sector to address the gaps identified during the gender and human trafficking scoping analysis are discussed below. The measures proposed were identified based on consultation with government authorities and local stakeholders and are prioritized based on<sup>61</sup>:

- a. where interventions can be most strategic, considering level of impacts in terms or number of people reached;
- b. where there is interest and ownership from the government side to bring about change; and
- c. where there is capacity and resources to bring about change.

Indicators that could be used to monitor progress of activities proposed in addressing the gender gaps and HT issues identified are also proposed. Final set of indicators selected for the project (once all the interventions are agreed upon) will need to show clear results' chain between analysis, action and evaluation; in other words, for all actions selected to be implemented, an indicator to monitor the results of the action in terms of addressing the gap should be set. Indicators can be at the process, output or outcome levels and baseline data should be collected and indicator target agreed with government counterpart. Indicators should be developed through consultations with local stakeholders, who will be responsible for monitoring and evaluating the project.

#### 4.1 Gender

Recommendation G1: Preferential employment of local labor and contracting of local and national firms for project implementation

Strong preference for local companies and local labor to be engaged during the implantation, to minimize potential social impacts, was repeatedly voiced by stakeholders during the consultation. In addition to actual legal basis for this requirement and the provision of much needed employment and skills development for local youth; preferential treatment was also seen as a mitigation measure for potentially negative social impacts of foreign workforce. Presence of foreign workforce would disproportionately negatively impact on women, in terms of harassment and the introduction of STDs. It would also have a potential to increase sexual exploitation.

Community concerns about labour influx and a possible rise in harassment and STDs needs dedicated response in Control Activities, including Training (ensuring key staff, including contractors, receive training regarding the likelihood, significance and management of these and other influx-related issues) and regular monitoring.

Contributing to GSM Gender Policy:

Goal 2. Elimination of gender-based violence (also contributing to HT Action Area Labor Safeguard)

Prioritization based on:

- a. intervention is strategic, with potentially high-level impact in terms of number of people reached;
- b. there is interest and strong ownership from the government side and the communities;
- c. capacity and resources to bring about change are most likely available; however, special provision would need to be included in the contract bidding process.

Potential indicator: number/% of local/national companies contracted; number/% of local/national workforce; numbers disintegrated by sex.

Recommendation G2: Continue with the incorporation of 'equal employment opportunity' and in particular 'equal career progression' statements in strategies and policies.

Such provisions are already included in all relevant documentation for public services; however, are rarely a part of the human resources strategies for private firms/businesses. It is therefore strongly recommended that such provisions be promoted for strategic documents of all project partners, not only government ones (for example, for Port Authorities, port users, and constructions firms engaged for implementation). In addition, promotion of implementation and enforcement of such policies should be an integral part of the capacity building with the all partners, as well as an integral principle of the Master Plans.

Contributing to GSM Gender Policy:

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<sup>61</sup> FSM and RMI Maritime Investment Project Request for Proposals (RFP) of 12 October 2018

## FSMMIP Environmental and Social Management Framework

Goal 4. Address barriers facing women in workforce

Goal 6. FSM and state government mainstream gender

Prioritization based on:

- a. intervention is strategic, with potentially high-level impact in terms or number of people reached;
- b. there is interest and ownership from the government side to bring about change; need to rise ownership of private firms;
- c. capacity and resources to bring about change are available.

Potential indicator: number of strategic documents that include statements; percentage increase to baseline.

Recommendation G3: Rise the profile and visibility of women employed in maritime sector in FSM.

There is a number of women already employed in various agencies related to maritime sector in FSM, as well as at Port Authorities. However, perceptions of maritime sector remain as of 'male dominated' sector. It is therefore important to work with the agencies and businesses involved to increase the awareness of women already working in the sector; the careers they have in the sectors; and the openness of the sector to engage women in new careers in the future. This could be initiated in collaboration with the 'Women in Maritime' initiative of the UN IMO. The use of media to promote women role models within FSM will be essential.

Contributing to GSM Gender Policy:

Goal 4. Address barriers facing women in workforce

Goal 6. FSM and state government mainstream gender

Prioritization based on:

- a. intervention is strategic, with potentially high-level impact in terms or number of people reached;
- b. there is interest and ownership from the government side to bring about change; need to rise ownership of private firms;
- c. capacity and resources to bring about change are available.

Potential indicator: number of campaigns to raise visibility of women in maritime conducted; number to baseline of 0.

Recommendation G4. Increase numbers of women in decision making positions within the maritime sector and related government agencies

This recommendation deals with the opportunities for vertical progression of women in their chose careers within the maritime sector or related agencies. There is a need to challenge situation is which women mainly occupy lower administrative positions and to work with the agencies and businesses involved to broaden the acceptance of 'employment based on merit' to also include higher positions (such as Board membership) and executive and decision-making positions. This recommendation could also include setting of firm targets for women at different technical and management levels. Recommendations could be initiated in collaboration with the Department of Health and Social Affairs to conduct a workshop on Strengthening Women's access to employment and skills in Non-Traditional Areas, or similar; and with the 'Women in Maritime' initiative of the UN IMO. The key target audience for creation of this transformative change are males in high level positions.

Contributing to GSM Gender Policy:

Goal 1. Better representation of women in decision-making

Prioritization based on:

- a. intervention is strategic, and potentially transformative;
- b. there is interest and ownership from the government side to bring about change; need to rise ownership of private firms;
- c. capacity and resources to bring about change are available.

Potential indicator: number of women in high level or executive positions; percentage increase to baseline or related to target set.

### 4.2 Human trafficking

Recommendation HT1: Ensure there are Immigration/Customs/Police facilities and presence at each Port and I/C/P can patrol anchorage areas. Provide fencing and adequate lighting at the ports.

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Several of the ports visited do not have facilities for immigration/customs officers and the police. During the discussions it was recommended that port upgrades should include a provision of an office for the Immigration/Customs/Police officers. For ports with active anchorage areas, it was highly recommended by stakeholders that Port Authority should have a boat and trained personnel (or involved Immigration and Police officers) to conduct inspections at the anchorage area. Fencing and provision of adequate lighting at the ports were highly commended as both deterrents but also having a role in raising community perception of safety.

Contribution to Action Area:

- o Social protection.
- o Access to law and justice.

Prioritization based on:

- a. intervention is strategic, with potentially high-level impact in terms of number of people reached as it raises confidence of community members;
- b. there is interest and strong ownership from the government side and the communities;
- c. capacity and resources to bring about change are available.

Potential indicators: I/C/P infrastructure and presence provided in each project Port; numbers compared to baseline. Fencing and lighting provided in each project Port; numbers compared to baseline.

Recommendation HT2: Raise HT awareness of the communities

In terms of work with the communities, there is currently a low level of reporting of illegal activities within community if perpetrated by community members, and there is often higher respect for rules of culture than rules of law. Thus, any successful community awareness campaign must be culturally sensitive, and presented not as punishment but as protection measure for youth and children. Use of culturally appropriate methods as well as context is crucial (cultural literacy). Work in communities also needs to be done through culturally appropriate channels, and preferably should start by popularizing cases of local people exploited by 'outside world'. This would get everyone on board, and once the subject is socialized and talked about, it can be broadened to include exploitation of locals by other locals/ FSM nationals. Awareness of smuggling is also important in particular in Yap, where the communities on the outer islands are the ones potentially observing suspect behavior at land or sea, but with no understanding of the potential significance of reporting such behavior or of the reporting process.

Given that more than half of FSM population is youth, there is a significant need for training programs for schools. This is typically done by providing training and a range of materials to a number of educators (~20 per state), who then return to their schools with the resource kits (campaign materials) and roll out programs. This is a particularly good approach in terms of sustainability of it, where each new generation of students coming through school go through awareness campaign. Providing unified training, campaign materials and resource kits also ensures that a unified message is delivered throughout States.

It would be appropriate under this recommendation to include resourcing for relevant national actions (e.g. service support under the National Task Force) as well as a commitment for further coordination between FSMMP and DoJ, IOM and other key players.

Contribution to Action Area:

- o Education.
- o Migration.
- o Access to law and justice.

Prioritization based on:

- a. intervention is strategic, with potentially high-level impact in terms of number of people;
- b. there is very high interest and strong ownership from the government and the communities;
- c. capacity and resources to bring about change are available.

Potential indicators: number of training/capacity building session provided; numbers of people attending; numbers disintegrated by sex.

Recommendation HT3: Raise the capacity of agencies to deal with the HT issues



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The capacity of relevant agencies would also need to rise. Immigration officers at Ports and Airports receive occasional training on the procedural requirements in dealing with illegal matters, however, it was suggested that such training should be in a form of a regular capacity building, and more comprehensive in content (including victim identification and similar). Further, it was noted that the training needs to be provided not just to enforcement agencies, but also to staff from health and education, as they are the ones at the frontlines of the issues. It was also discussed that if the fishing fleets are to be re-hosted in Yap or Chuuk in the future, comprehensive capacity building would need to be conducted with the staff of various agencies there to build their understanding of potential risks and issues related specifically to fishing fleets (including labor and sexual exploitation).

Labor Section of the Department of Immigration and Labor is responsible for foreign workers; however, it was seen as not very strong, with complaints to Labor Section remaining undocumented and uninvestigated. There is reportedly little understanding in the Section of issues those workers face; while on the other hand, foreign workers receive no information about their rights while in FSM. The need for interventions in the area of labor was therefore seen both ways, as capacity building of Labor Section as well as information and rising awareness on foreign workers themselves (see next recommendation).

There was a suggestion for gender officer or similar to be designed in the Ports: women need to be involved in port security as they are seen as more willing to talk about what is going on and could also be trained to provide resources for individuals who might need assistance.

Contribution to Action Area:

- Social protection.
- Education.
- Migration.
- Health.
- Access to law and justice.

Prioritization based on:

- a. intervention is strategic, with potentially high-level impact in terms of number of people reached in both agencies and the communities;
- b. there is interest and strong ownership from the government and the communities;
- c. capacity and resources to bring about change can be available and can be combined with other activities.

Potential indicators: number of training/capacity building session provided; numbers of people attending; numbers disintegrated by sex.

Recommendation HT4: Raise the awareness of mariners and build capacity of vessel owners on issues related to human trafficking.

The need to work with the vessels, both the mariners and vessel owners, was also discussed with the stakeholders. Vessel Licensing Agreements were seen as one potential avenue, as they could include information about trafficking and an overview of legal frameworks in FSM (i.e. legal consent age and similar). Similar information could be provided as leaflets/booklets that could be distributed to visiting mariners in order to raise their awareness about (a) their rights as laborer and (b) their obligations towards the communities they visit. Any such activity should be developed in collaboration with both IOM and IMO.

Contribution to Action Area:

- Social protection.
- Labor safeguards.
- Education.
- Migration.
- Access to law and justice.

Prioritization based on:

- a. intervention is strategic, with potentially high-level impact in terms of number of people reached in both maritime industry and the host communities;

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- b. there is interest and strong ownership from the government side and the communities, and the willingness of vessel owners to engage; willingness of vessel owners to engage and modes of engagement would need to be further explored.
- c. capacity and resources to contribute to change together with other initiatives are available.

Potential indicators: number of vessel owners agreeing on the initiative; numbers compared to baseline.

Recommendation HT5: Set up processes and train potential enumerators for the ongoing Human Trafficking Assessment

Participants were of opinion that conducting a Human Trafficking Assessment is not a priority activity. However, should it be initiated, it would need to be done by local entities, such as Taskforce members in cooperation with women's and youth organizations or similar. This would both build local capacity, but also ensure that all contacts and explorations are done in culturally sensitive way and over a longer period of time (3-6months), so that trust can be established. Also, importance of having male-male interviews and female-female interviews was noted. In addition, the person eliciting information would need to be very aware of existing family ties, as people will not talk about 'bad behavior' if there is any link to their family - the issue of family connections should not be underestimated. Youth and women's group members and health professionals were seen as the best candidates for training on how to conduct assessments, and then should be given ample time to do it in their communities/island. Cross-agency anti-trafficking conferences that takes place in FSM (with the next one being organized for July 2019), were seen as a very good opportunity for training and initiating baseline assessment.

Action Area:

- o Work on establishing baseline.

Prioritization based on:

- a. intervention is important as it informs human trafficking baseline across FSM;
- b. some interest from the government;
- c. capacity and resources to initiate an assessment / train the enumerators might be available.

Potential indicator: number of enumerators trained; numbers disintegrated by sex; numbers of cases recorded; numbers compared to baseline.

## FSMMIP Environmental and Social Management Framework

### Annex A. Stakeholders Consulted

#### Yap

- WIO – Women’s Interests Office (government body), special interest: vulnerable group
- Department of Youth and Civic Affairs, special interest: vulnerable group
- Human Trafficking Taskforce, special interest: human trafficking and vulnerable groups
- FSM Immigration and Labor Force, special interest: human trafficking
- FSM Customs and Tax, special interest: human trafficking

#### Chuuk

- FSM Police/ Human Trafficking Taskforce, special interest: human trafficking and vulnerable groups
- Chuuk Women’s Association, special interest: vulnerable group
- Department of Youth and Civic Affairs, special interest: vulnerable group

#### Pohnpei

- IMO - International Migration Office of UN, special interest: human trafficking
- Department of Health and Social Services, Women’s Affairs Section, special interest: human trafficking and vulnerable groups
- Sokehs Municipality, special interest: PAPs and resource users
- Human Trafficking Taskforce, special interest: human trafficking
- Attorney General’s Office, special interest: human trafficking

#### Kosrae

- Women’s Association, special interest: human trafficking and vulnerable groups
  - Kosrae Youth Development Agency (KYDA), special interest: human trafficking and vulnerable groups
  - Immigration, special interest: human trafficking
  - Human Trafficking Taskforce, special interest: human trafficking
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## FSMMIP Environmental and Social Management Framework

### Annexure Eleven: Erosion, Drainage and Sediment Control Management Plan and Contaminated Soil Disposal Management Plan Outline

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#### Project Description

- a. Provide a comprehensive description of the project; and
- b. Include an overview of the pre-construction, construction, and operational phases of the project.

#### Purpose, Scope and Objective

The section should include:

- a. Scope of the Erosion, Drainage and Sediment Control Management Plan (EDSCP) and Contaminated Soil Disposal Management Plan (CSDMP);
- b. Establish objectives for general EDSCP and CSDMP;
- c. Establish specific objectives for site specific EDSCP and CSDMP; and
- d. Relationship to specific mitigation measures.

#### Statutory and Regulatory Requirements

- a. Legislative requirements as prescribed in the Project Environmental and Social Management Framework (ESMF) and Environmental and Social Management Plan (ESMP).

#### Potential Impacts

- a. Overview of impacts identified in ESMF and ESMP.



# FSMMIP Environmental and Social Management Framework

## Project Implementation (human resources, partners, and organizational responsibilities)

- a. Describe human resources for implementation of the plan and component programs/interventions;
- b. Clearly define roles and responsibilities and organizational structure;
- c. Discuss training that will be provided; and
- d. Describe potential partners (NGOs, government, etc.) and their respective roles and responsibilities.

## Resources

- a. Equipment requirements including erosion and sediment control devices (sediment fencing, silt curtains, etc) water quality monitoring equipment; and on-site weather monitoring station;
- b. Staff involved including Construction Environmental Officer; Environmental Coordinator; Monitoring Officer; Environmental and Regulatory Manager; and
- c. Registers including water quality monitoring record; and non-conformance register.

## Schedule

- a. Multi-year schedule of implementation for the component programs/ interventions and the overall plan.

## Monitoring and Evaluation

- a. Overall monitoring and evaluation framework that integrates the monitoring and evaluation requirements for the component programs/ interventions.

## Reporting and Notification

- a. Contractor's monthly report including results of the surveys and inspections; and number and results of verification inspections, including but not limited to landform stability inspections, sediment control structure and stockpile inspections and control measures implemented to manage failing sediment control structures and stockpiles.

## Budget

- a. Budgets for the component programs/ interventions and the total cost of the plan.

## Annexure Twelve: Solid Waste Management Plan Outline

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### Solid Waste Code of Conduct Requirements

These requirements will form the basis for the development of the FSMMIP Code of Practices for FSFSMMIP Solid Waste Management. The key objectives of these requirements are to assist the DoTCI Safeguard Specialist to develop a sector-based code of practice for waste management. The requirements for the Code of Practice are:

- a. Compliance with FSM National and State Solid Waste Management Regulations;
- b. Satisfies the requirements of the ESMF and ESMP;
- c. Satisfies the requirements of the World Bank;
- d. Meets the following minimum standards:
- e. No FSM landfills are to be used for any waste. All waste is to be recycled or disposed of offshore at a permitted facility;
- f. No dumping of any waste in FSM;
- g. Compliance with *Waigani Convention* and any other relevant international conventions for export of hazardous and non-hazardous waste; and
- h. Identify and utilize suitable local recycling and reuse options.
- i. Implements the usual good practice of solid waste management, including:
- j. Segregation of waste;
- k. Secure storage for waste;
- l. Adopting the waste hierarchy: (i) avoid; (ii) reduce; (iii) reuse; (iv) recycle;
- m. Collaborating with other sectors, waste generators and government initiatives for cumulative benefits; and
- n. Build capacity and sustainability within the maritime sector in the approach to waste management through FSFSMMIP implementation.

When developing, and implementing the Code of Practice, the Safeguard Specialist will consider:

1. **Waste streams:** identify which waste streams are likely to be generated and estimate the approximate amounts of materials (Table A8.1)
  - a. Undertake inventory of materials that can be reused, recycled or recovered from the project;
  - b. Specific types of materials;
  - c. Amount of material expected; and
  - d. Possible contamination by hazardous materials like asbestos or lead: these materials will limit reuse/recycling options and require special disposal.
2. **Collection and Storage:** How and where will the difference waste streams be collected and stored prior to their disposal offshore. Detail the types of containers to be used and the storage areas that will be created for this waste. Differentiate between regular, bulk and hazardous waste. This must be compliant with the minimum standards detailed in the ESMF and ESMP:
  - a. Hazardous wastes shall be collected and stored in water tight containers. Containers shall be stored in a bunded and covered area prior to export for disposal;
  - b. Difficult waste such as appliances and building cladding shall be stored in a secure fenced and covered area; and
  - c. Non-hazardous wastes shall be stored in a way that prevents their uncontrolled movement, this may be containerized or fenced and/or covered stockpiles. Where appropriate, silt fences, drains and traps or other movement prevention mechanisms should be put in place.
3. **On-site:** understand how the waste management system (housekeeping, sorting and storage) will work on-site, including bin placement and access.

Determine storage requirements (separate bins or co-mingled), things to consider include:

## FSMMIP Environmental and Social Management Framework

- a. Ease of use: ensure that containers are easily accessible by workers and that storage areas are clearly sign posted;
  - b. Safety: ensure that the containers and storage can be managed safely, including limiting public access to the storage areas;
  - c. Hazardous waste materials storage;
  - d. Aesthetics: ensure that the project sites and storage area appear orderly and will not raise concern from local residents or businesses – for example screening for dust and litter containment and daily collection of windblown material; and
  - e. Establish a collection/delivery plan in collaboration with waste contractors for waste and recyclable materials generated on-site.
4. **Clearly assign and communicate responsibilities:** ensure those involved in the project are aware of their responsibilities in relation to the Codes of Practice.
  5. **Training:** be clear about how the various elements of the Codes of Practice will be implemented.
  6. **Monitor:** to ensure the plan is being implemented, monitor on-site as per the ESMP monitoring plan.



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Table A8.1: Waste Stream Inventory

Waste and/or Materials	Recyclable	Destination		
		Reuse and Recycling		Disposal
Possible Materials Generated (add or delete as needed)	Estimated volume (m <sup>3</sup> ) or area (m <sup>2</sup> ) or weight (t)	On-site (how materials will be reused and/or recycled on-site)	Off-site (Specify the destination and/or proposed recycling facility)	Specify the off-island disposal site and the process for collection, storage and eventual disposal
Wood waste				
Cardboard and paper				
Ferrous metals				
Non-ferrous metals				
Concrete				
Gravel				
Sand/soil				
Asphalt				
Green waste				
Asbestos				
Fluorescent light bulbs				
Glass				
Hydrocarbons				
Plastics				
PVC				
General waste (e.g. food waste, contaminated food packaging, non-recyclable plastics)				

## Annexure Thirteen: Oil Spill Contingency Plan Outline

The proposed activities do not represent major spill risks; however, the possibility of spills still exists. Each port should have a spill management plan that should cover a variety of types of spills. If the port does not have a Port Spill Contingency Plan (PSCP), then consideration should be given to the preparation of one as ports represent high spill risk operations and a major spill in the marine environment can have devastating impacts. An outline of a typical oil spill contingency plan for a port is provided in Annexure 9.2.

In the absence of an overarching Port Spill Contingency Plan, the following Spill Management Procedure (Annexure 9.1) should be adopted as the minimum for the project.

### A9.1 - Spill Management Procedure

#### 1 Distribution

This management Procedure is to be available to all workers, site supervisors and management staff working on the FSMMIP.

#### 2 Scope

This management procedure relates to the FSMMIP only. It is to be read in conjunction with the 'FSMMIP ESMF and ESMP.

#### 3 Purpose

To ensure construction activities meet the FSMMIPs environmental management obligations to:

- a. Protect the health and safety of all employees and ensuring that activities are not harmful to the environment and the greater community; and
- b. Comply with 'general environmental duty' and not cause 'Environmental Harm' or 'Environmental Nuisance' in accordance with the *Environmental Protection Act*.

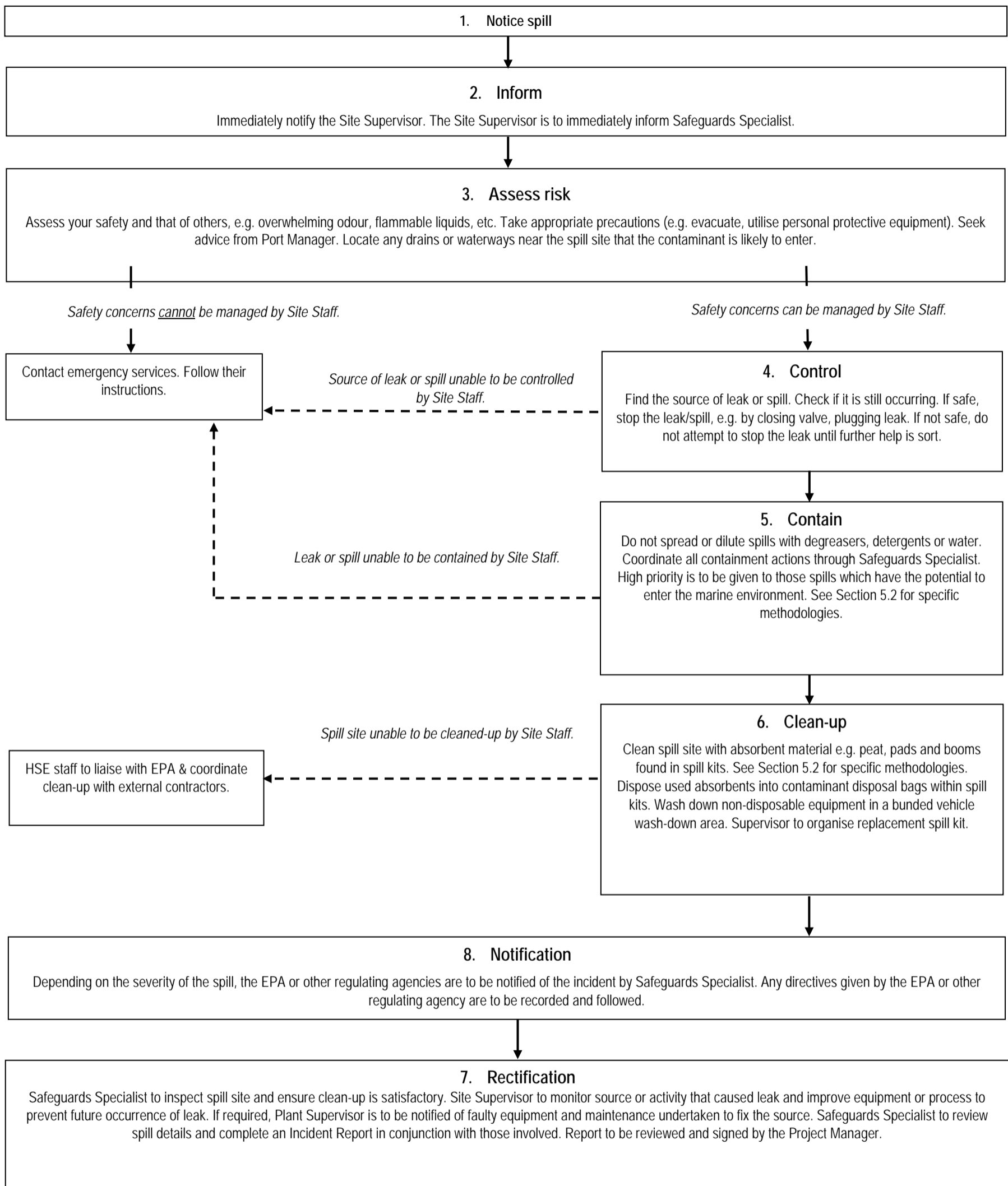
#### 4 Performance Criteria

- a. All spills are reported to DoTCI Safeguards Officer within one hour of occurrence;
- b. No spills enter the local stormwater system or marine environment; and
- c. No occurrence of Class 1 or 2 incidents (refer below) as a result of a spill.

Category	Description
Class 1:	Potential breaches of legislation or failure of process that result in actual off-site environmental harm, or residual on-site environmental harm; or  Works undertaken outside approved areas, without required approval or without environmental assessment; or  Any Material Harm pollutions incident as defined by the law.
Class 2	Failures of process or events that do not result in off-site environmental harm, or residual on-site environmental harm. These incidents may result in temporary on-site environmental harm that can be rectified to pre-existing conditions.
Reportable Event	An event or unexpected find that occurs outside the scope of reasonable environmental controls and mitigation measures.

5 Management Measures

5.1 General Procedure



## FSMMIP Environmental and Social Management Framework

### 5.2 Specific Methodologies

	Spills on Water	Spills on Land
Hydrocarbons	<p><b>Contain</b></p> <ul style="list-style-type: none"> <li>• Obtain booms from hydrocarbon spill kits.</li> <li>• Position booms in waterbody at a 45° angle to direction of flow. Take care to place booms in slow-moving water at a point where the oil/fuel has settled to the surface. Ensure booms are overlapped when tied together.</li> <li>• Position a back-up boom 1-2 m downstream of the first boom.</li> </ul> <p><b>Clean-up</b></p> <ul style="list-style-type: none"> <li>• Apply peat and/or pads from hydrocarbon spill kits across surface of contained spill.</li> <li>• Wait for oil/fuel to be adsorbed/absorbed (a few minutes).</li> <li>• Remove peat and/or pads by skimming water surface.</li> <li>• Repeat as necessary until all oil/fuel is removed.</li> <li>• Remove booms.</li> <li>• Place all contaminated materials in plastic contaminant bags, tie-off bags, clearly label &amp; arrange for disposal.</li> </ul>	<p><b>Contain</b></p> <ul style="list-style-type: none"> <li>• Contain spill to immediate area by placing booms from hydrocarbon spill kits around the spill site.</li> <li>• Place absorbent pads behind booms in places where seepage is likely to occur.</li> <li>• If no booms or pads are available, use earth mounds to contain spill.</li> </ul> <p><b>Clean-up</b></p> <ul style="list-style-type: none"> <li>• If on gravel or soil, apply peat to spill area, wait for adsorption to take place (a few minutes) and then excavate all contaminated material. Replace with clean fill.</li> <li>• If on a hardstand area, apply peat or pads, wait for adsorption/absorption to take place (a few minutes) and then brush up material into plastic contaminant bags.</li> <li>• Place all contaminated materials in plastic contaminant bags, tie-off bags, clearly label &amp; arrange for disposal.</li> </ul>
Chemical	Methodology dependent on chemical type and amount spilled. Refer to Material Safety Data Sheet (MSDS) and consult the Port Manager.	As per methodology for a hydrocarbon spill on land, except use chemical spill kits (materials within these kits are hydrophilic as opposed to hydrophobic). Refer to MSDS sheet and consult HSE staff.

# FSMMIP Environmental and Social Management Framework

## 5.3 Spill Kits

Spill kits are to be available at the port site office and in the supervisors', foremen, environment and safety staff vehicles. The spill kits should be contained within yellow bags or similar labelled, "Spill Kit".

Each kit should contain:

- a. 2 x 2.4m x 75mm mini booms;
- b. 12 x absorbent pads;
- c. 2 x absorbent pillows;
- d. 1 x Global Peat 6-liter bags;
- e. 2 x disposal bags; and
- f. 1 x instruction sheet laminated.



## 5.4 Staff Training

Safeguard Specialist is to ensure that all site staff know where to access a spill kit and what to do in the event of a spill. This is to be achieved through:

- a. Signage for locations of spill kits;
- b. Specific spill training workshops;
- c. Site inductions;
- d. Work Activity Briefings (including JSEAs); and
- e. Toolbox talks.

## 6 Roles and Responsibilities

### All Staff

All staff have an immediate duty to report actual or potential/near-miss spills to their respective supervisor.

### Site Supervisors, Foremen and Leading Hands

- a. To report all spills to Safeguards Specialist within one hour of occurrence.
- b. To assist Safeguards Specialist with any inquiries when undertaking incident investigations, including suggestions to improve equipment or process to prevent future occurrence of leak.
- c. To have a spill kit readily available at all times when conducting works and know how to use the kit effectively.
- d. To ensure used absorbent material is taken for disposal by a licensed waste contractor.
- e. To ensure used spill kits are replaced as soon as practical after use.

### Health and Safety Staff

- a. To ensure an adequately stocked spill kit is available on their vehicle at all times.
- b. To advise of any health and safety considerations when treating or cleaning up a spill.

# FSMMIP Environmental and Social Management Framework

## Safeguards Specialist

- a. To inspect the availability of spill kits around site during weekly site inspections.
- b. To conduct or organize staff spill training.
- c. In the event of a spill:
- d. To inspect the spill site and ensure the cleanup is satisfactory;
- e. To review spill details and complete an Incident Report (PRG-FM-00010-02); and
- f. To liaise with the EPA and/or other regulating agencies.

## 7 Monitoring and Compliance

The occurrence of spills and conformance to this procedure will be monitored by BLC Environment Staff through weekly site inspections, water quality testing (BLC-PR-00104) and incident reporting (PRG-FM-00010-02) and summarized in the Monthly Environmental Report. Corrective actions may include further training (e.g. toolbox talks), the issue of a Site Instruction or disciplinary action, depending on the severity of the non-conformance.

Any directives given by the EPA or other regulating agency are to be recorded and followed in the event of a spill.

## 8 Reference Documentation

FSMMIP ESMF and ESMP

## 9 Key Contacts

List key contacts as appropriate eg:

Port General Manager –

Seaport Manager –

Safeguards Specialist –

HSE staff –

EPA -

# FSMMIP Environmental and Social Management Framework

## A9.2: Sample Table of Contents for Port Oil Spill Contingency Plan

- 1. Introduction**
  - 1.1 Authority for the plan's aims and objectives of the plan
  - 1.2 Geographical scope of the plan
  - 1.3 Integration with other plans
- 2. Notification and Evaluation**
  - 2.1 Reporting and notification procedures
  - 2.2 Initiation of response
  - 2.3 Spill response teams
  - 2.4 Advanced operations center
  - 2.5 Estimate of risk
  - 2.6 Tiered response (small, medium and large spills)
  - 2.7 Movement and fate of oil on the water
  - 2.8 Incident scenarios
- 3. Oil Spill Response**
  - 3.1 Response options
  - 3.2 Monitor the oil slick
  - 3.3 Contain and recover the oil from the sea surface
  - 3.4 Apply oil spill dispersants
  - 3.5 Physical breakup of oil using surface craft
  - 3.6 In-situ burning
  - 3.7 Physical protection of the area and its resources
  - 3.8 Cleanup of oiled foreshores
  - 3.9 Bioremediation
  - 3.10 Oiled waste management
  - 3.11 Environmental sensitivity
  - 3.12 Coastal bird populations
  - 3.13 Oiled wildlife operations
  - 3.14 On-scene liaison
  - 3.15 Recording and cost recovery
  - 3.16 Termination of clean up
  - 3.17 Clean down and restoration of equipment
  - 3.18 Post-spill damage assessment and monitoring
  - 3.19 Post-spill restoration and rehabilitation

# FSMMIP Environmental and Social Management Framework

## 4. Supporting Information

- 4.1 Relevant legislation
- 4.2 Roles of authorities
- 4.3 Description of port and adjacent area
- 4.4 Seasonal conditions affecting the response
- 4.5 Oil spill trajectory modelling
- 4.6 Equipment maintenance and storage
- 4.7 Health and safety considerations
- 4.8 Training
- 4.9 Maintenance of the plan



## Annexure Fourteen: Waste Code of Conduct

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These requirements will form the basis for the development of the FSMMIP Code of Practices for FSMMIP Solid Waste Management. The key objectives of these requirements are to assist the DoTCI Safeguard Specialist to develop a sector-based code of practice for waste management. The requirements for the Code of Practice are:

1. Compliance with Government of FSM Solid Waste Management Regulations.
2. Satisfies the requirements of the ESMP
3. Satisfies the requirements of the World Bank
4. Meets the following minimum standards:
  - No FSM landfills are to be used for any waste. All waste is to be recycled or disposed of offshore at a permitted facility.
  - No dumping of any waste in FSM
  - Compliance with Waigani Convention and any other relevant international conventions for export of hazardous and non-hazardous waste
  - Identify and utilize suitable local recycling and reuse options
5. Implements the usual good practice of solid waste management, including:
  - Segregation of waste
  - Secure storage for waste
  - Adopting the waste hierarchy: (i) avoid; (ii) reduce; (iii) reuse; (iv) recycle
  - Collaborating with other sectors, waste generators and government initiatives for cumulative benefits
  - Build capacity and sustainability within the maritime sector in the approach to waste management through FSMMIP implementation.

When developing, and implementing the Code of Practice, the Safeguard Specialist will consider:

- **Waste streams:** identify which waste streams are likely to be generated and estimate the approximate amounts of materials
  - Undertake inventory of materials that can be reused, recycled or recovered from the project:
  - Specific types of materials
  - Amount of material expected
  - Possible contamination by hazardous materials like asbestos or lead: these materials will limit reuse/recycling options and require special disposal.

**Collection and Storage:** How and where will the different waste streams be collected and stored prior to their disposal offshore. Detail the types of containers to be used and the storage areas that will be created for this waste. Differentiate between regular, bulk and hazardous waste. This must be compliant with the minimum standards detailed in the ESMP:

- Hazardous wastes shall be collected and stored in water tight containers, Containers shall be stored in a bunded and covered area prior to export for disposal.
- Difficult waste such as appliances and building cladding shall be stored in a secure fenced and covered area.
- Non-hazardous wastes shall be stored in a way that prevents their uncontrolled movement, this may be containerized or fenced and/or covered stockpiles. Where appropriate, silt fences, drains and traps or other movement prevention mechanisms should be put in place.

**On-site:** understand how the waste management system (housekeeping, sorting and storage) will work on-site, including bin placement and access.

Determine storage requirements (separate bins or co-mingled), things to consider include:

## FSMMIP Environmental and Social Management Framework

- Ease of use: ensure that containers are easily accessible by workers and that storage areas are clearly sign posted
- Safety: ensure that the containers and storage can be managed safely, including limiting public access to the storage areas
- Hazardous waste materials storage
- Aesthetics: ensure that the FSMMIP sites and storage area appears orderly and will not raise concern from local residents or businesses – for example screening for dust and litter containment and daily collection of windblown material
- Establish a collection/delivery plan in collaboration with waste contractors for waste and recyclable materials generated on-site.

**Clearly assign and communicate responsibilities:** ensure those involved in the FSMMIP are aware of their responsibilities in relation to the Codes of Practice.

**Training:** be clear about how the various elements of the Codes of Practice will be implemented.

**Monitor:** to ensure the plan is being implemented, monitor on-site as per the ESMP monitoring plan.

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Waste and/or Recyclable Materials		Destination		
		Reuse and Recycling		Disposal
Possible Materials Generated (add or delete as needed)	Estimated volume (m3) or area (m2) or weight (t)	On-site (how will materials be reused and/or recycled on-site)	Off-site (Specify the proposed destination and/or recycling facility)	Specify the off-island disposal site and the process for collection, storage and eventual disposal
Wood waste				
Cardboard and paper				
Ferrous metals				
Non-ferrous metals				
Concrete				
Gravel				
Sand/soil				
Asphalt				
Green waste				
Asbestos				
Fluorescent light bulbs				
Glass				
Hydrocarbons				
Plastics				
PVC				
General waste (e.g. food waste, contaminated food packaging, non-recyclable plastics)				

## Annexure Fifteen: Chance Finds Procedure

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### Introduction

Cultural property includes monuments, structures, works of art, or sites of significance points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.

Screening for the FSMMIP indicated that Cultural Physical Resources were unlikely to be at risk as a result of the projects. Therefore, WB OP/BP4.11 was not triggered. Nonetheless, there is the possibility that unexpected cultural heritage items could be discovered during works – 'Chance Finds'.

### Chance Finds Procedure

This procedure is to be followed in the event of a Chance Find:

- a. Stop the construction activities in the area of the chance find
- b. Delineate the discovered site or area;
- c. Secure the site to prevent any damage or loss of removable objects.
- d. Notify the supervisory Engineer who in turn will notify the responsible local authorities;
- e. Responsible local authorities and the Office of National Archives, Culture and Historic Preservation (NACH) through the Historic Preservation Office would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures.
- f. Decisions on how to handle the finding shall be taken by the responsible authorities and the Historic Preservation Office. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage.
- g. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Historic Preservation Office.
- h. Construction work could resume only after permission is given from the responsible local authorities and the Historic Preservation Office concerning safeguard of the heritage.

These procedures must be referred to as standard provisions in construction contracts.

### Reporting

During project supervision, the Site Supervisor shall monitor the above regulations relating to the treatment of any chance find encountered are observed. Relevant findings will be recorded in World Bank Supervision Reports and Implementation Completion Reports will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.

## Annexure Sixteen: Standard Contract Clauses

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Generic contract clauses are provided in this annex to assist with environmental and social management works expected to have minor impacts. These mitigation measures are the core of an Environmental and Social Management Framework and the associated minor impacts typical of small works which can be routinely addressed with best industry practice. These clauses are general and may be modified to conform to applicable national laws, contract procedures and actual scope and nature of the works anticipated. These clauses are intended to be included as requirements in the works contract and shall remain in force throughout the contract period. These clauses represent the minimum standard of execution for environmental protection and include:

- 1 Permits and Approvals
- 2 Site Security
- 3 Discovery of Antiquities
- 4 Worker Occupational Health and Safety
- 5 Noise Control
- 6 Use and Management of Hazardous Materials, fuels, solvents and petroleum products
- 7 Use and Management of Pesticides
- 8 Use of Preservatives and Paint Substances
- 9 Use of Explosives
- 10 Site Stabilization and Erosion Control
- 11 Air Quality
- 12 Traffic Management
- 13 Management of Standing Water
- 14 Management of Solid Wastes -trash and construction debris
- 15 Management of Liquid Wastes
- 16 Management of Works

### Contractor's Environmental and Social Management Plan (CESMP)

The Contractor is required to prepare and implement a CESMP. The Contractor is responsible for the implementation of construction and rehabilitation activities for the sites and for implementing the impact mitigation measures in the construction phase. The Contractors approach shall be detailed in the Construction Environmental Management Plan.

The Contractor shall include a suitably qualified and experienced Environmental, Occupational Health and Safety Officer (and other staff or consultants as necessary) staff to be specifically responsible for preparation and regular update and supervision of the CESMP. The Environmental, Occupational Health and Safety Officer is responsible for the daily supervision and monitoring of the Contractors implementation of the Plan and compliance with the Project ESMP and ESMF for the duration of the contract.

The CESMP shall be approved by the Employer prior to the Contractor's mobilization to the site.

The Contractor will be required to report on the implementation status of the CESMP to the Employer. The damages due to the violation of the stipulations by the Contractor shall be compensated and/or restored by the Contractor at his or her own expense. Performance will be monitored by the Employer and will be enforced by withholding of payments (refer to relevant clause in the bid documents).

### Principles

The CESMP should provide the following

- a. The CESMP is informed and based upon the FSM law, the FSMMIP Project ESMP, EMSF and World Bank Group EHS Guidelines (including those for Ports and Harbors);
- b. All commitments must be specific and auditable with measurable outcomes and clear timeframes;

# FSMMIP Environmental and Social Management Framework

- c. Include occupational and community health and safety;
- d. To ensure readability, write clearly and avoid long sentences with complex clauses;
- e. Always use the terms 'will' and 'must', rather than 'should' or 'may' when committing to carry out management actions;
- f. Avoid use of ambiguous terminology such as 'where possible', 'as required', 'to the greatest extent possible'. If it is necessary to include ambiguous terminology, it should be explained and examples given;
- g. Clearly explain any technical terms or acronyms used, and/or define them in a glossary; and
- h. Commitments or statements within the management plan must be consistent with other relevant management plans or conditions of approval.

## CESMP Content

### Declaration and Document Version Control

The CESMP should provide the following:

- a. person accepting responsibility for the CESMP – signed declaration; and
- b. The document version control should be a simple system that ensures that details of all key changes to the document over time are properly recorded.

### Table of Contents

### Description of Works

The CESMP should provide a summary of the works, description of construction methodologies and identification of offsite areas such as source of materials, fumigation, laydown areas, workers accommodation, offshore waste disposal sites etc.

A schedule of intended commencement and completion dates should be provided. Projects undertaken in stages should identify each stage in the schedule.

Particular attention should be paid to the development of the construction methodology and how it will be staged to ensure continued operation of the dock during the construction phase.

### Policies and Objectives

The CESMP should include the company policies and environmental outcomes of the plan should be defined.

### Environmental Management Roles and Responsibilities

The CESMP should define the roles and responsibilities of personnel in charge of the environmental management of the works. The roles and responsibilities of each relevant position should be documented, including the responsibilities of any subcontractors. The names of the responsible personnel do not need to be included. Identification of the position titles, roles and responsibilities is sufficient. If the roles and responsibilities are expected to change over time the long term variations should also be documented.

### Reporting

The CESMP should include a description of reporting requirements should include:

- a. a list of required reports including where appropriate monitoring, environmental incidents, non-compliance, corrective action and auditing;
- b. a description of the standard report content;
- c. the schedule or triggers for preparing a report;
- d. who the report is provided to;
- e. document control procedures.

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## Training

All people involved with the works should receive relevant environmental training to ensure they understand their responsibilities when implementing the CESMP. People to be trained include those at the site/s of all project activities and operations, including contractors, subcontractors and visitors. The training should be tailored to the role of the individual in the project.

The CESMP should describe the training to be implemented and could include:

- a. site inductions;
- b. identification of key points of environmental value and any relevant matters of national environmental significance;
- c. understanding the requirements of the CESMP and the individual's role;
- d. environmental incident emergency response procedures;
- e. site environmental controls;
- f. Cultural inductions, GBV, HIV Aids and communicable diseases; and
- g. an outline of the potential consequences of not meeting their environmental responsibilities.

Records of all training conducted should be maintained and include:

- a. the person receiving the training;
- b. the date the training was received;
- c. the name of the person conducting the training; and
- d. a summary of the training.

## Emergency Contacts and Procedures

The CESMP should identify the key emergency contacts responsible for managing environmental emergencies associated with the project and their contact details. These personnel should have the power to stop and direct works so that they can manage emergencies effectively. In addition, the plan should establish procedures for managing environmental emergencies and ensure that those procedures are implemented and maintained.

The CESMP should also detail the Contractors contingency plan for extreme weather events, medical emergencies and other rapid response situations.

## Works Methodologies

The CESMP should clearly state the tools, strategies, mechanisms, construction methodologies etc. to meet the stipulations in the ESMP and ESMF and this information usually forms the bulk of the content of the plan. For each potential activity or impact the plan should address specific measures that will be taken including:

- a. Detailed methodologies as required, including diagrams where necessary, levels of competency required, PPE and other details as related to the works and the stipulations of the ESMP;
- b. Additional mitigation measures to be implemented specifically in relation to identified offsite locations; and
- c. Supervision and monitoring procedures with trigger values for corrective actions

## Sub-plans

The CESMP should also include all required sub-plans (SWMP, TMP, etc) as an annex to the CESMP.

## CESMP Audits

The CESMP should include the schedule or triggers for auditing the implementation and effectiveness of the plan. It should address both internal and external audit requirements including who is responsible for undertaking the audits and reporting the results.

## CESMP Updates

The CESMP should specify the schedule or triggers for updates of the plan. An update is required whenever there is a change to the scope of the works or construction methodology that changes the projects area of impact or brings about a change that would be of public interest to know. The plan should also identify who will be responsible for undertaking the update.

### Standard Clauses

#### ***1. Permits and Approvals***

The contractor shall be responsible for ensuring that he or she has all relevant legal approvals and permits required to commence works.

#### ***2. Site Security***

The contractor shall be responsible for maintaining security over the construction site including the protection of stored materials and equipment. In the event of severe weather, the contractor shall secure the construction site and associated equipment in such a manner as to protect the site and adjacent areas from consequential damages. This includes the management of onsite, construction materials, construction and sanitary wastes, additional strengthening of erosion control and soil stabilization systems and other conditions resulting from contractor activities which may increase the potential for damages.

#### ***3. Discovery of Antiquities***

If, during the execution of the activities contained in this contract, any material is discovered onsite which may be considered of historical or cultural interest, such as evidence of prior settlements, native or historical activities, evidence of any existence on a site which may be of cultural significance, all work shall stop and the supervising contracting officer shall be notified immediately. The area in which the material was discovered shall be secured, cordoned off, marked, and the evidence preserved for examination by the local archaeological or cultural authority. No item believed to be an artefact must be removed or disturbed by any of the workers. Work may resume, without penalty of prejudice to the contractor upon permission from the contracting officer with any restrictions offered to protect the site.

#### ***4. Worker Occupational Health and Safety***

The contractor shall ensure that all workers operate within a safe environment. Sanitation facilities shall be provided for all site workers. All sanitary wastes generated as a result of project activities shall be managed in a manner approved by the contracting officer and the local authority responsible for public health. The contractor shall ensure that there are basic medical facilities on site and that there are staff trained in basic first aid. Workers must be provided with the necessary protective gear as per their specific tasks such as hard hats, overalls, gloves, goggles, boots, etc. The contractor shall provide the contracting officer with an occupational health and safety plan for approval prior to the commencement of site activities.

The contractor must ensure that all workers operate within a safe environment. All relevant Labor and Occupational Health and Safety regulations must be adhered to ensure worker safety. Sanitary facilities must be provided for all workers on site. Appropriate posting of information within the site must be done to inform workers of key rules and regulations to follow.

#### ***5. Noise Control***

The contractor shall control noise emissions generated as a result of contracting activities to the extent possible. In the case of site locations where noise disturbance will be a concern, the contractor shall ensure that the equipment is in good working order with manufacturer supplied noise suppression (mufflers etc.) systems functioning and in good repair.

Where noise management is a concern, the contractor shall make reasonable efforts to schedule activities during normal working hours (between 7 am and 5 pm). Where noise is likely to pose a risk to the surrounding community either by normal works or working outside of normal working hours or on weekends, the contractor shall inform the contracting officer and shall develop a public notification and noise management plan for approval by the contracting officer.

#### ***6. Use and Management of Hazardous Materials, fuels, solvents and petroleum products***

The use of any hazardous materials including pesticides, oils, fuels and petroleum products shall conform to the proper use recommendations of the product. Waste hazardous materials and their containers shall be disposed of in a manner approved by the contracting officer in accordance with State and/or national laws. A site management plan will be developed by the contractor if the operation involves the use of these materials to include estimated quantities to be consumed in the process,



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storage plans, spill control plans, and waste disposal practices to be followed. Any plans required shall be approved by the contracting officer.

Elements of the hazardous materials management shall include:

- a. Contractor must provide temporary storage on site of all hazardous or toxic substances in safe containers labelled with details of composition, properties and handling information;
- b. Hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching; and
- c. Wastes shall be transported and disposed of in a manner approved by the contracting officer compliant with national laws and policies

### ***7. Use and Management of Pesticides***

Any use of pesticides shall be approved by the contracting officer and shall conform to the manufacturers' recommendations for use and application. Any person using pesticides shall demonstrate that they have read and understood these requirements and are capable of complying with the usage recommendations to the satisfaction of the contracting officer. All pesticides to be used shall conform to the list of acceptable pesticides that are not banned by the relevant local authority.

If termite treatment is to be utilized, ensure appropriate chemical management measures are implemented to prevent contamination of surrounding areas, and use only licensed and registered pest control professionals with training and knowledge of proper application methods and techniques.

### ***8. Use of Preservatives and Paint Substances***

All paints and preservatives shall only be used with the approval of the contracting officer. Information shall be provided to the contracting officer who describes the essential components of the materials to be used so that an informed determination can be made as to the potential for environmental effects and suitability can be made.

Storage, use, and disposal of excess paints and preservatives shall be managed in conformance with the manufacturers' recommendations and as approved by the contracting officer. The contractor shall provide the contracting officer with a list of materials and estimated quantities to be used, storage, spill control and waste disposal plans to be observed during the execution of the contract. This plan is subject to the approval of the contracting officer.

### ***9. Use of Explosives***

Use of explosives shall be at the approval of the relevant local authority and shall be supervised and undertaken by a qualified explosives technician. Blasting will be limited to between the hours of 9:00 am and 4:00 pm unless specifically approved by the local authority and the contracting officer. Any use of explosives shall be permitted only after an explosives management and blasting plan has been approved by the relevant local authority and the contracting officer.

This plan shall include:

1. Description of the explosive agent, charge description, intended use.
2. Site safety plan including:
  - a. Storage of initiators, booster charges and principal blasting agents;
  - b. Handling precautions to be observed;
  - c. Transport to and from site;
  - d. Security of stored materials; and
  - e. Disposal of excess or damaged explosive materials.
3. Analysis of risk to surrounding area and mitigation measures to be employed including:
  - a. Over-pressure event;
  - b. Noise;
  - c. Flying debris;
  - d. Seismic transmission; and
  - e. Accidental detonation.

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4. Name and qualifications for all persons responsible for handling explosive agents

## **10. Site Stabilization and Erosion Control**

The Contractor shall implement measures at the site of operations to manage soil erosion through minimization of excavated area and time of exposure of excavated areas, preservation of existing ground cover to the extent possible, provision of approved ground cover and the use of traps and filtration systems. Where excavations are made, contractor shall implement appropriate stabilizing techniques to prevent cave-in or landslide. Measures shall be approved by the contracting officer.

The contractor must ensure that appropriate erosion control measures such as silt fences are installed. Proper site drainage must be implemented. Any drain clogged by construction material or sediment must be unclogged as soon as possible to prevent overflow and flooding. The use of retaining structures and planting with deep rooted grasses to retain soil during and after works must be considered. The use of bio-engineering methods must be considered as a measure to reduce erosion and land slippage. All slopes and excavated areas must be monitored for movement.

The contractor will establish appropriate erosion and sediment control measures such as hay bales, sedimentation basins, and / or silt fences and traps to prevent sediment from moving off site and causing excessive turbidity in nearby streams, rivers, wetlands, and coastal waters.

The Erosion, Drainage and Sediment Control Management Plan (EDSCP) and Contaminated Soil Disposal Management Plan (CSDMP) will be required where the potential exists for significant sediment accumulation in aquatic and marine systems. This plan shall include a description of the potential threat, mitigation measures to be applied, and consideration for the effects of severe weather and an emergency response plan.

If works are near or within the marine environment, water quality monitoring must be done before construction, and at regular intervals to determine turbidity levels and other quality parameters.

Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.

## **11. Air Quality**

When appropriate, the contractor shall provide an air quality management plan for contracting officer approval. This plan will include provisions for the management and control of dust and unnecessary emissions resulting from construction activities. The plan shall include control measures to be implemented including the management of dust generated from transportation and site construction activities as well as excess emissions from vehicles and equipment. Under no circumstances shall site or roadway dusts be managed using oil spray techniques.

## **12. Traffic Management**

In the event that construction activities should result in the disruption of area transportation services, including temporary loss of roadways, blockages due to deliveries and site related activities, the contractor shall provide the contracting officer with a traffic management plan including a description of the anticipated service disruptions, community information plan, and traffic control strategy to be implemented so as to minimize the impact to the surrounding community. This plan shall consider time of day for planned disruptions, and shall include consideration for alternative access routes, access to essential services such as medical, disaster evacuation, and other critical services. The plan shall be approved by the contracting officer.

Elements of the traffic management plan to be developed and implemented by contractor shall include:

- a. Alternative routes will be identified in the instance of extended road works or road blockages;
- b. Public notification of all disturbance to their normal routes;
- c. Signage, barriers and traffic diversions must be clearly visible, and the public warned of all potential hazards;
- d. provision for safe passages and crossings for all pedestrians where construction traffic interferes with their normal route;
- e. Active traffic management by trained and visible staff at the site or along roadways as required to ensure safe and convenient passage for the vehicular and pedestrian public;
- f. Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement.

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Under no circumstances shall the contractor permit the collection of standing water as a consequence of contractor activities without the approval of the contracting officer and consultation with the relevant local environmental health authority. Recommendations from that local authority on how to manage and treat the standing water must be implemented. The condition of the standing water must be monitored by the contractor to ensure that it does not present itself as a breeding ground for any pests such as mosquitoes.

### **14. Management of Solid Wastes and Construction Debris**

The contractor shall provide a solid waste management plan that conforms to the national solid waste management policies and regulations for approval by the contracting officer. The site waste management plan shall include a description of waste handling procedures including collection, storage and disposal through the national waste management system. There will be no open burning of waste material and the contractor shall endeavor to recycle wastes as appropriate through the national waste management system.

Under no circumstances shall the contractor allow construction wastes to accumulate so as to cause a nuisance or health risk due to the propagation of pests and disease vectors.

The contractor shall provide the contracting officer with a liquid waste management plan as part of a site waste management plan that conforms to the waste management policies and regulations of the relevant FSM and state law. Under no circumstances shall the contractor allow construction related liquid wastes to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its content. The site waste management plan shall include a description of how these wastes will be stored, collected and disposed of in accordance with current law. Additionally, the contractor shall provide for the regular removal and disposal of all site wastes and provide the contracting officer with a schedule for such removal.

Specific elements of the contractor's liquid waste management plan shall include: contractor to abide by all pertinent waste management and public health laws; waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities; construction and demolition wastes will be stored in appropriate bins; liquid and chemical wastes will be stored in appropriate containers separated from the general refuse; all waste will be collected and disposed of properly in approved landfills by licensed collectors; the records of waste disposal will be maintained as proof for proper management as designed; whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos); construction related liquid wastes must not be allowed to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its contents.

### **15. Management of Liquid Wastes**

The contractor shall provide the contracting officer with a liquid waste management plan as part of a site waste management plan that conforms to the waste management policies and regulations of the relevant Saint Vincent and the Grenadines authority. Under no circumstances shall the contractor allow construction related liquid wastes to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its content. The site waste management plan shall include a description of how these wastes will be stored, collected and disposed of in accordance with current law. Additionally, the contractor shall provide for the regular removal and disposal of all site wastes and provide the contracting officer with a schedule for such removal.

Specific elements of the contractor's liquid waste management plan shall include: contractor to abide by all pertinent waste management and public health laws; waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities; construction and demolition wastes will be stored in appropriate bins; liquid and chemical wastes will be stored in appropriate containers separated from the general refuse; all waste will be collected and disposed of properly in approved landfills by licensed collectors; the records of waste disposal will be maintained as proof for proper management as designed; whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos); construction related liquid wastes must not be allowed to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its contents.

### **16. Management of Workers**

The Contractor will prepare a specific Code of Conduct to describe the expected behaviors of their project worker in relation to the local communities and their social sensitivities. This is to avoid creating demand for illegal sex work, avoid gender-based violence and violence against children, manage alcohol consumption and avoid the use of illegal substances, and abide by cultural and social norms of the host community.

The Contractor is to ensure that all overseas project staff undergo a cultural familiarization session as part of their induction training. The purpose of this induction will be to introduce the project staff to the cultural sensitivities of the local communities

## FSMMIP Environmental and Social Management Framework

and the expected behaviors of the staff in their interactions with these communities. Gender based violence and HIV Aids and communicable disease awareness raising and resources shall be provided to all workers. The client shall provide to the Contractor a list of approved service providers which shall include recognized NGOs and others for conducting this training.

The Contractor is to stipulate the conditions under which visitors may attend the workers accommodation, including curfews.

The Contractor shall ensure that basic social/collective rest and recreation spaces and activities within the workers accommodation to help minimize the impact that the workers would have on the leisure and recreational facilities of the nearby communities.

# FSMMIP Environmental and Social Management Framework

## Annexure Seventeen: Occupational Health and Safety Plan Template

Location: \_\_\_\_\_ Project No: \_\_\_\_\_

Project Manager: \_\_\_\_\_ Date: \_\_\_\_\_

Client Details: Government of the Federated States of Micronesia and the World Bank Group Company: \_\_\_\_\_

Client Representative / Project Manager: \_\_\_\_\_

Description of Works: Federated States of Micronesia Maritime Investment Project

Site History: \_\_\_\_\_

<b>Site Features</b> (tick if applicable)	<input type="checkbox"/> Ocean/ Lake / Water Course	<input type="checkbox"/> Underground pipelines sewerage, potable water)	<input type="checkbox"/> Remote site work
	<input type="checkbox"/> Natural Disasters (flooding, cyclone, fire, etc)	<input type="checkbox"/> Impact from or to neighboring properties	<input type="checkbox"/> Public Access to site
	<input type="checkbox"/> Overhead power lines, underground service cables (electrical / telephone)	<input type="checkbox"/> Subsidence / soil stability <input type="checkbox"/> Amenities/Toilets	<input type="checkbox"/> Construction <input type="checkbox"/> Working machinery
	<b>First aid facilities</b>		
	<input type="checkbox"/> on site	<input type="checkbox"/> in vehicle	<input type="checkbox"/> on vessel
	<input type="checkbox"/> Other (specify) _____		

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Hazard Type	Risk: H - High M - Med L - Low	Control Measures: Refer to SWMS where appropriate. Specific site hazards to be detailed on this form.
<b>Physical Hazards</b>		
Noise (do you need to shout at 1m distance)		
Vibration		
Dust		
Lighting		
Electrical sources / electrical tags up to date		
Sharp objects		
Hot works being conducted (welding, grinding)		
Trenches / Excavations – do you need to do work in or near a trench or excavated area, or near a shored area)		
Confined spaces (tanks, silos, basements, service pits and trenches)		
Work at Elevation - Risk of falling from an elevated height (opening, roof, scaffolding, structure)		
Falling objects (potential for)		
Stationary / fixed plant items		
Service locating		
Soil sampling (inhalation of dirt, contaminated soil, blisters from auger)		
Vibration Exposure		
Compliance with Port Authority requirements		
Manual Handling (do you need to lift obscure shaped or heavy items)		
Inadequate safety controls		
Fuel / chemical spillage / Leakage		
Disturbance to contaminated land		
Waste Disposal		
Thievery / illegal activity.		
Driver Fatigue/ Car Accident		
Vehicle breakdown		
Hazardous road conditions		
Reduced visibility while driving		
Vehicle accident / equipment damage		
Vehicle stranding / vehicle damage		
Working near roadsides		
Boating hazards		

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Underwater work		
Weather conditions		
Smoking		
Dangerous fauna / hazardous flora / vectors / bacteria		
Bites and scratches		
Marine creature attack.		
Spikes and scratches from plants		
UXO		
Slips / trips / falls		
Dehydration and sunstroke		
Hypothermia		
Working in wet conditions with inappropriate work PPE		
Working in extreme weather conditions		
Lack of communication in the event of an emergency; communication problems		
Working at night time		
Weed spread		
Inadequate first aid equipment / knowledge.		
Bushfire		
Working near water		
Manual handling		
Lack of communication to relevant parties		
Muscle strains		
Destruction to local environment caused by sampling/surveying activities		
Infrastructure damage		
Problems securing accommodation.		
Other (please specify)		
<b>Biological Hazards:</b>		
Exposure to zoonotic diseases through contact with faeces, urine, blood and saliva		
Snake or spider bites; insect stings; reactions to stinging plants; allergic reactions.		
Vector borne diseases eg Malaria		

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1 Personal Protection Equipment (PPE)		
Level D equipment is standard and should be readily available. Assess job and PPE Level - tick appropriate PPE from within that level. Higher levels include the items in the levels below.		
<input type="checkbox"/> Level D (modify to suit project) <input type="checkbox"/> Coveralls / cotton shirt (long sleeved) and pants <input type="checkbox"/> Safety boots <input type="checkbox"/> Safety glasses <input type="checkbox"/> Hard hat / shade protector <input type="checkbox"/> Dust mask <input type="checkbox"/> Hearing protection <input type="checkbox"/> Gloves (cotton, latex) <input type="checkbox"/> High visibility vest <input type="checkbox"/> Sunscreen <input type="checkbox"/> Water <input type="checkbox"/> Remote location communication <input type="checkbox"/> Gattors <input type="checkbox"/> Other	<input type="checkbox"/> Level C <input type="checkbox"/> Coveralls / Tyvek suits (chemical resistant) <input type="checkbox"/> ½ face or full faced respirator + cartridges <input type="checkbox"/> Face shield <input type="checkbox"/> Inner and outer gloves (Nitrile, PVC, cotton, latex)	<input type="checkbox"/> Level A or B <input type="checkbox"/> Pressure demand full face-piece SCUBA – air supplied <input type="checkbox"/> Chemical resistant clothing (level B), fully encapsulated suit. Inner and outer gloves (Nitrile PVC, cotton, latex)



# FSMMIP Environmental and Social Management Framework

2	Emergency Planning & Contacts	** Remember – incidents and accidents need to be reported within 24 hours of occurrence **
<i>Emergency and Decontamination Plan</i> <i>(Fire equipment, spill equipment, personal protective equipment, fire extinguisher, shower, eye-wash, decontamination equipment, mobile phone coverage, media coverage etc)</i>		
<b>Safety Equipment:</b>		
<i>Additional Site Requirements (E.g., site inductions, work permits, licenses /certificates, audits, inspections, reporting mechanisms (made by client)</i>		

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3	Contact Phone Numbers
Police, Fire Brigade and Ambulance	
Hospital	
Port Authorities	
Accommodation	



## FSMMIP Environmental and Social Management Framework

List the qualifications required to complete the works:	
List the training required by workers to complete the works:	
List the permits, certificates, working approvals required to complete the works:	
List the codes of practice, legislation and any applicable standards which pertain to the work:	
List the plant / equipment that will be used on site:	
List the maintenance checks for plant and equipment and the frequency of site/workplace inspections (and who will undertake the inspections):	

### Attachments

Attachment 1 – Standard Operating Procedures: Marine Operations / Working on or Near Water

Attachment 2 – Job Hazard Analysis Form

Attachment 3 – Pre-Start Meeting

Attachment 4 – Incident / Accident Report Form

Attachment 5 – First Aid Register

Attachment 6 – Check in Procedure

Attachment 7 – Diver Checklist

## FSMMIP Environmental and Social Management Framework

Roles and Responsibilities			
Personnel	Responsibilities	Signature / Date	
Project Manager or Site Supervisor	<ul style="list-style-type: none"> <li>Responsible for the day to day implementation of the health and safety plan in all phases of work.</li> <li>Ensure that the project site is inspected daily and that any required modifications to the project H&amp;S Plan are noted, communicated to all project staff and are implemented.</li> <li>Ensure that onsite daily Toolbox meetings are held with all site staff (including staff and subcontractors)</li> </ul>		
ESIA Consult Field Personnel	<ul style="list-style-type: none"> <li>Ensure the on-site activities and deliverables conform to this H&amp;S Plan.</li> <li>Ensure that appropriate PPE is worn.</li> <li>Report any incidents or accidents as soon as possible.</li> <li>Ensure that Site Supervisor or delegate conducts an onsite daily Toolbox meeting.</li> </ul>		
Contractors	<ul style="list-style-type: none"> <li>Responsible for abiding by ESIA Consult H&amp;S plan.</li> <li>Provide H&amp;S Plans and/ or SWMS's for work to be undertaken.</li> <li>Ensure the on-site activities and deliverables conform to this H&amp;S Plan.</li> <li>Ensure that appropriate PPE is worn, and site areas are mapped out containing safety factors.</li> <li>Report any incidents or accidents to the ESIA Consult Field Staff / Site HSO as soon as possible.</li> <li>Contractors should demonstrate to ESIA Consult appropriate OHS knowledge and performance, be able to identify risks associated with the work they are doing and provide suitable work methods to minimize the risks to themselves and others.</li> </ul>	Sign induction log	

## FSMMIP Environmental and Social Management Framework

The amount of detail provided in each HASP will vary with complexity of the project and degree of hazard involved. As a minimum, each HASP must address the following topics, where appropriate:

<input type="checkbox"/>	Site Description and Site Background
<input type="checkbox"/>	Scope of Work
<input type="checkbox"/>	Potential Hazards and Hazard Assessment for Each Task & Operation
<input type="checkbox"/>	Organization and Responsibilities
<input type="checkbox"/>	Ambient Air Monitoring and Personal Monitoring
<input type="checkbox"/>	Noise, Heat/Cold, Radiological, etc. Stress Monitoring
<input type="checkbox"/>	Respiratory Protection
<input type="checkbox"/>	Personnel Protective Clothing and Equipment for Each Task
<input type="checkbox"/>	Action Levels for Upgrades/Downgrades of PPE
<input type="checkbox"/>	Site Control and Decontamination
<input type="checkbox"/>	Personnel Hygiene and Decontamination Facilities & Procedures
<input type="checkbox"/>	Site Specific Medical Surveillance Parameters
<input type="checkbox"/>	Training, Initial and Site Specific
<input type="checkbox"/>	Emergency Response Plan and Contingency Procedures
<input type="checkbox"/>	Emergency References
<input type="checkbox"/>	Hospital Location Map
<input type="checkbox"/>	On-site First Aid and Emergency Equipment
<input type="checkbox"/>	Accident Reporting, Investigation, and Recordkeeping
<input type="checkbox"/>	Confined Space Entry
<input type="checkbox"/>	Trenching and Excavation
<input type="checkbox"/>	Hot Work in Potentially Flammable/Combustible Environments
<input type="checkbox"/>	Special Protective Measures
<input type="checkbox"/>	Ability to Stop Works if unsafe practices are observed

<p>Health and Safety Plan Approved: <input type="checkbox"/> Yes <input type="checkbox"/> No By:.....(Name)</p> <p><input type="checkbox"/> Project Manager <input type="checkbox"/> Project Director.....(Title).....(Date)</p>
--

## FSMMIP Environmental and Social Management Framework

Potential Consequences or Impacts				4 Likelihood				
	Keyword			Almost Certain	Highly Likely	Likely	Possible	V Unlikely
Hazard Severity		Severity	Indicative Damage	A Several times/ month	B Once per month	C Once per year	D Once every 10 –20 years	E Once every 100 years
	1 Minor	Near miss with minor potential consequence or first aid injury	<\$5,000	Medium	Medium	Low	Low	Low
	2 Significant	Doctor treatment injury.	\$5,000 to <\$25,000	High/Med.	Medium	Medium	Low)	Low
	3 Serious	Lost Time injury or non-life threatening health issue (e.g. hearing loss)	\$25,000 to <\$250,000	High	High/Med.	Medium	Medium	Low
	4 Major	Extreme injury or permanent health issue (e.g. silicosis, asbestosis)	\$250,000 to <\$2.5 mill	High	High	High/Med	Medium	Medium
	5 Catastrophic	Fatality, High level prosecution expected	≥ \$2.5 million	High	High	High	High/Med	Medium





## Attachment 1 – Standard Operating Procedures: Marine Operations / Working on or Near Water

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# FSMMIP Environmental and Social Management Framework

## Purpose

Establishes the minimum requirements and guidance for ESIA Consult personnel assigned to projects that place them at risk of falling into water, including working ashore near to or over water, on water operations with unpowered craft, small boat operations, and work aboard coastal and offshore vessels.

## Definitions

A glossary of standard nautical terms used in this SOP is provided as Attachment 1.

## Roles and Responsibilities

### Project Manager

The Project Manager (PM) is responsible for the overall success of a project and the performance of employees engaged in project activities. The PM shall ensure that all appropriate Safety, Health and Environmental (SH&E) procedures are identified and implemented:

- Determining the applicability of this SOP during the planning stage of the field investigation projects
- Confirming that the marine subcontractor selected to support project operations is appropriately qualified and has been approved by the client
- Allocating appropriate resources to implement the required measures
- Designating a field team member to implement and maintain these measures, maintain related documentation, and to communicate with appropriate parties as necessary
- Ensuring that the project is properly staffed with trained employees
- Ensuring that a float plan (refer to Section 4.1.3.7) is filed and executed properly.

### Field Task Manager/Supervisor

The Field Task Manager (FTM) is responsible for training and equipping field staff for the work at hand. The FTM is also responsible for conducting daily safety meetings, performing field safety audits, ensuring that all safety issues and equipment deficiencies are properly corrected, and that the proper equipment is available to the field staff to safely meet the goals and quality objectives of the project. Where project / team is small, the PM may also be the FTM.

### Field Staff

Employees are responsible for complying with the safe work practices specified in this policy and all other applicable policies and reporting all unsafe working conditions.

- Ensuring that their training is up to date
- Ensuring that equipment is properly maintained and functioning
- Following safe boating and near-water safety procedures
- Reporting incidents and near misses when they occur

## Procedure

Any project that involves marine on-water operations or near/over-water activities must prepare a sites-specific Health and Safety Plan (HASP). All field staff will be required to read and understand the principles of the HASP and review and be familiar with the requirements of this SOP. The HASP must include identification of all hazards associated with the project and the protective measures needed to minimize

# FSMMIP Environmental and Social Management Framework

risks (illnesses and injuries). This SOP describes the safety principles/procedures that shall be implemented by ESIA Consult employees engaged in working ashore near to or over water or conducting any on-water operations on behalf of ESIA Consult.

## Overall Requirements

Pertinent general requirements for the various field activities covered by this SOP are discussed in Section 3.2. The general safety considerations which apply to all on-water or near-water field projects are listed below.

## General Safety Considerations

- Personal protective equipment (PPE) specified in the project-specific HASP is to be worn at all times.
- Whenever there exists the possibility of falling into water, personnel should be attired in a USCG approved Type III or Type V work vest. The vest must be properly sized for the individual and should be secured at all times.
- Swimming is prohibited, unless that being conducted by certified divers in the completion of their assigned task, or to prevent a serious injury or loss of life in a person in water/person overboard emergency.
- The consumption of alcohol is strictly forbidden while aboard any vessel or on any job site.
- The buddy system should be utilized whenever there is the possibility of falling into water, in which two persons operate as a single unit in order to monitor and assist each other in performing tasks.
- Single-handed vessel operations or conducting shoreline work alone should be avoided, unless constant communications is maintained between personnel and prior approval by the Project Manager is granted. For operations on offshore vessels, personnel are not permitted to work on deck alone, unless they are in a clear line of sight by another member of the ship's crew monitoring their activity from within the pilothouse. A throwable rescue device (Type IV flotation aid) along with whatever equipment (i.e., ladders, lifting gear, or rescue boat) necessary shall be immediately available to recover an individual from the water.
- A float plan should be filed prior to departure (refer to Section 4.3.1.7) and included in the HASP.
- When working with potentially hazardous materials or situations, follow safety procedures as defined by the Job Hazard Analysis (JHA) provided in the HASP, which must be prepared prior to any activities.
- All gear and personnel effects shall be properly stowed to prevent shifting and coming adrift while at sea.
- All deck equipment shall be properly secured to prevent shifting. Heavy equipment and portable machinery loaded on deck shall be secured with properly sized lashings while in transit.
- Equipment shall be secured on deck in a manner that retains a clear and safe walkway. Personnel shall not be permitted to pass fore and aft, over or around gear unless the proper means has been established to do so safely.
- All passengers in small boats shall remain properly seated at all times while the boat is underway. Standing at the edge of open transoms whenever the boat is underway or preparing to maneuver is not permitted.
- Moving and carrying gear aboard a boat shall be conducted in a fashion which provides one free hand to hold onto railings whenever using stairwells. Heavy and bulky items shall be separated out or broken down into smaller more manageable lifts or a teaming arrangement with another crew member should be made to facilitate safe handling.

## Summary Requirements

### Land-based (shoreline/bridge/pier – includes wading)

*Definition:* Work that includes shoreline surveys, working along river banks, working over water (such as on bridges and piers), and field surveys in shallow waters where personnel are attired in waders and boat support is not required.

*ESIA Consult Policy:* Under these conditions, ESIA Consult requires that whenever there exists the possibility of falling into water, personnel should have access to a USCG approved Type III or Type V work vest. The vest must be properly sized for the individual. A Type IV throwable rescue device shall be immediately available to the field crew



## FSMMIP Environmental and Social Management Framework

*General Notes:* In certain situations, the safety hazards working along the waterfront can be significant, especially if the rescue of an individual from the water is challenged by shoreline topography or accessibility, an elevation above the water (or height of a possible fall) or river or tidal currents. Consideration of these hazards should be included in emergency response planning.

### Small Boat Operations (<5m in length)

*Definition:* Operations including canoes, kayaks, coring rafts, and small dinghies/dories with either electric or gas-powered outboards.

*ESIA Consult Policy:* General safe boating guidelines to be considered in developing a project-specific HASP. Personnel should have access to a USCG approved Type III or Type V work vest. The vest must be properly sized for the individual. ESIA Consult marine personnel, if operating the vessel, are required to hold an appropriate boat license for the vessel being used. Vessel operators must have prior experience and/or complete competency training. Singlehanded vessel operations are not permitted.

*General Notes:*

Small boats must be loaded in a fashion so that the boat is trimmed (or balanced side-to-side and slightly lower at the stern). In addition, the vessel shall be loaded and operated within its limits as instructed by the capacity plate affixed to the boat by the manufacturer. This capacity plate sets the allowable maximum number of people, maximum weight of all passengers, maximum weight of all passengers and equipment, and the maximum horsepower for the engine.

Use only approved fuel containers. Refuel portable fuel containers off the vessel. When filling up portable fuel containers, extinguish all smoking materials, turn off engines, and all electrical equipment and other appliances that could cause a spark (including cell phones).

Keep fuel containers well grounded (do not fill the container in the truck bed – place it on the ground) and keep nozzle in contact with container during filling. Wipe up any spilled fuel.

### Mid-sized Boat Operations (open platforms 5m-8m in length)

*Definition:* Vessels that are gas powered and may be either single hull boats or pontoon coring barges; the coring barges may also be equipped with A-frames, winches, and anchor handling systems for vessel positioning.

*ESIA Consult Policy:* General safe boating guidelines to be considered in developing a project-specific HASP. ESIA Consult marine personnel, if operating the vessel, are required to hold an appropriate boat license for the vessel being used.

Complete competency training is suggested for those who may not have experience with the size and type of vessel being operated. Singlehanded vessel operations are not permitted.

ESIA Consult employees are not permitted to operate hydraulic deck machinery.

*General Notes:* All vessels equipped with propulsion machinery must be registered in the state of principal use. A certificate number will be issued upon registering the vessel. These numbers must be clearly displayed on each side of the forward half of the vessel.

ESIA Consult does not own boats or watercraft in this size class. Therefore, activities that require their use will require either the rental of an appropriate craft or the subcontracting of these services to a qualified vendor, especially in situations requiring hydraulic handling systems such as coring barges or vessels equipped with A-frames. If a boat/watercraft rental is considered, the vessel must be obtained from an authorized location and the leasing facility must have documented licenses for the rental/lease of boats/watercraft and equipment and must provide liability insurance, maintenance logs, and orientation programs.

### Training

Operating instructions will vary from vessel to vessel. Therefore, operators should read the vessel specific operations manuals, orient themselves to the vessel they are about operate, and consult with vendors or lessors who have specific operational knowledge in order to have questions answered.

The following are general operational instructions to be incorporated into field plans:

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- Only qualified marine personnel shall be permitted to operate hydraulic machinery (winches, A-frames, etc.) for the deployment and recovery of scientific gear or surveying equipment.
- All personnel shall be advised of the inherent risks of prolonged exposure to the elements, such as direct sun, solar glare, wind, heat, cold, inclement weather, and vessel motion. Appropriate breaks should be implemented to limit exposure to the elements when working in extreme hot or cold environments. The use of sunscreen is required. Plenty of liquids, food and/or snacks should be made available on-board for the expected duration on the water
- Vessel operations should be limited to 12 hours (dock to dock) to minimize fatigue.
- On-water personnel involved in sampling contaminated sediments or surface waters may be required to have a Hepatitis A vaccination depending on site conditions and are advised to consult with their Health and Safety Manager prior to the start of field activities.
- All on-water personnel should be competent swimmers.

## Planning and Notifications

### Project Assessment

The project assessment should include an evaluation of the required tasks, the number and qualifications of field staff needed to effectively and safely perform the tasks, the types of gear needed, the required handling systems and available deck space needed to support the project, and the worst-case sea conditions that may be encountered in the survey area. This information will determine the best suited vessel (overall size, gear outfitting, and sea-keeping qualities) and whether appropriate professional licensure is required.

The project assessment is an essential part of project planning to ensure that the correct platform, staffing, and logistical details have been assigned to the project. As part of the assessment, an evaluation of the immediate survey area should be done to determine if survey operations will impact other marine traffic. Some of the details that go into a project assessment include:

### Nautical Charts

Consult up-to-date charts (NOAA/NOS, NIMA, CHS, Admiralty, etc.) before leaving the dock to understand the conditions in your survey area, including water depths, navigation aids, underwater danger areas (pipeline and cable crossings), shoreline features, and major landmarks.

### Site-Specific Water Conditions

Consult up-to-date tide charts, current conditions (river, longshore, rip tides, etc.), swell and surf conditions, and other water level/condition information available prior to initiating on water or near water operations.

### Communication Plan

A communications list shall be drafted prior to departure that includes emergency contact information for all ESIA Consult staff on board, including the names of personal physicians if required for medical reasons. If someone is injured in the course of performing work, field staff must follow the in the project-specific Health and Safety Plan – including the completion of an incident report and a first aid record.

All on-water project planning must include a communications list which includes a designated emergency contact for each person aboard, phone numbers for medical facilities and emergency responders, local authorities, including police, USCG, marine patrol, harbor masters, and a local Sea Tow service. Contact information for personal physicians is suggested for all personnel with voluntarily reported medical conditions that may require special attention.

### Security

Since the events of September 11, 2001, many ports and harbors have established security zones around bridges, industrial facilities, marine terminals, power plants, and Navy vessels. If field survey activities are planned within 100 m of any of these critical infrastructure features, the USCG or local equivalent and local port authorities must be notified, and proper authorizations must be granted beforehand. Once

## FSMMIP Environmental and Social Management Framework

authorization has been granted, work must be conducted within the permitted start and end dates. It is also recommended that the local pilots association be consulted prior to initiating in water activities in or near commercial ports.

For inland waters, lakes, and rivers, local law enforcement authorities must be notified whenever working near bridges, drinking water reservoirs, power plants, or dams.

### Hazardous Weather Planning

Local marine forecasts should be checked in advance of any planned on-water operation to ensure that an adequate safe weather window exists to support the expected field schedule.

Never leave the dock or safe anchorage without first checking the local marine forecast.

Operations being conducted in exposed marine environments shall monitor marine weather broadcasts for the latest forecasts and marine advisories.

### River Conditions / Dam Releases

Where applicable, you need to understand the conditions of the river in which you are working. If the river stage and flow is controlled by a hydropower dam, then it is imperative that you contact the local river, lake, or waterway systems management office for information on release quantities, schedules, and audible alarms. River conditions can turn hazardous almost immediately if caught unprepared by an unexpected release from an upstream dam.

There are some special concerns when working in rivers as discussed below:

- Know the waters to be navigated. Utilize river guide books and/or topographic maps for trip planning. Define locations for put-ins and take-outs along the survey route and for possible lunch break stops. A shore side person monitoring on-water activities is strongly recommended for safety considerations and to serve as a shuttle back to the put-in location at the end of the day.
- Because these river hazards are not readily apparent until you are actually upon them, and you may not have enough time to take evasive action, it is recommended that you review waterway system information or guidebooks before heading out on the water. Once identified, personnel must incorporate portaging of gear around these structures into their overall field logistics. A field reconnaissance level survey is suggested to identify suitable locations and routes for portaging and obtain the proper permissions from businesses and landowners if needed.
- Reschedule field surveys if conditions are simply too dangerous; for instance, during high stage high flow events, extreme cold, or windows of time where upstream dam releases may be possible.
- Never attempt to navigate over a low head dam. Fixed-crest low head dams have dangerous currents on the down-current side of the dam. These orbital re-circulating currents create a hydraulic effect that can actually hold or draw even a motorized boat into danger; the entrained air bubbles will render propellers useless and escape nearly impossible. Rescue is very difficult and the risk of serious injury or a fatality is very real. In the event of an unintentional over-turning incident, personnel should stay with their craft – they float. The craft should then be maneuvered to the nearest shore.
- Beware of strainers! Strainers are fallen trees, bridge pilings, undercut rocks or anything else that allows current to flow through it while holding you or capsizing your boat. Learn re-entry techniques into your boat. Stay with boat if possible.
- In shallow swift water, if separated from the boat assume a defensive position by lying on your back, legs pointing downstream. Arch your back to stay close as possible to the surface to avoid bumping the bottom. Keep your feet on the surface; this helps you avoid one the most common river hazards – foot entrapment. This is caused by standing in a swift current and having your foot pushed into a crevice or snarled root, etc. Maneuver to the nearest shore and stand only when the water is knee deep or less. It is always advisable to wear proper foot protection (boat shoes) so that you are prepared to deal with just such an emergency.

### Float Plan

Float plans shall be prepared for all vessel operations to document vessel information (make/model, hull color, and other distinguishing features), personnel on board, description of activities being performed, expected time of departure, planned time and location for arrival,

## FSMMIP Environmental and Social Management Framework

course being travelled, and pertinent contact calling information for reaching the vessel. This information shall be submitted to a competent individual on-shore who assumes the responsibility of initiating emergency response procedures if the vessel does not check in at the designated time.

In the event the return is delayed, and it is not an emergency, the boat crew must inform those holding the float plan, and subsequently notify them upon returning to the dock so that the float plan can be closed out – avoiding an unnecessary and costly search.

If the vessel was trailered to a public ramp, then vehicle information (make/model and license), ramp location, and contact information for the local police department should be included in the float plan.

A sample float plan can be found in Attachment 2.

### Utility Notifications

Marine projects that include activities such as anchoring, coring, grab sampling, spud positioning, or any activity with the potential to damage sub-bottom utilities or underwater structures must conduct a presurvey utility clearance. Local utility companies (electric, phone, gas, cable networks) and/or the local Dial before you dig, DIG SAFE, ONE CALL, or equivalent office shall be consulted prior to the commencement of field activities to ensure that proper clearances are defined around these marked-out corridors to prevent the interference or damage of these utilities. If there are any uncertainties involved in locating underwater utilities, a sub-bottom and/or magnetometer survey shall be conducted to identify utilities or structures in the work area.

A check of published nautical charts will generally indicate the location of defined utility corridors, but these typically show major utility crossings such as gas pipelines and major electrical distribution cables.

These utility crossings are generally marked on each bank on either side of the utility right-of-way with a sign board reading "CABLE CROSSING - DO NOT DREDGE – DO NOT ANCHOR.

### Safety Preparedness

#### Required Safety Gear

Work clothing must be suitable for the anticipated weather and working conditions. Deck shoes are permitted unless the project requires the lifting or the handling of gear, at which times steel-toed shoes are required. Safety glasses (tinted as necessary) should be worn at all times. Hard hats shall be worn during the deployment and retrieval of gear and at any time where there is the overhead transfer of equipment or gear, either aboard the vessel or dockside.

Vests shall be outfitted with reflective tape and further equipped with a rescue light if operations are expected at night, or during low light, or heavy weather conditions.

A life jacket or personal flotation device (PFD) is the most important piece of safety gear and may in fact make the difference between life and death for anyone experiencing an on-water emergency. One USCG approved wearable Type I, II, III, or V PFD must be carried for each person aboard. Vessels greater than 5 m are required to also carry at least one Type IV rescue aid.

Appropriate hearing protection equipment should be made available when working in close quarters to heavy or loud equipment (dredge machinery, winches, air compressors, generators, etc.).

Harnesses/safety lines may be required for those personnel while working at an unprotected deck edge performing the over boarding or recovering of gear in a rolling sea.

Latex or Nitrile gloves and eye protection are required during the handling of any contaminated material or in any situation that poses an exposure risk to hazardous materials, including handling of hazardous chemicals such as Formalin (used in the preservation of benthic community samples), or acids (used in the preservation of aqueous samples). A copy of all pertinent Material Safety Data Sheets (MSDS) shall be immediately available to field personnel on site.

Beyond all the required safety gear specified herein, vessels providing berthing or enclosed occupied spaces should provide the following:

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- Emergency lighting – Battery powered flood lighting shall be installed to illuminate walkways, stairwells, and emergency exits in the event of power failure.
- CO detectors/Smoke detectors – These protective devices of marine quality shall be required for all living quarters, enclosed occupied spaces, and pilot houses.

### Development of Job Hazard Analysis (JHA)

The preparation of a project-specific health and safety plan should include a Job Hazard Analysis (JHA). This hazard analysis examines each basic step in a job task, identifies the potential hazards and determines measures to protect workers from these hazards. The task hazard analysis process is designed to help prevent accidents and injuries by identifying job hazards and providing recommendations to either removing them or incorporate control strategies and protective equipment. Hazards that should be addressed may include falling into water, gear deployment or overhead lifting, sediment contamination, shoreline risks (debris, blood-borne pathogens, encountering vagrants, etc.), dam releases, foul weather, etc.

One common hazard that is universal to most all field programs is the risk of back injuries from lifting gear incorrectly. This important consideration should not be overlooked.

### Pre-Departure Briefing

Each day prior to departure, the designated ESIA Consult Safety Officer or Field Team Leader shall conduct a safety briefing (pre-start meeting) to review the activities being performed and identify the proper work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate hazards or minimize risks associated with each hazard, and applicable emergency response procedures.

## Emergency Procedures

### Stop Work Authority

The safety and health of all hands aboard will take precedence over cost and schedule considerations for all project work. All ESIA Consult personnel have the authority to STOP WORK if they see a potential or actual hazard that may threaten the safety of people or the environment. Upon stopping work, the designated ESIA Consult safety officer must be immediately notified and provided with information regarding the nature of the safety, health or environmental concern. Once the concerns are resolved to everyone's satisfaction, work can proceed.

If the concerns are not resolved to the satisfaction of the worker and/or the field safety officer, work does not proceed. The ESIA Consult project manager will be contacted to obtain assistance in resolving the concerns. The ESIA Consult PM will attempt to resolve the matter with all parties involved and work will not resume until this criterion is met.

### Site Evacuation

Under certain conditions, field operations may be conducted on a working site managed by an Operating company or Agency, or as part of a larger site investigation managed by another firm and generally in accordance with the additional policies and procedures of an overarching Site Safety and Health Plan (SSHP). If applicable, ESIA Consult may need to be briefed on the notification protocols for a site emergency and the specific muster location in the event of a site evacuation before the commencement of field operations.

### Incident Reporting

In the event of any on-water incident resulting in personal injury or vessel damage, render all necessary aid and assistance without creating or exposing yourself or your crew to further risk. Do not leave the scene of incident without providing the other party or the appropriate law enforcement officer with the following information – Some states require the completion and submission of an incident form:

- Name of address of boat operator

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- Boat registration number
- Driver's license number

You are required to contact a local boating enforcement agency (USCG, Marine Patrol, or local Harbor Master) immediately if:

- There has been a fatality or if a person is missing and cannot be accounted for.
- The injury results in a person losing consciousness or requires medical treatment beyond first aid.

## Annex 1 – Nautical Definitions

**Abeam** – At right angles to the keel of the boat, but not on the boat.

**Aboard** – On or within the boat.

**Above Deck** – On the deck (not over it - see Aloft).

**Aft** – Toward the stern of the boat.

**Aground** – Touching or fast to the bottom.

**Ahead** – In a forward direction.

**Aloft** – Above the upper deck of the boat.

**Amidships** – In or toward the center of the boat.

**Anchor** – A heavy metal device, fastened to a chain or line, to hold a vessel in position, partly because of its weight, but chiefly because the designed shape digs into the bottom.

**Astern** – In back of the boat, opposite of ahead.

**Bearing** – The direction of an object expressed either as a true bearing as shown on the chart, or as a bearing relative to the heading of the boat.

**Bight** – Any curved section, slack part, or loop formed in a rope or line.

**Boat** – A vessel for transport by water. Constructed to provide buoyancy by excluding water and shaped to give stability and permit propulsion.

**Bow** – The forward end of the boat.

**Bulkhead** - Wall-like constructions inside a vessel, as for forming watertight compartments, subdividing space, or strengthening the structure

**Buoy** – An anchored float used for marking a position on the water, a hazard, or a shoal. A surface marker float for a mooring.

**Captain** – A person who is at the head of or in authority of all others aboard a vessel.

**Cleat** – A fitting to which lines are made fast. The classic cleat to which lines are belayed is approximately anvil-shaped.

**Cockpit** – A sunken, open area, generally in the after part of a small vessel, provides space for part or all of the crew.

**Dock** – A protected water area in which vessels are secured to a pier or a wharf.

**EPIRB** – Emergency Position Indicating Radio Beacon – transmits a signal that allows rescue personnel to determine a vessels position at sea once it is activated in the event of an emergency.

**Fathom** – A depth increment of 6 feet.

**Fender** – A cushion, placed between boats, or between a boat and a pier, to prevent damage.

**Float Plan** – A document prepared by the boat crew and left with a competent person shore side that defines the itinerary and particulars of the vessel and crew, serving as an informational resource for emergency responders in the event the boat does not return at the appointed time.

**Freeboard** – The portion of the side of a hull that is above the water.

**Gunwales** - The widened edge at the top of the side rail of the boat, where the edge is reinforced

**Knot** – A measure of speed equal to one nautical mile per hour or 1.852 km/hr.

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**Knot** – A fastening made by interweaving rope to form a stopper, to enclose or bind an object, to form a loop or a noose, to tie a small rope to an object, or to tie the ends of two small ropes together.

**Leeward** – The direction away from the wind.

**Life-line** – A line secured along the deck to lay hold of in heavy weather

**Mooring** – An arrangement for securing a boat to a mooring buoy or a pier.

**Overboard** – Over the side or out of the boat.

**Personal Flotation Device (PFD)** – PFD is official terminology for life jacket.

**Port** – The left side of the boat when looking forward (toward the bow).

**Running Lights** – Navigation lights required to be shown on boats underway between dusk and dawn.

**Starboard** – The right side of the boat when looking forward (toward the bow).

**Stem** – The forward most part of the bow.

**Stern** – The after part (back) of the boat.

**Transom** – The aft face or back board of the boat.

**Wake** – Moving waves, track or path that a boat leaves

**Windward** – Toward the direction from which the wind is coming (a.k.a. weather side) - Opposite of leeward.

## Annex 2 – Sample Float Plans

These Float Plans can be downloaded at:

- <http://floatplancentral.cgaux.org/download/USCGFloatPlan.pdf>
- <https://azureblob.faecdn.com/cdn/d/bex/pdf/2017-bex-us-float-plan-dept-checklist.pdf>





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WHAT ARE THE BASIC STEPS?	POTENTIAL HAZARDS	RISK RANKING (without control measures)	HAZARD CONTROLS (what controls can be put in place to make the job safe and minimize the risk)	WHO WILL ENSURE THAT THIS IS DONE?																																																												
<b>TAKE FIVE –</b> 1 Stop and Look 2 Think through the task 3 Identify hazard/s 4 Control hazard/s and communicate to supervisor 5 Do the job safely	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #333; color: white;"> <th colspan="7">LEVEL OF RISK (RISK RATING)</th> </tr> <tr style="background-color: #eee;"> <th rowspan="2">Likelihood</th> <th colspan="5">Consequence</th> <th rowspan="2">Risk Between</th> <th rowspan="2">Category</th> </tr> <tr style="background-color: #eee;"> <th>1- Catast</th> <th>2- Major</th> <th>3- Mod</th> <th>4- Minor</th> <th>5. Insignif</th> </tr> </thead> <tbody> <tr> <td>A - Almost certain</td> <td style="background-color: red; color: white;">High 1</td> <td style="background-color: red; color: white;">High 2</td> <td style="background-color: red; color: white;">High 4</td> <td style="background-color: yellow;">Med 7</td> <td style="background-color: yellow;">Med 11</td> <td>1-6</td> <td style="background-color: red; color: white;">High Risk</td> </tr> <tr> <td>B - Likely</td> <td style="background-color: red; color: white;">High 3</td> <td style="background-color: red; color: white;">High 5</td> <td style="background-color: yellow;">Med 8</td> <td style="background-color: yellow;">Med 12</td> <td style="background-color: yellow;">Med 16</td> <td>7-17</td> <td style="background-color: yellow;">Medium Risk</td> </tr> <tr> <td>C - Possible</td> <td style="background-color: red; color: white;">High 6</td> <td style="background-color: yellow;">Med 9</td> <td style="background-color: yellow;">Med 13</td> <td style="background-color: yellow;">Med 17</td> <td style="background-color: green;">Low 20</td> <td>18-25</td> <td style="background-color: green;">Low Risk</td> </tr> <tr> <td>D - Unlikely</td> <td style="background-color: yellow;">Med 10</td> <td style="background-color: yellow;">Med 14</td> <td style="background-color: green;">Low 18</td> <td style="background-color: green;">Low 21</td> <td style="background-color: green;">Low 23</td> <td></td> <td></td> </tr> <tr> <td>E - Rare</td> <td style="background-color: yellow;">Med 15</td> <td style="background-color: green;">Low 19</td> <td style="background-color: green;">Low 22</td> <td style="background-color: green;">Low 24</td> <td style="background-color: green;">Low 25</td> <td></td> <td></td> </tr> </tbody> </table>				LEVEL OF RISK (RISK RATING)							Likelihood	Consequence					Risk Between	Category	1- Catast	2- Major	3- Mod	4- Minor	5. Insignif	A - Almost certain	High 1	High 2	High 4	Med 7	Med 11	1-6	High Risk	B - Likely	High 3	High 5	Med 8	Med 12	Med 16	7-17	Medium Risk	C - Possible	High 6	Med 9	Med 13	Med 17	Low 20	18-25	Low Risk	D - Unlikely	Med 10	Med 14	Low 18	Low 21	Low 23			E - Rare	Med 15	Low 19	Low 22	Low 24	Low 25		
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E - Rare	Med 15	Low 19	Low 22	Low 24	Low 25																																																											
Personal Protective Equipment (PPE): Standard PPE must be worn at all times.																																																																

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### Attachment 3 – Pre-Start Meeting

Name			Position
Job Description			
Location			Date
Weather	<input type="checkbox"/> Fine	<input type="checkbox"/> Cloudy	<input type="checkbox"/> Wet
Risks – identify any risks involved with the job Double-click the box for type of incident	<input type="checkbox"/> Burns	<input type="checkbox"/> Collapse	<input type="checkbox"/> Electrical Equipment
	<input type="checkbox"/> Electrical Shock	<input type="checkbox"/> Environmental Spill	<input type="checkbox"/> Excavation
	<input type="checkbox"/> Fire / Explosion	<input type="checkbox"/> Gas Escape	<input type="checkbox"/> Hand Injuries
	<input type="checkbox"/> Hard Hats	<input type="checkbox"/> Heat Stress	<input type="checkbox"/> Hazardous Substances
	<input type="checkbox"/> Ignition Sources	<input type="checkbox"/> Lifting Equipment	<input type="checkbox"/> Manual Handling
	<input type="checkbox"/> Overhead Obstructions	<input type="checkbox"/> Pneumatic Tools	<input type="checkbox"/> Public Safety
	<input type="checkbox"/> Rotating Equipment	<input type="checkbox"/> Slips / Trips / Falls	<input type="checkbox"/> Snakes / Vermin
	<input type="checkbox"/> Supply Loss	<input type="checkbox"/> Traffic	<input type="checkbox"/> Underground Utilities
	<input type="checkbox"/> UV Exposure	<input type="checkbox"/> Working in Isolation	<input type="checkbox"/>
Controls – identify any controls to be applied on the job Double-click the box for type of incident	<input type="checkbox"/> Barricading	<input type="checkbox"/> Communication	<input type="checkbox"/> Containment
	<input type="checkbox"/> Cross Bonding	<input type="checkbox"/> Depressurize	<input type="checkbox"/> Eye Protection
	<input type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> First Aid Kits	<input type="checkbox"/> Gas Detection
	<input type="checkbox"/> Gloves	<input type="checkbox"/> Hand Protection	<input type="checkbox"/> Head / Face Protection
	<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Hi-Vis Vest	<input type="checkbox"/> Isolations
	<input type="checkbox"/> Locating Equipment	<input type="checkbox"/> Lockout & Tag	<input type="checkbox"/> Machinery Guarding
	<input type="checkbox"/> Observer / Spotter	<input type="checkbox"/> Potholing Procedures	<input type="checkbox"/> Protective Clothing
	<input type="checkbox"/> Rest Periods	<input type="checkbox"/> Respiratory Protect	<input type="checkbox"/> Restrictions
	<input type="checkbox"/> Safety Harness	<input type="checkbox"/> Screens	<input type="checkbox"/> Services Located/Mark





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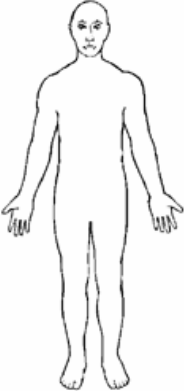

### Attachment 4 – Incident / Accident Report Form

<b>Double-click the box for type of incident</b>	<input type="checkbox"/> HAZARD	<input type="checkbox"/> NEAR MISS	<input type="checkbox"/> INCIDENT
<b>Name</b>			
<b>Date of Incident</b>		<b>Time of Incident</b>	
<b>Project Name (if applicable)</b>			
<b>Project No.</b>		<b>Report No</b>	
<b>Type of Incident</b> <b>Double-click the box for type of incident</b>	<input type="checkbox"/> Competency & Training	<input type="checkbox"/> Electrical	<input type="checkbox"/> Environmental Incident
	<input type="checkbox"/> Ergonomics	<input type="checkbox"/> Health & Hygiene	<input type="checkbox"/> Injury
	<input type="checkbox"/> Material Handling	<input type="checkbox"/> Personal Attributes	<input type="checkbox"/> Plant & Equipment
	<input type="checkbox"/> PPE	<input type="checkbox"/> Vehicle Incident	<input type="checkbox"/> Other
<b>Actual Severity Level (1, 2 or 3):</b>			
<b>Potential Severity Level (1,2, or 3)</b>			
<b>Location of Incident</b>			
<b>Description of Location</b>			
<b>Incident Description / Contributing Factors / Summary of Events</b>			
<b>Immediate Action</b>			
<b>Corrective Actions</b>			
<b>Additional Actions (if required)</b>	<b>Person Responsible</b>	<b>Close-out Date</b>	

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## Attachment 5 – First Aid Register

This form is to be completed as a quick record of the Injury/Illness **whenever first aid is administered to an employee of contractor**. The form is to be completed by the team member who administered First Aid. It is not a medical assessment, but simply a brief summary of the event, observations and management.

<b>Date</b>		<b>Time</b>	
<b>Patient Name</b>			
<b>Date of Birth</b>		<b>Gender</b>	Male / Female
<b>Address</b>			
<b>Location</b>			
<b>Incident Description of illness / injury</b>			
<b>Observations</b>		<p style="text-align: center;"><b>Please circle location of injury/illness</b></p> <div style="text-align: center;">  </div> <div style="text-align: center; margin-top: 20px;">  </div>	



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Treatment	
Follow-up	
Ambulance	YES / NO
Health Service	YES / NO
Own Doctor	YES / NO

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## Attachment 6 – Check in Procedure

Attachment 7 – Diver Checklist

Date: \_\_\_\_\_ Project Name: \_\_\_\_\_

Location: \_\_\_\_\_

Divers: \_\_\_\_\_

\_\_\_\_\_

Person Conducting Assessment: \_\_\_\_\_

Issues	Yes / no	Comments - action taken
<p><b>Medical fitness to dive</b></p> <ul style="list-style-type: none"> <li>• Do all divers have a current (12 months) certificate of medical fitness to dive?</li> <li>• Is the certificate kept for one year after work has finished?</li> </ul>		
<p><b>Competency</b></p> <ul style="list-style-type: none"> <li>• Are written records demonstrating the diver's competence kept for one year after work has finished?</li> </ul> <p><b>General diving work</b></p> <ul style="list-style-type: none"> <li>• Does each diver hold a statement of attainment for the general diving work to be carried out?</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>• Does each diver hold a certificate covering the subject areas (e.g. PADI divemaster, NAUI, SSI diving control specialist)?</li> </ul> <p><b>And</b></p> <ul style="list-style-type: none"> <li>• Does each diver have, through training, qualifications or experience, sound knowledge and skills in relation to (<i>competency checklist</i>):                             <ul style="list-style-type: none"> <li>○ The application of diving physics</li> <li>○ The use, inspection and maintenance of diving equipment (including emergency equipment) and air supply of the type to be used in the proposed general diving work</li> <li>○ The use of decompression tables or dive computers</li> <li>○ Dive planning</li> <li>○ Ways of communicating with another diver and with persons at the surface during general diving work</li> <li>○ How to safely carry out general diving work of the type proposed to be carried out</li> <li>○ Diving physiology and first aid.</li> </ul> </li> </ul> <p><b>Dive supervisor</b></p>		

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<ul style="list-style-type: none"> <li>• Does the appointed dive supervisor hold qualifications to do the general diving work?</li> </ul> <p><b>And</b></p> <ul style="list-style-type: none"> <li>• Have experience in that type of work?</li> </ul> <p><b>Incidental diving work (general diving work)</b> (only applicable for work that is incidental to the business.)</p> <ul style="list-style-type: none"> <li>• Does the incidental diver have adequate training, qualifications or experience for the work in accordance with the <i>competency checklist</i> (see above)?</li> </ul> <p><b>And</b></p> <ul style="list-style-type: none"> <li>• Have 15 hours dive experience (depth restrictions apply)?</li> <li>• Does the diver only undertake <i>limited diving</i> which does not involve?             <ul style="list-style-type: none"> <li>○ Diving to a depth below 30 meters</li> <li>○ The need for a decompression stops</li> <li>○ The use of mechanical lifting equipment or a buoyancy lifting device</li> <li>○ Diving beneath anything that would require the diver to move sideways before being able to ascend</li> <li>○ The use of plant that is powered from the surface</li> <li>○ Diving for no more than 28 days during a period of six months.</li> </ul> </li> <li>• Is the diver accompanied and supervised in the water on each dive by a diver competent to undertake general diving work?</li> </ul> <p><b>Limited scientific diving work (general diving work)</b> (only for non-resident divers undertaking scientific diving work.)</p> <ul style="list-style-type: none"> <li>• Does the limited scientific diver have adequate training, qualifications or experience for the work in accordance with the <i>competency checklist</i>?</li> </ul> <p><b>And</b></p> <ul style="list-style-type: none"> <li>• Have 60 hours dive experience (depth restrictions apply)?</li> <li>• Does the diver only undertake <i>limited diving</i> (see above)?</li> </ul>		
<p><b>Risk assessment</b></p> <ul style="list-style-type: none"> <li>• Has risk management been carried out to:             <ul style="list-style-type: none"> <li>○ Identify all hazards</li> <li>○ Eliminate or minimize all risks</li> <li>○ Minimize all risks using the hierarchy of controls</li> <li>○ Maintain selected control measures</li> <li>○ Review control measures.</li> </ul> </li> <li>• Has a risk assessment been conducted by a competent person?</li> </ul>		

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<ul style="list-style-type: none"> <li>• Has a written record been kept of the risk assessment that is accessible to all relevant workers and available for inspection?</li> <li>• Has the risk assessment been kept for 28 days after the relevant work finishes?</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>• For two years if a notifiable incident has occurred?</li> </ul>		
<p><b>Dive supervisor</b></p> <ul style="list-style-type: none"> <li>• Has a dive supervisor been appointed?</li> <li>• Does the dive supervisor supervise the work undertaken?</li> </ul>		
<p><b>Dive plan</b></p> <ul style="list-style-type: none"> <li>• Has a dive plan been prepared by the dive supervisor for the dive?</li> <li>• Does the dive plan state:             <ul style="list-style-type: none"> <li>○ The method of carrying out the work</li> <li>○ Tasks and duties of each person</li> <li>○ Equipment, gases and procedure to be used</li> <li>○ As applicable, dive time, bottom times and decompression profiles</li> <li>○ Specific hazards and control measures</li> <li>○ Emergency procedures (may be a separate document).</li> </ul> </li> <li>• Is the dive plan complied with, as far as is reasonably practicable?</li> <li>• Does the dive supervisor provide instruction to workers about the dive plan?</li> <li>• Is the dive plan kept until the work to which it relates is completed or for two years if a notifiable incident has occurred?</li> </ul>		
<p><b>Dive safety log</b></p> <ul style="list-style-type: none"> <li>• Is a dive safety log kept for every dive containing:             <ul style="list-style-type: none"> <li>○ Name of each diver</li> <li>○ Names of other persons in the dive team, including the dive supervisor</li> <li>○ Date and location</li> <li>○ Time in and out</li> <li>○ Maximum depths</li> <li>○ Incidents and injuries</li> <li>○ Dive or bottom time</li> <li>○ If not using a dive computer, repetitive groups, surface intervals and repetitive factors</li> <li>○ If using eanx-O<sub>2</sub> content and maximum operating depth</li> <li>○ If using mixed gas- O<sub>2</sub> and N<sub>2</sub> contents, maximum operating depth and minimum operating depths of the bottom mix.</li> </ul> </li> </ul>		

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<ul style="list-style-type: none"> <li>• Is the entry for each dive signed by the diver and dive supervisor as soon as practicable after each dive?</li> <li>• Does the dive supervisor count and record all persons on board any vessel before diving commences and before the vessel departs after the diving work is completed?</li> <li>• Has the dive safety log been kept for 28 days after the relevant work finishes?</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>• For two years if a notifiable incident has occurred?</li> </ul>		
<p><b>Specific risks</b></p> <ul style="list-style-type: none"> <li>• Are suitable controls in place for divers diving from vessels that are underway? (e.g. Propeller guards, lookouts, emergency breathing supply, marker buoys)</li> <li>• Is the equipment being used by divers suitable for the work? Is it cleaned, checked and in working order before work starts?</li> <li>• Are compressed air cylinders filled, tested and maintained according to international standards?</li> <li>• Has air quality been tested in the last six months?</li> <li>• Have appropriate standards been used to manage decompression? Are they being used consistently and conservatively?</li> <li>• Does the dive site have a written emergency plan, including first aid? Is it available to all workers?</li> <li>• Have effective rescue procedures been developed? Are workers trained in these procedures?</li> <li>• Do workers hold current first aid and O<sub>2</sub> resuscitation certificates?</li> </ul>		
<p><b>Other regulatory considerations</b></p> <ul style="list-style-type: none"> <li>• Are notifiable incidents reported to WSHQ as required?</li> <li>• Has information, training and instruction been provided for workers to ensure health and safety? Including tool box talks, site and dive briefings.</li> <li>• Is a safe and healthy general working environment provided? Including housekeeping, temperature, drinking water, lighting, accommodation.</li> <li>• Is personal protective equipment provided, maintained and used?</li> <li>• Are risks from working in remote or isolated places managed?</li> <li>• Are electrical risks controlled?</li> <li>• Are risks from falls and falling objects controlled?</li> <li>• Are risks from noise controlled?</li> <li>• Are risks from hazardous manual tasks controlled?</li> </ul>		

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<ul style="list-style-type: none"><li>• Are risks from entry to confined spaces controlled?</li><li>• Is work associated with demolition, construction and asbestos controlled as required?</li><li>• Are risks from plant and structures controlled?</li><li>• Are risks from mobile plant controlled?</li><li>• Are risks from hazardous chemicals and lead controlled?</li></ul>		
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