

# **Environmental and Social Impact Assessment**

# Installation of Medical Waste Incinerator at Tulagi Hospital

July 2023

# **Document Control**

Date	Version	Description	Name	
July 2022	1	Draft	Jahreth Limarii – PMU ESHS&CE Officer	
9/02/2023	2	Revised Draft Greg Andrews – E&S Specialist		
18/02/2023	3	Revised Draft	Greg Andrews – E&S Specialist	
19/02/20233Reviewed and submitted to WB ES teamHarry Ke		Reviewed and submitted to WB ES team	Harry Kereseka – PMU Project Manager	
12/06/2023	4	Edit draft based on SS comments	John P. Labere – PMU ESHS&CE officer	
10/07/2023	5	Review and edits	Greg Andrews – E&S Specialist	
25/07/2023	6	WB Washington review edits	John P. Labere – PMU ESHS&CE officer Greg Andrews – E&S Specialist	

# Contents

D	ocument	Control	i	
Al	breviati	ons	iv	
Ez	xecutive a	Summary	v	
1.	Introd	uction	1	
2.	2. Activity Location			
3.	Enviro	onmental and Social Baseline	4	
	3.1.	Waste Audit	11	
	3.1.1	Waste Audit Summary	13	
4.	Activi	ty Description	14	
	4.1.	Purpose, Planning and Design	14	
	4.2.	Construction	15	
	4.1.	Operations	16	
	4.1.	Decommissioning	24	
5.	Policy	and Regulatory Framework	24	
	5.1.	Country Context	24	
	5.1.1	Environmental Act 1998	24	
	5.1.2	Environmental Regulations (2008)	25	
	5.1.3	Environmental Impact Assessment Guidelines	26	
	5.1.4	Regulatory Relevance to the Subproject Activities	26	
	5.1.5	Capacity of ECD	26	
	5.1.6	Other Relevant Policies, Plans and Regulations	28	
	5.1.7	Health-care regulatory and Policy Framework	28	
	5.1.8	Infection Prevention Control and Health Care Waste Management	29	
	5.1.9	Labor Legislation	31	
	5.2.	World Bank Environmental and Social Framework (ESF)	32	
	5.3.	World Bank Environmental, Health and Safety (EHS).Guidelines	33	
	5.4.	World Bank Response to COVID-19	34	
	5.5.	Relevant International and Regional Agreements	34	
	5.6.	Relevant Good International Industry Practice (GIIP)	35	
6.	Impac	rt Assessment	37	
	6.1.	Potential Environmental and Social Impacts		
	6.1.1	Planning and Design		
	6.1.2	Construction	40	
	6.1.3	Operations	41	

	6.1.4	Decommission41			
7.	Impact	t Mitigation			
,	7.1.	Planning and Design			
,	7.2.	Construction			
,	7.3.	Operations			
,	7.4.	Impact Risk Rating			
,	7.5.	Residual Risks			
,	7.6.	Outages and Emergency Management			
8.	Requir	ement for Construction Bidding Documents and E&S Mitigating Cost Estimates54			
9.	Grieva	nce Redressed Mechanism57			
10.	0. Stakeholder Engagement				
11.	Capaci	ty Development and Training59			
12.	12. Incident Management and Emergency Response				
13.	13. Implementation				
14.	14. Monitoring				
Ref	erences				
Ap	pendix 1	Code of Environment and Social Practice Template62			
Ap	pendix 2	2 Stakeholder Consultation and Attendance Lists			
Ap	pendix 3	3 Tulagi Solid Waste Management Plan (embedded pdf)82			

# Abbreviations

COC	Code of Conduct
CoESP	Code of Environmental and Social Practice
COVID-19	Corona virus disease
CSS	Contractor's site supervisor
ECD	Environment Conservation Division
EIS	Environmental Impact Statement
ES	Environmental and Social
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESHS	Environmental, Social and Health and Safety
ESHS&CE	Environmental, Social and Health and Safety and Community Engagement
ESIA	Environmental and Social Impact Assessment
ESS	Environmental and Social Standards
HCC	Honiara City Council
IPCG	Infection Prevention and Control Guidelines
IPPF	Indigenous Peoples Planning Framework
LMP	Labor Management Procedure
MECDM	Ministry of Environment, Climate Change, Disaster Management and Meteorology
MHMS	Ministry of Health and Medical Services
NRH	National Referral Hospital
PER	Public Environment Report
PMU	Project Management Unit
POA	Plan of Action
SIG	Solomon Islands Government
SPC	South Pacific Commission
SPREP	Secretariat of the Pacific Regional Environment Programmed
SPRP	Strategic Preparedness and Response Program
SWMP	Solid Waste Management Plan (Tulagi)
TH	Tulagi Hospital
WB	World Bank
WHO	World Health Organization
WMP	Waste Management Plan

### **Executive Summary**

This document is the Environmental and Social Impact Assessment (ESIA) for the installation of a Medical Waste Incinerator at the Tulagi Hospital (hereafter referred to as the Subproject) tomeet the environmental and social (E&S) impact assessment requirements of the World Bank and the Solomon's Island Government (SIG). The Subproject will install an energy efficient medical waste incinerator and provide training in waste management for the Tulagi Hospital in Central Province. This ESIA documents the potential impacts and risks associated with the Subproject and strategies to mitigate those impacts and risks. Strategies will be guided by the World Banks Environmental and Social Framework (ESF) international best practice and national environmental frameworks, policies and regulations.

Whilst the Subproject will have a positive impact on waste management capacity, potential short-term negative impacts and risks on the surrounding biophysical and social environment are identified, including: removal of vegetation, erosion, odor/smoke, occupational accidents and/or injuries, inadequate design and materials, and community grievances. The primary tools for managing the impacts and risks, identified in this ESIA, during the Subproject construction are a Code of Environmental and Social Practice (CoESP) prepared by the contractor(s) and the Project Management Unit (PMU) and the development of operating procedures for its operation.

The Ministry of Health and Medical Services (MHMS) has established a Project Management Unit (PMU) to implement and supervise the Subproject. The World Bank through its Fast Track Covid-19 Response Program is funding the Subproject.

# 1. Introduction

The Solomon Islands Government (SIG) has received a total funding of US\$13 million from the World Bank through IDA credits (US\$2.5 million), grants (US\$7.5 million), and the Health Emergency Preparedness Response Trust Fund (HEPRTF-US\$3 million) under the Fast Track Covid-19 Response Program (FTCF). The Project covers the emergency response under the COVID-19 Strategic Preparedness and Response Program (SPRP). The Project aims to prevent, detect and respond to threats posed by COVID-19 and to strengthen national systems for public health preparedness in the Solomon Islands. The Project coverage is national in scale with specific support to selected Provinces.

The installation of a waste incinerator (hereafter referred to as the Subproject) forms part of the Project. This ESIA has been prepared for the approval of the installation and associated works of a new medical waste incinerator at the Tulagi Hospital (TH) and its operation. The Subproject aims to enhance health care waste management by financing energy efficient medical waste incinerator including provision of training in health care waste management.

The potential environmental and social impacts and risks associated with this Subproject are considered 'low risk'. This was determined through a risk analysis and scoping done during consultation and discussion with stakeholders on the potential adverse impacts of the Subproject and site assessment.

Tulagi Hospital is a provincial hospital located on Tulagi Island in Central Province. Tulagi town is the capital of Central Province. The TH provides medical services to population of Central Province. The funding for the Subproject activities will be financed by WB.

This document provides the Subproject description, regulatory framework, environmental and social (E&S) baseline, potential E&S impacts and risks and mitigation strategies, requirements for bidding documents, a grievance redress mechanism (GRM), stakeholder engagement and requirements for contractor/s.

# 2. Activity Location

The Subproject is located on Tulagi Island (**Figure 2.1**), a township and capital of Central Province. Tulagi Island is about 40km north of Honiara city and requires approximately

one hour travel time by boat. Tulagi town serves the economic activities of the Central Province. Central Province is one of the nine provinces of the Solomon Islands.



Figure 2.1 Location of Tulagi Island in the Central province in relation to Honiara city

The proposed site for the incinerator is located within the Tulagi Waste Management Zone (WMZ). The area is situated on the western side of the island along the Tulagi passage and is approximately 3.5km from the TH (**Figure 2.2**). The site is located approximately 100m from the Tulagi township landfill (**Figure 2.3**). The proposed site to be cleared (1,046.5m<sup>2</sup>) is covered with secondary vegetation consisting of shrubs, pandanus palms, young secondary forest, vines, legumes and grasses. The site is situated along the access road which circulates the island. The site is approximately 26m from the coastline. The coastline consists of mangroves and coral reefs (**Figure 2.4**). The access road is occasionally inundated during king tides. There are no nearby rivers or streams. The site is a narrow flat land with a raised hill at the back (inland).



Figure 2.2 Location of TH and the Tulagi Waste Management Zone



*Figure 2.3 Proposed site for incinerator and Tulagi landfill. Both sites are within the Tulagi Waste Management Zone.* 

There are no villages or communities near the site, the nearest residences are approximately 535m away (Settlement 3 on Figure 2.4). Figure 2.4 identifies the settlements (villages, residences and housing estate) and nearest sensitive receptors.



Figure 2.4 Overview of nearby sensitive receptors and proximity of proposed site to the coast

## 3. Environmental and Social Baseline

Tulagi Hospital delivers medical services to populations of Savo, Russell and Ngella Islands in Central province. Central province has a population of approximately 27,000 people with Tulagi population of approximately 1,700 people. The Subproject proposes to finance an energy efficient medical waste incinerator and provide training in waste management for the hospital. Services provided include:

- General outpatient clinic
- General admission (wards)
- Maternity
- Operating theatre
- Pharmacy
- Dental clinic

Tulagi Hospital has established an Infection Prevention and Control (IPC) unit for waste management and other IPC actions. Clinical and general waste from the hospital are managed by the IPC. Currently, there is only one officer responsible for IPC activities to manage waste. All waste is collected and transported to the waste disposal site for burning in an open pit. Over the years, increase in quantity of waste produced by the hospital poses challenges on the IPC capacity resulting in improper management of waste. The TH has one waste management vehicle and few waste bins (Figure 3.1). Currently, there is not a medical waste incinerator in place. A waste audit was undertaken and the details are provided in the Section 3.1 Waste Audit.

The existing site which IPC uses for disposal and burning of all waste is depicted in **Figure 3.2**. There is access road to the site however road condition is poor **(Figure 3.3)**. General and clinical waste are dumped and burnt using firewood. Waste is collected and stored in a designated area within the hospital and transported for burning twice a week.

No segregation of waste is currently practiced and all waste types are put together in the same rubbish bins (Figure 3.4 and Section 3.1). The practice of burning clinical waste using firewood does not destroy waste effectivity and sustainably. There are solid waste remains on site and some remains are washed into the ocean and onto reefs (Figure 3.5) by waves and rainwater runoff. Smoke and odor during burning are often carried by wind through the passage which can affect communities residing along the passage. Remains of human tissues are commonly buried on site however this can be dug up by animals particularly dogs. Waste handlers are observed dumping and burning the waste without appropriate Personal Protective Equipment (PPE) (Figure 3.6). Tulagi residents and people residing along the passage have raised complaints on the current improper waste management by the hospital.



Figure 3.1 Waste management vehicle used to transport waste to the current disposal site



*Figure 3.2* The existing waste disposal site which the IPC unit uses for burning waste. It is situated along the coastline approximately 200m from the proposed incinerator site.



Figure 3.3 Road access to the waste management zone runs along the coast.



*Figure 3.4* All waste types are collected and conveyed in the same rubbish bins and then deposited for burning



*Figure 3.5 Remains of waste after ineffective burning. Remains accumulate and are often shoveled into the ocean and onto the reefs by waste handlers for adequate space for new waste or carried into the ocean by waves or storm water runoffs* 



Figure 3.6 A waste handler rotating waste during burning

A new site has been designated for the installation of the new incinerator. The proposed site is 200m from the existing dump site and 100m from the Tulagi township landfill (Figure 3.7). It is located within the Tulagi WMZ. The site is covered by secondary vegetation consisting of trees, palms, bushes, shrubs and grasses (Figure 3.8). It is at least 26m from the coastline and 10m from the access road (Figure 3.9). The site is situated on a narrow flat land with elevated ground at the back (Figure 3.10). The coastline consists of mangroves and nearshore coral reefs (Figure 3.11). The closest communities are approximately- 535m from the site. There is water access to the site as Solomon Water pipes are near to the site. There are no nearby water courses. There is a storm water channel behind the site. The site is about 3.5km from the TH. There is adequate space for incinerator associated components such as dust pit and washing area.



*Figure 3.7* Location of the existing medical waste dumping site, Tulagi landfill and the proposed site for incinerator



Figure 3.8 View of the proposed site. Secondary vegetation cover includes trees, palms, shrubs and grasses



Figure 3.9 Part of the proposed site. The coastline and road can be seen in the background



Figure 3.10 Slope rising behind the proposed site



Figure 3.11 Mangroves along the coastline next to the proposed incinerator site

### 3.1. Waste Audit

A site visit and waste audit were completed at TH on Tuesday 31<sup>st</sup> January 2023. The PMU team was accompanied on the site visit by WB Environmental and Social staff and TH administrators. The results of the waste audit are presented below in **Table 3.1**.

Waste receptacles	Description
	Bin size: 12L black wire bin
	Contents: ~70% organic waste, 5% metal waste 5%
	general waste (soft plastics) 10% clinical waste (bandage)
	(
	Estimated weekly volumes:
	28L per week
	19.6L organic waste
	<ul> <li>1.4L metal waste</li> </ul>
Wandhin	<ul> <li>2.8L clinical waste (infectious)</li> </ul>
	• 1.4 L general waste

Table 3.1: Results of waste audits undertaken on 23/01/2023

Waste receptacles	Description		
Ward bin	Bin size: 30L yellow plastic bin Fullness: 50% full Contents: 50% clinical waste 30% general waste (soft plastics) 20% paper cardboard Estimated weekly volumes: • 105L per week • 52.5L clinical waste • 31.5L general waste • 21L paper/cardboard		
<image/>	Bin size: 30L bin Fullness: 50% Contents: 50% clinical waste 30% paper cardboard 15% general waste (soft plastics) 5% Organic Waste Estimated weekly volumes: • 52.5L clinical waste • 15.75 general waste (mostly soft plastics) • 31.5L paper/cardboard • 5.25L organic waste		
PLEASE           RUBBORNING           RUBBORNING           Ward bin	Bin size: 40L bin Fullness: 80% Contents: clinical waste 50% General waste (mostly soft plastics) 35% Paper cardboard 15% Estimated weekly volumes: • 224L/ week • 112L clinical waste • 78.4L general waste • 33.6L paper/cardboard 2 X 5 L sharps bin – emptied only when full. Time to fill		
Sharps bins	depends on activities (e.g. vaccine days produce more sharps) Estimated weekly volumes: Nurses didn't say - guesstimate – 2.5L per week?		

The results of the waste audit in **Table 3.1** were used to estimate total waste volumes per week by waste type, and are presented in **Table 3.2** below.

Waste type	Weekly total	
Clinical waste (potentially infectious clinical waste)	217L	
General Waste (mostly soft plastics)	127.05L	
Metals	1.4L	
Food organics	24.85	
Paper/Cardboard	86.1L	
Sharps	Variable – for the purposes of this assessment we will estimate 2.5L/week	
Total Waste/week	434.05	
Waste which has the potential to attract flies and create odor (e.g. placentas, highly soiled bandages) is immediately disposed of to the bin bay. These types of waste were not captured in this audit and may account		

for the discrepancy between recorded waste volumes per week (approximately 720L per week) and the

Table 3.2 Calculated waste volumes

3.1.1 Waste Audit Summary

volumes of waste estimated in this audit (434.05L/week)

The following summarizes current waste management practices:

- There is a bin in each ward and each day the cleaners empty the ward bins to the main bin bay which contains 3 x 240L wheelie bins
- When they have extra waste due to deliveries or during outbreaks the cleaners may empty the bins to the main bin bay multiple times each day
- Once a week (Friday) the cleaners transport waste from the bin bay to the dumping site using the Hospital Waste Management Truck
- The TH dump site is located approximately 3.5km from the hospital on the shore line. Waste is dumped at this location weekly and set alight. There are indications of local people within Tulagi also using the site for dumping waste.
- There is no segregation of waste in the bin bay or at the dump site. Sharps are segregated from other waste in the wards, they are collected in cardboard sharps boxes. These boxes are not segregated in the main bin bay and are added to the other waste in the main bins
- Cleaners have received Infection Prevention and Control Training but would be interested in additional training
- The TH fills 3 x 240L bins each week (~ 720L of waste produced weekly).

The information in this section should be used by the Tulagi Hospital management to help develop a Waste Management Plan for operations (Table 7.4 Operations).

# 4. Activity Description

This section describes the Subproject purpose, planning and design, construction, operation and decommissioning.

### 4.1. Purpose, Planning and Design

The purpose of the Subproject is to improve waste management system at the TH. Planning of the Subproject commenced with the MHMS recognizing the need to improve waste management in provincial health facilities. Consultations were held by the PMU with WB, MHMS and TH administration on the appropriate activities to make up the Subproject. Under the WB Fast Track Covid-19 Response Program for the COVID-19 Emergency Reponses Project, there is allocation for financing and installing a new medical waste incinerator including provision of proper training in waste management for the hospital. The proposed equipment and facility design for the Subproject are carefully considered to comply with international, regional and national environmental and social guidelines. A fair and competitive tender process will be undertaken for the procurement of the incinerator.

The incinerator has been procured from Australia by the project through tender and the model is a CA03 medical waste incinerator (**Figure 4.1**). It is a newly built model specifically designed to withstand the harsh environmental conditions in Solomon Islands. Table 3.3 shows general specifications of the incinerator provided by the supplier. It is not equipped with a wet-type scrubber thus it does not generate any liquid or sludge waste. It will incinerate up to 20kgs of waste per hour.

Component		Specification
Primary Combustion Chamber	•	6mm ceramic fiber high temperature insulating blanket 115 mm thick 42 % Alumina firebrick
Secondary Combustion Chamber	•	6 mm ceramic fibre high temperature insulating blanket 115 mm thick 42 % Alumina firebrick
Secondary Combustion Chamber Stack Cooling Zone	•	115 mm thick 42 % Alumina firebrick
Exhaust stack	•	316 stainless steel
Combustion fan	•	Primary chamber under-fire air fan
Length of time required for installation		can readily be installed by two men in approximately one to two days

 Table 3.2 General specifications of the incinerator



Figure 4.1 CA03 incinerator design layout

The incinerator facility will include an incinerator shed in which the incinerator will be installed, an ash-pit to store ash from incineration, a generator shed to house a generator and solar backup power, and a wash bay installed with piped running water. There will also be a concrete pavement and packing space for vehicle access and offloading of rubbish. The water system will be piped by getting connected to an existing pipe-line for Tulagi township that runs close to the area. Alternative water supply in the form of a rain-catchment tank will be installed beside the incinerator shed, getting water from the roof of the shed. There will be no storage for rubbish provided at the site. Wastes transported to site are to be directly incinerated upon arrival. There will be no storage of any waste that has not been incinerated onsite.

#### 4.2. Construction

Construction activities for the Subproject comprises; site preparation, construction of an incinerator house, installation of incinerator, digging of ash pit, building a cleaning/washing area including a soak pit and fencing (Figure 4.2, 4.3, 4.4, 4.5, 4.6 & 4.7). Site preparation consist of clearing of vegetation and excavation of soil from the rear slope for construction works. Drainage will be constructed as per Figure 4.8, at the foot of the cut which will run horizontal to the width of the site. The outlets of the drain will

be at both ends and will lead into existing gravelly soil/ pebbles at both sides of the site. This is to control storm water or run-off coming down from the slope. Run-off from the concrete slab that covers the area will run freely onto an existing drainage along the road which is at the end of the concrete slab. In order to control slippage or erosion from the cut slope, vetiver grass will be planted on top of the slope at the edge of the cut. It will be planted in closed rows so as to have its roots intertwine to prevent erosion. This will hold the soil from slippage and erosion.

Installation of the incinerator and associated works will be carried out by a contractor. Construction materials and equipment will be transported to site. Workforce for construction activities will be provided by the contractor and is not expected to be more than 10 persons at any given time. Accommodation for workers will be provided by the contractor off site. Priority in the selecting of contractor will be given to provincial based contractors in order to minimize mobility costs, reduce potential problems of accommodating workers and to support the use of local labor. List of potential provincial based contractors (Central Province) will be obtained from the Ministry of Provincial government from a list of reputable contractors whom the province previously engaged in similar undertakings for projects administered under the Provincial Capacity Development Program (PCDF). The incinerator supplier offers to provide training for the assembly and installation of incinerators in a supervised demonstration at one of the overall Project sites and will also provide an installation guide/manual. The PMU will ensure that MHMS IPC team will be engaged to receive the appropriate training.

#### 4.3. Operations

The operation of the Subproject will commence after installation, training and official handover of the Subproject to TH. The incinerator will operate by the IPC trained worker(s) and it will provide incineration services for the hospital. The TH IPC will develop operational instructions and schedule for use of the incinerator. During unsuitable periods such as extreme natural hazards, waste handlers will find appropriate timing for incineration. If the incinerator is facing mechanical issues, a contractor will used for further assistance. All waste from the TH will be segregated, stored, sealed, disinfected in proper waste bins and bags and transported by waste management vehicle to site. Ash from incineration will be moved to the sealed dust pit. Afterwards, vehicles and equipment will be washed and disinfected and workers wash off dirt from the water system provided. Signs and notices will be put in place to provide information to the general public.



*Figure 4.2*: *Incinerator site layout plan* 



*Figure 4.3. Cross section of the incinerator site layout.* 



Figure 4.4. Incinerator facility lay



Figure 4.5 Cross-section of wash bay and soak-pit



Figure 4.6 Cross-section of bin wash area



Figure 4.7 Cross section of the ash pit design



Figure 4.8 Layout of drainage

#### 4.4. Decommissioning

In regards to decommissioning of the Subproject, solid waste are required to be held in a safe area. All clinical and hazardous waste will be incinerated and buried in the ash pit. Rehabilitation plans for the Subproject includes regular service of the incinerator and expansion and improvement of the waste management facilities.

### 5. Policy and Regulatory Framework

This section documents the applicable of the SIG regulatory framework and the relevant WB policies for the assessment and permitting for the construction and operation of the incinerator.

#### 5.1. Country Context

The SIG has an established a regulatory framework that provides measures to protect and preserve the environment. The Environment Act 1998 and Environment Regulations 2008 make provision for the conservation and protection of the environment. This Act laid the foundation of Solomon Islands' environmental impacts assessment (EIA) system, which is implemented by the Environment Conservation Division (ECD) of the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM). Table 1 summarizes the relevance of the Acts to the Subproject.

#### 5.1.1 Environmental Act 1998

The Environment Act 1998 (the Act) provides for the protection and conservation of the environment. The core objectives of the Act are to provide for and establish integrated systems of development control, EIA, and pollution control, including:

- Prevention, control and monitor pollution;
- Reducing risks to human health and prevent degradation of the environment by all practical means, including the following;
- Regulating the discharge of pollution to the air, water and land;
- Regulating the transport, collection, treatment, storage and disposal of waste;
- Promoting recycling, re-use and recovery of materials in an economically viable manner; and
- To comply with and give effect to regional and international conventions and obligations relating to the environment.

The Act is divided into four sections. Part I provide the Act with considerable power and states that in the event of conflict between the Act and other legislation, the Environment Act shall prevail. Part II establishes and defines the powers and role of the ECD. Part III establishes the requirements for environmental assessment, review and monitoring. This provides for an environmental assessment to consist of either a public environment report or if the development is shown to be of such a nature as to cause more serious impacts then the developer is required to prepare and submit an environmental impact statement EIS. Part IV details requirements for pollution control and emissions (noise, odor and electromagnetic radiation) and requirements to permits for the discharge of waste. Noise (restrictions on emitting unreasonable noise) is covered in Article 51(1).

Part III Article 17 requires any developer who proposes to carry out any prescribed development to make an application to the Director of ECD. Article 19 specifies that a developer shall not commence or continue to carry out any prescribed development unless the developer has been issued with a development consent (defined in the Act as a consent to carry out any development under Part III). Activities that require assessment are described as 'prescribed developments' and are included in the Second Schedule of the Act. There are two levels of environmental assessment; public environment report (PER), as described in Article 20, or if the development is shown to be such a nature as to cause more serious impacts then the proponent is required to prepare and submit an Environmental Impact Statement (EIS), as described in Article 23.

#### 5.1.2 Environmental Regulations (2008)

The Environment Regulations 2008 (the Regulations) establish the procedures for undertaking the environmental assessment of any projects categorized as a prescribed development.

The developer is required to first submit a "development application" which is reviewed by the ECD to determine the likely significance of impact and required level of environmental assessment. The decision resulting from the review may include that:

- No further assessment is required, as such the development application is accepted, and development consent is issued;
- A PER is required; or
- Where major projects are considered such as logging, large agricultural developments, mining and large-scale tourism developments and infrastructure

projects, an EIS is required which includes technical, economic, environmental and social investigations.

The Regulations establishes the procedures for undertaking the environmental assessment of 'prescribed developments' and the process of issuing development consent. The Regulations detail the process prescribed in the Act and set out the contents of PER and EIS.

Both the PER and EIS require public consultation. Following review and approval by the ECD, the development consent is issued either with or without conditions.

### 5.1.3 Environmental Impact Assessment Guidelines

The ECD developed the Environmental Impact Assessment Guidelines (2010) to provide basic advice and guidance to government officers, planners, developers, resource owners and those involved in processing development proposals, on the EIA process. The guidelines aim to clearly explain the procedures of EIA outlined in the Act and the Regulations. The guidelines describe the procedures needed to be undertaken (**Figure 5.1**), forms, and fees required before obtaining the development consent approval.

#### 5.1.4 Regulatory Relevance to the Subproject Activities

The 'prescribed developments' that may apply to Subproject activities are Activity 9 -Public Works Sector (b) infrastructure developments; and (h) waste management, drainage and disposal systems. The incinerator will likely meet the definition of a 'waste management system and infrastructure development' under the Act.

### 5.1.5 Capacity of ECD

The ECD have overall accountability for environmental management in Solomon Islands. The ECD have some existing World Bank safeguard experience and capacity gained from working on previous World Bank funded projects. However, ECD advise in their EIA Guidelines 2010 that the environment approval process can take several months (2-3 months at the minimum). Therefore, it is advisable that a proposal application to the ECD be lodged as early as possible to avoid delays. ECD also advise that prior to submission of the proposal application by the developer, it is advisable that the Developer should first seek written advice from the ECD.



Figure 5.1 EIA procedural steps

#### 5.1.6 Other Relevant Policies, Plans and Regulations

- Solomon Islands National Implementation Plan for Stockholm Convention on Persistent Organic Pollutants. Submitted in fulfilment of Solomon Islands obligations as a party to the Stockholm POPs Convention.
- National Waste Management and Pollution Control Strategy 2017-2026. The Solomon Islands National Waste Management and Pollution Control Strategy 2017-2026 is the country's roadmap for managing waste and controlling pollution in the natural environment for 10 years with the vision for 'clean, healthy and green happy isles'. The strategy addresses 5 main waste streams: Solid Waste, Liquid Waste, Hazardous and Chemical Waste, Healthcare Waste and Electronic Waste. The Strategy serves as a blueprint for waste management and pollution control that captures the national priorities and targets and identifies the relevant strategies to realize the priority targets in the next decade. It represents a major step forward for integration of waste issues and concerns into broader sustainable development policy. Objectives include to promote waste minimization in all aspects of development and to improve and upgrade existing management and disposal systems.
- Provincial Government Act 1997. This Act gives power to the provinces to make their own legislation and pass ordinances including for protection and conservation of environment, culture, wildlife and coastal and lagoon shipping.
- Town and Country Planning Act 1979. This Act applies to all urban areas (Honiara and provincial towns) and includes the management of land (all types of ownership) and management and planning functions for urban and rural areas including development.

#### 5.1.7 Health-care regulatory and Policy Framework

The Health Services Act (1996) sets ups the Ministry of Health and Medical Services (MHMS) who are responsible for the provision of health and medical services in the Solomon Islands. The MHMS provides overall stewardship of the health sector and plays a regulatory role through strategic planning, standard setting and guidelines, for both government and non-state providers. The MHMS is responsible for providing public health services, including maternal and child health, family planning, school-based outreach, dental services, mental health, and vaccination and immunization. Section 10 (2) of the Health Services Act enables the Ministry to arrange with Provincial Assemblies

and the Honiara City Council (HCC) to undertake any of the above-mentioned public health services. Section 13 of the Act also empowers the Ministry to make arrangements with church or voluntary bodies for the provision of health services.

The Environmental Health Act 1980 sets up the administration and structure of community health in Solomon Islands. The Minister of Health is responsible for the administration of environmental health services. The Minister may delegate this administration to the Provincial Government and the HCC which are designated as Enforcement Authorities. The Environmental Health (Public Health Act) Regulations deal with public health issues and how to deal with them when they occur. The regulations empower the Minister and the Under Secretary of the MHMS to take specific measures to prevent the occurrence of a public health disease or where such disease had already occurred, to take measures to contain and prevent the spread of the disease.

To ensure quality of care, key legislative instruments implemented and upheld by the MHMS include:

- Health Workers Act 1989 which regulates the functions and duties of various categories of health-workers and establishes a Health Workers Board "to prescribe registration, deal with matters pertaining to discipline and other connected matters";
- Medical and Dental Practitioners Act 1988 "to regulate medical and dental practitioners";
- Nursing Council Act 1987 which establishes a Nursing Council to register and regulate nurses, midwives and auxiliary nurses; and
- Quarantine Act 1978 "for the inspection, exclusion, detention, observation, segregation, isolation, protection, treatment, sanitary regulation and disinfection of vessels, persons, goods and things" in order to prevent the introduction or spread of diseases.

#### 5.1.8 Infection Prevention Control and Health Care Waste Management

Infection Prevention and Control Guidelines (IPCG) for Health Facilities were commissioned in 2020 by the World Health Organization (WHO) in collaboration with the MHMS (Annex VI) and published in September 2021. The overall purpose of these guidelines is to provide guidance on IPC standards and healthcare waste management for all levels of health service provision within the Solomon Islands. These guidelines are

based upon the WHO Core Components of Infection Prevention and Control, Sierra Leone National IPC Guidelines, the previous MHMS Solomon Islands IPC Guidelines, and the Secretariat of the Pacific Community (SPC) Infection Prevention and Control Guidelines.

The MHMS is responsible for the regulation of healthcare waste in the Solomon Islands. However, generally the management of healthcare waste lies with the individual hospitals with little intervention from the MHMS. MECDM is responsible for waste disposal and waste disposal facilities. The waste management sector relies largely on legislative and regulatory documents that contain general waste provisions. The legislations summarized in Table 5.1 should be used as the guidance for proper management of healthcare waste in the Solomon Islands. The MHMS IPCG also contains measures for managing health-care waste (Annex VI).

Legislation	Туре	Summary	Regulator/ Agency
Environment Act 2008	Act	The Act makes provisions for the protection and conservation of the environment. With regards to waste control and management, section 3c of the Act specifies the following: 'to reduce risks to human health and prevent the degradation of the environment by all practical means. In section 3(c) (ii), objects of the Act include to regulate the transport, collection, treatment, storage and disposal of waste and to comply with and give effect to regional and international conventions and obligations relating to the environment. Waste is dealt with in Part IV Control of Pollution. Section 5 establishes an ECD consisting of a Director and Environmental Inspectors who enforce provisions of the Act.	MECDM/ECD
Environmental Regulations 2008	Regs.	Part 5 details the considerations the Director must take in approving a license application for waste discharge. Regulation 14(1) (d) states the Development may issue a Development Consent if satisfied that 'the proposed prescribed development will not contravene any relevant environmental obligation under any international treaty, convention or instrument to which Solomon Islands is a party'. Under r 18(1)(c), an appeal may be made against a decision of the Director under s 32 of the Act on the grounds the decision was 'inconsistent with any international treaty, convention or regional arrangement to which Solomon Islands is a party to'. Regulation 23(1) (c) states the Director may issue a license in Form 8 (a license to discharge waste) if 'the amendment will not contravene any environmental obligation under any international treaty, convention or arrangement to which Solomon Islands is a party'.	MECDM/ECD
Environmental Health Act 1980	Act	This Act's objective is to ensure the maintaining of environmental health. Its regulation prohibits people from causing nuisances including the prohibiting of discharging of noxious matter or waste from premises. Section 94 prohibits depositing waste in water	MHMS

 Table 5.1. Legislation and Regulatory Impacting Healthcare Waste Governance – Solomon Islands
Legislation	Туре	Summary	Regulator/ Agency
		sources of urban sanitary districts. Schedule 5 part I section 4 assigns refuse collection and street cleaning and refuse disposal to HCC.	
The Honiara (Refuse Disposal) Bylaw 1995	Bylaw	The By-Law provides for the use of standard receptacles as approved by the council and the means of disposal. The receptacles must be in good condition and taken care of. Fines are also incurred for offenders to the By-law.	Honiara City Council

### 5.1.9 Labor Legislation

The legislation governing labor management in the Solomon Islands includes:

- Labor Act (revised edition 1996) provides an overarching framework for labor legislation, establishing standards in relation to:
  - $\circ$  Days and hours of work
  - Payment of wages
  - Written contracts of employment
  - Maternity leave
  - Child labor
  - Care of workers
  - Termination of employment
- **Trade Unions Act** (revised edition 1996), which regulates the registration, leadership and operation of trades unions in Solomon Islands
- Workmen's compensation Act (revised edition 1996) makes provision for compensation to workmen injured at work in Solomon Islands, it's also include occupational diseases.
- National Provident Fund Act (revised edition 1993) requires employers to pay contributions for any employee under a contract of service or apprenticeship.
- Unfair Dismissal Act (revised edition in 1996) provides a remedy for employees who may be unfairly dismissed and establishes right of referral to the Trade Disputes Panel
- Safety at Work Act (1982) designed to establish safe systems of work to eliminate or minimize the risks to health, safety and welfare. Under the Safety at Work Act, employer has the duty to:
  - Ensure the health, safety and welfare of all employees including part-and full-time workers, temporary workers and work experience people.

- Inform, instruct and supply relevant information to all employees
- Ensure that all plant, machinery and systems of work are safe and without risk to health and safety.
- Ensure that all premises are safe to use and that all hazardous processes are either eliminated or adequately controlled.
- Ensure that adequate training is supplied to staff where applicable
- Ensure freedom from discrimination, harassment, bullying or violence in the workplace.
- Ensure the health and safety of other who are not employed by the employer but may be affected by their undertaking, for example visits or contractors.

The Project has prepared an overarching Project specific Labor Management Procedure documents which aligns with ESS2 Labor and Working Conditions of the WB ESF and are applicable to this Subproject.

#### 5.2. World Bank Environmental and Social Framework (ESF)

Under WB classification the overall Project environmental and social risks rating is set at Substantial, particularly in relation to: (i) Occupational, Health and Safety (OHS) management of healthcare workforce; (ii) environmental pollution and community health and safety issues related to the handling, transportation and disposal of healthcare waste; (iii) Infection transmission and (iv) lack of capacity and experience of the implementation agency with regards to the WB's policy requirements for E&S management and (iv) the real or perceived inequities to the delivery of services.

The Subproject takes into consideration the potential negative impacts of installing the incinerator. Proper planning and consultation is important to develop mitigation measures, which is suitable for all stakeholders including the environment.

Six of the ten Environmental and Social Standards (ESSs) of the WB ESF have been screened as relevant. They are assessed in Table 4 below. The other four are considered not relevant, namely: ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement, ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources, ESS8 on Cultural Heritage, and ESS9 on Financial Intermediaries. Detailed information on the Bank's ESF are available at:

https://www.worldbank.org/en/projects-operations/environmental-and-social-framework

The ESS that apply to the Subproject and the required measures and actions that apply are listed in Table 5.2.

Environmental & Social Standard	Relevance to the Activity
ESS1 Assessment and Management of Environmental and Social Risks and Impacts	ESS1 is relevant to this activity as installation of the incinerator and construction of the new solation unit will potentially have E&S impacts on the surrounding environment and people, which requires effective mitigation.
ESS2 Labor and Working Conditions	ESS2 is relevant to this activity as it involves the use of human resources to execute the construction activities. It is important to consider the working condition and welfare of the workforce of the Subproject activities. A Labor Management Procedure (LMP) document has been prepared for the overarching Project in accordance with ESS2
ESS3 Resource Efficiency and Pollution Prevention and Management	ESS3 is relevant as this activity as it covers the disposal of medical waste and may generate solid waste.
ESS4 Community Health and Safety	ESS4 is relevant as the construction and operation of incinerator may potentially cause health and safety risks to the TH residents, patients, visitors and surrounding community members.
ESS7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Indigenous people are expected to be the sole or the overwhelming majority of direct Subproject beneficiaries as the activity is expected to enhance health system to provide better service for the people. Accordingly, a separate Indigenous Peoples Planning Framework (IPPF) will not be prepared.
ESS8 Cultural Heritage	Although this standard is not considered relevant, in the unlikely event of construction or the movement of earth or items such as materials in connection with any Subproject activities that have not yet been identified the chance finds procedure (CFP) provided in the CoESP will apply.
ESS10 Stakeholder Engagement and Information Disclosure	ESS10 is relevant as the Subproject ensures to engage relevant stakeholders through the life cycle of the Subproject. A Stakeholder Engagement Plan (SEP) has been developed for the overarching Subproject in accordance with ESS10

Table 5.2. Relevant World Bank Environmental and Social Standards

### 5.3. World Bank Environmental, Health and Safety (EHS) Guidelines.

The following EHS guidelines are relevant to the Subproject will be used to guide the development of a Code of Environmental and Social Practice (CoESP - Appendix 1) and LMP:

- General EHS Guidelines: Environmental •
- General EHS Guidelines: Occupational Health and Safety •
- General EHS Guidelines: Community Health and Safety •
- General EHS Guidelines: Construction and Decommissioning •
- Environmental, Health, And Safety Guidelines Health Care Facilities. •

#### 5.4. World Bank Response to COVID-19

The World Bank Group (WBG) has developed the following guidance material in response to COVID-19 outbreak:

- Guideline for the preparation of a Contingency Plan for Project Sites.
- Technical Note: Public Consultation and Stakeholder Engagement to be applied to projects under implementation and those under preparation.
- Technical Note: Use of Military Forces to Assist in COVID-19 Operations Suggestions on how to Mitigate Risks.
- Technical Note: SEA/H for HNP COVID-19 Response Operations.

For ESS1, the WB also identifies risks and mitigations measures for the transactions involving specific project finance activities (i.e. works, goods and services, and technical assistance). The guidance has been considered during the preparation of this ES and supporting documents.

### 5.5. Relevant International and Regional Agreements

Solomon Islands is a party to the following regional and international agreements:

- London Convention and Protocol. The Convention on the Prevention of Marine
  Pollution by Dumping of Waste and Other Matter 1972, commonly called the
  "London Convention", is an agreement to control pollution of the sea by dumping.
  Its objective is to promote the effective control of all sources of marine pollution
  and to take all practicable steps to prevent pollution of the sea by dumping of waste
  and other matter. In 1996, the "London Protocol" was agreed to further modernize
  the Convention and, eventually, replace it. Under the Protocol all dumping is
  prohibited, except for possibly acceptable waste on the so-called "reverse list". The
  Protocol entered into force on 24 March 2006 and there are currently 53 Parties to
  the Protocol, including the Solomon Islands.
- Natural Resources and Environment of the South Pacific Region (1986) (SPREP or Noumea Convention). This Convention is the major multilateral umbrella agreement in the Pacific Region for the protection of natural resources and the environment. This Convention was ratified by the Solomon Islands in 1989.
- Pacific Regional Solid Waste Management Strategy 2010-2015. Solomon Islands was one of several Pacific island countries to adopt the Pacific Regional Solid Waste Management Strategy, initiated by SPREP, and adopted by member

countries in 2009. This regional strategy covers medical waste from public institutions such as hospitals and health care clinics, and special and difficult waste such as asbestos.

- Stockholm Convention for Persistent Organic Pollutants. The Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, signed in 2001 and effective from May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants (POPs). This convention was ratified and entered into force in Solomon Islands in May 2004.
- Waigani Convention on Hazardous Waste. The 1995 Waigani Convention is a treaty that bans the exporting of hazardous or radioactive waste to Pacific Islands Forum countries and prohibits Forum island countries from importing such waste. The convention has been ratified by Solomon Islands and entered into force in 2001.

### 5.6. Relevant Good International Industry Practice (GIIP)

Relevant Good International Industry Practice (GIIP) such as WHO technical guidance have been developed for addressing COVID-19. These technical guidance documents are evolving, and they are being updated as new information becomes available and country conditions change. The guidance has been considered during the preparation of this ESIA and supporting documents.

WHO resources include technical guidance on: (i) <u>laboratory biosafety</u>, (ii) <u>infection</u> prevention and control, (iii) rights, roles and responsibilities of health workers, including key considerations for occupational safety and health, (iv) water, sanitation, hygiene and waste management, (v) <u>quarantine of individuals</u>, (vi) <u>rational use of PPE</u>, (vii) <u>oxygen</u> sources and distribution for COVID-19 treatment centers, (viii) <u>Surveillance and case</u> definitions, (ix) <u>Risk communication and community engagement</u>, (x) <u>vaccine readiness</u> assessment, (xi) <u>surveillance of adverse events following immunization</u>.

WHO Guidelines for COVID-19 are summarized in Table 5.2.

WHO Guideline	Content				
Covid-19 guidance environmental on cleaning for healthcare facilities 17 April 2020	Guidance on the cleaning and disinfection of rooms and wards or areas in healthcare facilities occupied with suspected and confirmed COVID-19 patients				

Table 5.2 WHO Guidelines for COVID-19

WHO Guideline	Content
Covid19-stigma-guide	Methods to address risk of social stigma and discriminatory behaviors against people of certain ethnic backgrounds as well as anyone perceived to have been in contact with the virus
Critical preparedness readiness and response actions COVID- 10 2020-03-22_FINAL-eng	Update to the interim guidance document. This version provides updated links to WHO guidance materials and provides the full list of WHO technical guidance available for COVID-19 and provides updated recommendations in the table
WHO-2019-nCoV- essential_health_services- 2020.1-eng	Countries will need to make difficult decisions to balance the demands of responding directly to COVID-19, while simultaneously engaging in strategic planning and coordinated action to maintain essential health service delivery, mitigating the risk of system collapse Establishing effective patient flow (including screening, triage, and targeted referral of COVID-19 and non-COVID-19 cases) is essential at all levels
WHO-2019-nCov- Hand_Hygiene_Stations- 2020.1-eng	Hand hygiene is the most effective single measure to reduce the spread of infections through multimodal strategies
WHO-2019-nCoV- HCF_operations-2020.1 – eng	To guide the care of COVID-19 patients as the response capacity of health systems is challenged; to ensure that COVID-19 patients can access life-saving treatment, without compromising public health objectives and safety of health workers
WHO-2019-nCov- HCW_risk_assessment- 2020.2-eng	This data collection form and risk assessment tool can be used to identify infection prevention and control breaches and define policies that will mitigate health care worker's exposure and nosocomial infection (infection originating in a hospital).
WHO-2019-nCov-HCWadvice- 2020.2-eng	This document highlights the rights and responsibilities of health workers, including the specific measures needed to protect occupational safety and health
WHO-2019-nCov-IPC_Masks- 2020.3-eng	It is possible that people infected with COVID-19 could transmit the virus before symptoms develop. It is important to recognize that pre-symptomatic transmission still requires the virus to be spread via infectious droplets or through touching contaminated surfaces
WHO-2019-nCoV- IPC_WASH- 2020.2-eng	Frequent and proper hand hygiene is one of the most important measures that can be used to prevent infection with the COVID- 19 virus. WASH practitioners should work to enable more frequent and regular hand hygiene by improving facilities and using proven behavior-change techniques
WHO-2019-nCoV-IPC-2020.3- eng	Guidance on infection prevention and control (IPC) strategies for use when COVID-19 is suspected.
WHO-2019-nCoV- IPCPPE_use-2020.2-eng	Summarizes WHO recommendations for the rational use of personal protective equipment (PPE) in health care and community settings, as well as during the handling of cargo
WHO-2019-nCoV- Leveraging_GISRS-2020.1– eng	Several countries have demonstrated that COVID-19 transmission from one person to another can be slowed or stopped. The key actions to stop transmission include active case finding, care and isolation, contact tracing, and quarantine
WHO-COVID-19-lab_testing- 2020.1-eng	Laboratory testing guidance for COVID-19 in suspected human cases

WHO Guideline	Content
WHO-COVID-19- IPC_DBMgmt-2020.1-eng	Interim guidance for all those, including managers of health care facilities and mortuaries, religious and public health authorities, and families, who tend to the bodies of persons who have died of suspected or confirmed COVID-19
WHO-WPE-GIH-2020.2-eng	The purpose of this document is to provide interim guidance on laboratory biosafety related to the testing of clinical specimens of patients that meet the case definition of the novel pathogen identified in Wuhan, China, that is, coronavirus disease 2019 COVID-19
WHO 2019 Overview of the Technologies for the Treatment of Infectious and Sharp Waste from Health Care Facilities?	The purpose of this document is to provide 1) criteria for selecting technologies to facilitate decision making for improved health care waste management in health care facilities and 2) an overview of specific health care waste technologies for the treatment of solid infectious and sharp waste for health care facility administrators and planners, WASH and infection prevention control staff, national planners, donors and partners
WHO-2019-nCov- Immunization-Cold_Chain- 2020.1-ng.pdf	The purpose of this document is to provide advice on cold-chain safety considerations

## 6. Impact Assessment

The CA03 Incinerator model procured by the PMU was not reviewed for E&S compliance requirements prior to procurement. The CA03 is a new unit and the supplier advised that emissions testing has not been completed and no data is currently available. Completion of modelling is not feasible for this subproject based on lack of baseline data (and no working monitoring equipment in country), capacity, budget and time constraints. Because emissions data is not available for the purchased CA03 model, data for a similar model has been adopted to give an indication of expected emissions. Refer to Table 6.1 technical specifications for the i8-M70 incinerator model compared to the CA03 model.

	I8-M70	CA03
Chambers	2	2
Operation temperature	>850°C (in secondary chamber)	>1200°C (in secondary chamber)
Burn rate	Up to 50kg per hour	Up to 20kg per hour
Dimensions (I,w,h)	1.61m x 1.19m x 4.68m	2.085m x 1.00m x 6.00m (inclusive of Stack)
Fuel consumption	10 – 15L/hour	16.5L/hour (33L/2 hr burn cycle)
Fuel type	Light oil, diesel, kerosene, gas, LPG	Diesel
Combustion chamber volume	0.75m <sup>3</sup>	0.3m <sup>3</sup>
Shipping weight	2,450kg	4,200kg

Table 6.1 Technical Specifications of the i8-M70 vs CA03 incinerators

Note: Actual burn rates and emissions will depend on a number of factors including waste type, volume of waste, moisture content, fuel used and local environmental conditions. Source: iNCINER8, Advanced Combustion Engineering

Use of the incinerator will result in emissions. Measured emissions (i.e., from the stack) were not able to be provided by the supplier. The results for the I8-M70 model have been utilized and compared to EU standards to give an indication of expected AQ outputs. These are provided in **Table 6.2**.

Parameter	Measured*	European Union Standard**			EHS Guidelines for Health Care Facilities***
Averaging time	1/2 hour	Daily	Hourly	4 hours	Not specified
Unit	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3
Total Dust	12	5	10	NS	-
Total Particulate Matter	NS	NS	NS	NS	10
Total organic carbon	5	5	10	NS	10
Chlorine compounds	NS	5	10	NS	NS
Hydrogen chlorine	NS	NS	NS	NS	10
Fluorine compounds	NS	1	2	NS	NS
Hydrogen fluoride	NS	NS	NS	NS	1
Sulphur dioxide	2.4	25	50	NS	50
Nitrogen dioxide	60	100	200	NS	-
NOx	NS	NS	NS	NS	400
Carbon monoxide	78.3	50	100	NS	50
Mercury	NS	NS	NS	0.05	0.05
Cadmium and thallium	NS	NS	NS	0.05	0.05
Lead, chromium, copper, and Manganese	NS	NS	NS	0.5	0.5
Nickel and arsenic	NS	NS	NS	0.5	U.5 (oxoluding tin)
Antimony, cobalt, vanadium and tin	NS	NS	NS	0.5	
Dioxins and furans	NS	NS	NS	0.1 ng/Nm3TEQ	0.1 ng/Nm3TEQ
Oxygen content	NS		At least 6	5%	At least 7%

*Table 6.2* Average emissions (on basic incinerator with secondary chamber without scrubbing system)

\* Source: iNCER8; \*\*\*Source: WBG EHS Guidelines for Health Care Facilities; NS = Not Specified

Solomon Islands does not have air emissions standards, The WB EHS Guidelines for Health Care Facilities<sup>1</sup> provide emissions targets for small incinerators and these have been provided in **Table 6.2**. Most of the parameters provided in these guidelines differ slightly from the monitoring data provided by the vendor so direct comparison cannot be undertaken for most parameters. According to iNCER8, these figures are guidelines only

 $<sup>\</sup>label{eq:linear} ^{1} https://www.ifc.org/wps/wcm/connect/960ef524-1fa5-4696-8db3-82c60edf5367/Final%2B-%2BHealth%2BCare%2BFacilities.pdf?MOD=AJPERES&CVID=nPtgRx5&id=1323161961169$ 

and actual emissions depend on several factors including waste type, volume of waste, moisture content, fuel used and local environmental conditions.

While data is not available for the specific model purchased, based on the above it can be extrapolated that air quality impacts will be manageable and a significant improvement on the current situation where waste is burned on the ground in the open. The supplier has advised that the units create minimal odor and are smoke free when operated as designed. Comprehensive training for operators will be the key mitigation measure, supported by working with the PMU and TH to ensure that the appropriate budget and plans are in place to ensure that incinerators are maintained and operated within specifications. The PMU will monitor the operation of the incinerator post-installation and assist the TH to adjust procedures if necessary, based on their observations and community feedback which will be collected via consultation and the Project Grievance Redress Mechanism (GRM). Additional consultation with staff who will be impacted by the incinerator were completed in December 2022.

The overall impact of the Subproject is expected to be largely positive by improving infection control and more efficient and safer disposal of medical waste for the TH and community. Construction for the installation of incinerator will introduce short-term impacts that will require management and mitigation strategies. The impacts and risks are discussed under this section and mitigation measures to manage these impacts and risks are described in Section 7 and **Table 7.1**. Operation of the incinerator will generate ongoing impacts as described in Section 6.1.3.

The work scopes and all identified impacts and risks will be further assessed during the development of the Code of Environmental and Social Practice (CoESP). The selected contractor is required to develop a CoESP, based on this ESIA, to confirm activities and to identify any additional impacts or risks not identified in this ESIA. The CoESP requires PMU approval prior to any works proceeding and a template and guiding text is provided to assist the contractors as Appendix 1.

#### 6.1. Potential Environmental and Social Impacts

#### 6.1.1 Planning and Design

The planning of the Subproject is a collective effort and discussions between the PMU, MHMS, WB, TH management and representatives, and Tulagi community. The PMU

ESHS&CE and Infrastructure Officers conducted formal and informal discussions and consultation with the stakeholders on the Subproject activities and impacts.

During planning, the site selected was the area close to existing disposal area and within the Tulagi Waste Management Zone (WMZ). Tulagi Hospital management and communities' are supportive of the Subproject and the site proposed for the incinerator. There is less potential for conflict or dispute over land for the proposed site as it is located within the Tulagi WMZ which has been zoned and operated by the Provincial government. Residents/representatives surrounding the site have been consulted on their views about the Subproject impacts (Appendix 2). The facility and equipment are designed for optimum durability, sustainability, easy to access and suitable for climatic condition of the site. Stakeholders that will be involved during the Subproject implementation include; WB, MHMS, PMU, TH staff, Tulagi communities, local businesses and contractors.

To mitigate the close proximity of the site to the coast and the risk of inundation from high tides the design included raising the incinerator 2.8m above the mean high water mark and moving the site as far inland that the topography allows (26m form the mean high water mark).

Consultations with the Hospital Administration and provincial planning on alternative sites was undertaken. However waste disposal is limited to the area designated at the Waste Disposal Zone, all other available land plots are limited and subdivided and zoned for other purposes. Town planning has approved and allotted current land divisions. The landscape of the Island itself makes is difficult to move inland. Most suitable areas where there is flat land are meters away from the coast and when moving inland they hit the hills or cliffs and moving inland behind the hills or cliff would involve development of a new road

#### 6.1.2 Construction

The construction and installation activities for the incinerator will not require land acquisition. Clearance of secondary vegetation (1,046.5m<sup>2</sup>) and excavation of the slope behind the site (460m<sup>2</sup>) ground is required prior to construction works. Drainage will be constructed to manage site runoff (Figure 4.8). During construction of incinerator house and installation of incinerator, noise and vibration from machines and construction activities will occur, however given the distance to the nearest settlement this should not

pose any impact or risk. Dust may be generated from movement of vehicles and machines during transportation of materials and earth works and damage to the road from heavy vehicles and risk of vehicles getting stuck during wet conditions may be an issue. Soil erosion from storm water runoff may be an issue if not managed. Oil from vehicles and machines have the potential to spill into the sea.

The materials for construction will be obtained by the contractor from local and/or international supplier. Workforce during this phase will be provided by the contractor. Construction workers are required to wear PPE at all times on site. Accommodation for the workers will be provided by the contractor in Tulagi. Construction barricades (if necessary) and signs will be put in place to make the public aware of construction activities. Solid and hazardous waste from construction works will be disposed of in appropriate legal waste sites.

#### 6.1.3 Operations

During operation, the incinerator will incinerate general and clinical waste for TH. Facilities for cleaning and washing of incinerator area, vehicles and bins including taps for wash up for waste handlers is in the design. A water-supply line runs adjacent to the site which pipes water to Tulagi township. This will provide the water source to be utilized for the facility. Runoff will be produced as a result of washing and cleaning which requires proper management and a soak pit. Noise from vehicles transporting waste will be experienced. Fumes and odor from the incinerator will be generated during incineration.

The TH staff responsible for managing waste will continue and operate the incinerator with added capacities in handling wastes through training by the MHMS IPC team. Operating procedures and a schedule for incineration of waste will be determined by trained IPC staff and included in a Waste Management Plan. Regular servicing of incinerator and waste transporting truck is required to avoid mechanical issues. Fire extinguishers will be provided in case of a fire emergency. All ash from the incinerator will be deposited in an enclosed ash pit. Vehicles and equipment will be washed and disinfected before returning to the hospital.

#### 6.1.4 Decommission

It is anticipated that the incinerator and facilities will be continually renovated and expanded to provide ongoing waste management from the hospital. Any solid or hazardous waste from the any renovations or replacement must be disposed of in a manner that meets local and World Bank requirements in designated land fill or hazardous waste disposal areas.

# 7. Impact Mitigation

To address the potential adverse impacts and risks of the Subproject, mitigation measures are developed to avoid and/or minimize the impacts and risks on the biophysical and social environment surrounding the Subproject site utilizing the mitigation hierarchy detailed in **Figure 7.1.** Negative impacts and risks during the various phases of the Subproject are considered and strategies to avoid and/or minimize the impacts, in the best way possible, will be implemented. **Table 7.4** details the impacts, risks and mitigation strategies to avoid or mitigate impacts and risks of the Subproject.





### 7.1. Planning and Design

Risks during the planning of this Subproject include; poor site design, procuring of incorrect incinerator, awarding a contract to an unfit contractor and lack of knowledge of Subproject information by stakeholders. Mitigation methods includes alleviating actions identified through appropriate assessments and consultations, proper engineering design with E&S guidance and selection of reputable contractor through a proper competitive tender process.

### 7.2. Construction

Construction activities are expected to have minor environmental and social impacts such as vegetation removal, habitat disturbance, soil erosion, noise and vibration, dust, accidents and injuries and restricted site access. To mitigate the impacts and risks the contractor will;

- avoid any unnecessary movement of soil, excavated soils to be held in a secure location
- avoid construction activities during rainy weather and King Tides and use storm water drains and erosion control measures to discharge runoff safely
- limit vegetation removal to the construction site which is 1,046.5m<sup>2</sup>
- avoid noise by switching off vehicles and machines when not in use and advise sense drivers to reduce speed when passing school, villages and the hospital
- minimize the risk of accidents and injuries on site by providing workers with proper personal protection equipment (PPE) and training and the use construction barricades and signs to notify the public
- provide a sign at the construction site will also display work hours in a day and restriction notices to avoid public access during working hours
- direct drivers to drive slowly to minimize dust when passing people, villages and other sensitive receptors
- reduce the risk of road damage by advising drivers to reduce speed on wet road surfaces to minimize excessive muddy conditions

### 7.3. Operations

The CA03 Incinerator model procured by the PMU was not reviewed for E&S compliance. The CA03 is a new unit and the supplier advised that emissions testing has not been completed and no data is currently available. Based on this, air emissions data for a similar unit has been adopted and used as an indication of likely air quality emissions. Completion of modelling is not feasible based on lack of baseline data (and no working monitoring equipment in country), capacity and budget and time constraints.

The incinerators arrive in country in July 2023. Storing the incinerators is considered a risk as units may deteriorate and there is the chance parts will go missing. The MHMS have secured a location within the MHMS compound in Honiara for storage. A storage container will be secured prior to incinerator arrival and incinerators will be stored here

until installation. The PMU have identified potential suppliers for storage containers and have arranged to ensure its availability during the incinerator's arrival.

The supplier has advised that the units create minimal odor and are smoke free when operated as designed. As such, comprehensive training for operators will be the key mitigation measure, supported by working with the PMU and hospital to ensure that the appropriate budget and plans are in place to ensure that the incinerator is maintained. The new unit will provide an improvement in waste management compared with the current practice of open fire burning. The PMU will monitor the operation of the incinerator post-installation and adjust procedures if necessary, based on their observations and community feedback. A grievance redress mechanism (GRM) will be made known to the public through consultation and a fact-sheet circulated amongst the community, public awareness and signage at the project site. The MHMSS will develop a Waste Management Plan (WMP) consistent with the Tulagi Waste Management Plan (Appendix 3) that incorporates:

- day to day operational procedures
- operational OHS
- ash pit use and maintenance
- air and water pollution prevention
- response to outages fire risks and emergencies
- training and maintenance.

### 7.4. Impact Risk Rating

For the purpose of this ESIA an impact is the expected outcome of an action and risk is the chance that the impact will occur, calculated as potential consequences of harm by the likelihood of the event occurring. Risk analysis for this ESIA was undertaken using the likelihood- consequence matrix detailed in **Figure 7.2.** The risk of the Subproject is considered to be low to medium as the implementation of the Subproject may have some construction risks (OHS and community grievances being the biggest risks) and operating risks, primarily smoke and odors and community grievances.



HIGH - May incur loss of life, serious injury, large financial loss or long-term delays in project completion, must have mitigation strategies. Where mitigation strategies are not being adhered to penalties must apply

MEDIUM - May incur injury, some financial loss or short-term delays in project completion, may require mitigation strategies or close monitoring

LOW - Insignificant, may require monitoring, generally no action required



### 7.5. Residual Risks

To determine the residual risks for each potential impact post implementation of mitigation strategies, a similar risk assessment approach has been undertaken. The likelihood of an impact occurring following the implementation of management and mitigation measures is assessed using the categories provided in Table 7.1.

Tab	le	7.1	Like	elik	ıood	categories	

Likelihood	Description
Certain	Expected to happen routinely during the Subproject life
Likely	Could easily happen and has occurred on a previous similar project
Unlikely	Possible, but not anticipated

The consequence of the impact occurring following the implementation of management and mitigation measure is assessed using the categories provided in Table 7.2.

Consequence Description Minor Minor effects on biological, social, economic or physical environment, both built and natural. Minor short to medium term damage to small area of limited significance, easily rectified Moderate Moderate effects on biological, social, economic or physical environment, both built and natural. Moderate short to medium term widespread impacts. More difficult to rectify Serious effects on biological, social, economic or environment, either built or natural. Major Relatively widespread medium to long term impacts. Rectification difficult or impossible

Table 7.2 Consequence categories

Based on the assessment of the likelihood and consequence of a given risk with the proposed management and mitigation measures in place, a residual risk rating is derived from the risk matrix as presented in **Table 7.3**.

Likelihood	Consequence					
	Minor	Moderate	Major			
Certain	Medium	High	High			
Likely	Low	Medium	High			
Unlikely	Low	Low	Medium			

Table 7.3 Residual Risk Matrix

If an identified residual risk is not lowered or remains high, consideration of additional management and mitigation measures will be identified and implemented, or justification provided for the risk.

**Table 7.4** details the assessed impacts and risks, the mitigation strategy to be applied to reduce each impact and risks, the persons/agency responsible for implementing the mitigation strategy and the residual risk after mitigation strategies are applied.

Potential Impacts	Potential Risks	Risk Rating	Mitigation	Responsibility	Resid. Risk
Design					
Subproject Failure	Inadequate design		Undertake sufficient research utilizing suitable technical specialists to identify appropriate sustainable technology	MHMS/PMU	
	Community does not accept Subproject		Facilitate good community consultation to ensure community understanding and acceptance of the Subproject prior to implementation. Maintain a record of all consultations and provide regular feedback to communities on the status of the Subproject	PMU	
	Permits not in place		Ensure all the legally required permits are obtained prior to undertaking the construction and this ESIA is acceptable for the SIG environmental approval process	PMU	
	E&S risks not mitigated		The contractor bidding documents should contain	PMU Procurement	

Table 7.4 Impacts, risks, mitigation, responsibility and residual risk

Potential Impacts	Potential Risks	Risk Rating	Mitigation	Responsibility	Resid. Risk
			clauses on E&S requirements to guide the contractor on the key requirements. Table 8.1 provide guidance for the bidding documents	Officer	
	Inundation due to proximity to the coastline		Design to include raising the construction pad sufficiently above the mean high water mark and setting the facility as far away from the shoreline as topography will allow	PMU	
Construction					
Degradation of flora and fauna	Loss of critical flora and fauna		The contractor should ensure that there is minimal disturbance to the Subproject site area The contractor shall as much as possible complete the works in such a manner that natural aesthetics shall be retained at the location	Contractor	
			No unnecessary removal of plants, bushes, shrubs, trees and palms at the site. No removal of mangroves is permitted Guidance included in the CoESP		
Water quality	Erosion and sediment runoff		The contractor will ensure proper demarcation of the Subproject area to be affected by the works Works to limit vegetation removal at the Subproject site; Any excavation activities should not interfere with local drainage or introduce physical changes that are not in harmony with the physical setting of the Subproject area Retention of grass, herbaceous plants, shrubs and trees, to the extent possible on the Subproject site Drainage system to divert storm water around the facility as per design (Figure 4.8) Rehabilitate the cut slope with vetiver grass Guidance included in the CoESP	Contractor	
	Pollution		Ensure proper handling, storage and disposal of waste oil,		

Potential Impacts	Potential Risks	Risk Rating	Mitigation	Responsibility	Resid. Risk
			lubricants, oil filters and fuel from vehicles Soak – hole pit to be constructed for operational wash down waste water Guidance included in the CoESP		
Noise and vibration	Community grievances		Undertake works at suitably agreed times that do not impact the community adversely Observe a common-sense approach to vehicle use, and encourage drivers to switch off vehicle engines when not in use Provision of appropriate PPE (hearing protection ear muffs) to the workers and any other person visiting the site Guidance included in the CoESP	Contractor	
Road damage, dust and traffic	Community grievances, loss of access		Undertake works that do not coincide with King Tides or the wet season to avoid damage to the road and heavy vehicles getting stuck Reduce speed close to sensitive receptors to reduce dust and traffic accidents	Contractor	
Solid waste	Community grievances		Ensure all solid waste is deposed to approved landfill sites or in a manner that is acceptable to the community Guidance included in the CoESP	Contractor	
Loss of crops	Community oppose Subproject due to loss of livelihood		Document any food crops onsite and facilitate written agreements through consultation if they are impacted by site works	PMU	
Local employment	Community grievances		Where possible use locals and local businesses Guidance included in the CoESP	Contractor	
Social disruption	Community grievances		Non local workers to treat local community with respect and follow the code of practice (COP) as outlined in the CoESP). Due diligence must be taken to avoid GBV, SEA and SH.	Contractor	
Occupational health and safety	Injury or death		Contractor to conform to all OHS laws and regulations All construction workers should be inducted on the health and	Contractor	

Potential Impacts	Potential Risks	Risk Rating	Mitigation	Responsibility	Resid. Risk
			safety requirements while at Subproject site Workers should be provided with adequate and appropriate PPE (safety helmets, shoes, gloves, mask,) and enforce on use of the PPE's Provision of clean and accessible sanitary facilities and water to workers Install safety signage at the work site should be done by a trained certified, experienced personnel and include contacts for nearest emergency services Contractor to report immediately to the PMU any OHS incidents Guidance included in the CoESP		
Operations					
Waste Management	All		Develop a Waste Management Plan (WMP) that incorporates operational procedures, operational OHS, ash pit use and maintenance, air and water pollution prevention, fire risks and emergency response, training and maintenance.	MHMS – IPC team.	
Injury or death to operators	Occupational, health and safety		OHS risks related to medical waste management including; thermal injuries while operating incinerators, sharps-inflicted injuries & disease infections are expected, the waste handlers and incinerator operators will be provided with adequate and appropriate personal protective equipment, provision of sanitary facilities (wash areas), provision of fire-suppression equipment guidance on operation and maintenance of the equipment, training and capacity building on OHS measures, infection prevention and control and medical waste management to healthcare workers, waste handlers and incinerator operators	MHMS	
Ash Pit	Community grievances and		In selecting the appropriate site for the ash pit, to be considered	MHMS	

Potential Impacts	Potential Risks	Risk Rating	Mitigation	Responsibility	Resid. Risk
	disturbance by feral animals		is that it should be as close to the incinerator as possible. The site should be in a secure, non-public area that cannot be accessed by feral or domestic animals. Considerations for the local soil type should also be in mind when designing the ash pit. Ash pit will be a sealed unit		
Pollution of local water	Heath risks to community		It should be checked that the ash pit will not affect the groundwater, or be affected by it. Ash pits are not recommended in sites where the water table is near the surface or in areas prone to flooding. At least 1.5m from the bottom of the pit to the groundwater level is recommended. The contractor should dig a test pit and insert a narrow metal pipe or bar into the soil to a depth of 1.5 m. If the end of the bar is wet or soil removed from the pipe is wet, the pit may be too close to the ground water. If the groundwater is too close to the bottom of the test pit, considerations for other options such as changing the design of the pit to make it wider but shallower; creating more, shallower pits or creating a pit that is partially made of bricks above ground. Soak pit to be constructed for wash up waste water runoff. Fuel to be stored in the power shed and handled to avoid any spillage	MHMS	
Air pollution from incinerator	Community grievances		Develop a set of operating guidelines in the WMP that include: Introduction of waste into the incinerator only after the optimum temperature is reached in the combustion chamber Prevention of waste additions if the operating temperature falls below the required limits. Implementation of a maintenance and other procedures to minimize	MHMS	

Potential Impacts	Potential Risks	Risk Rating	Mitigation	Responsibility	Resid. Risk
			planned and unplanned shut- downs Avoiding operating conditions in excess of those that are required for efficient destruction of the waste Avoiding operating the incinerator on days where weather conditions will lead to air discharges impacting local communities		
Emergencies	Damage to property, injury or death		Emergency responses to be included in the WMP as described in Section 7.6. Keep the area surrounding the incinerator clean and well mowed to remove possible fuel for a fire Have fire extinguishing capacity close to the incinerator when operating Emergency contacts to be displayed in the power storage shed.	MHMS	
Air pollution and spillage on transportation	Community grievance, impact health and hygiene of community.		Waste management plan to include detailed instructions on waste packing and loading on vehicles to reduce potential spillage during transportation. Waste handlers to be trained properly to well manage transportation of waste to avoid spillage. Cover all rubbish packs with canvas on the back of vehicle to avoid odor seepage to residences along the road.	TH/ MHMS	
Decommissioning					
Community expectations	Community grievances		Ensure the obsolete incinerator is disposed of in an acceptable manner in approved landfill (Honiara Land-fill)	MHMS	
Solid waste	Community grievances		Ensure all solid waste is buried in the ash pit or disposed of at an approved landfill site in Honiara.	MHMS	

#### 7.6. Outages and Emergency Management

The incinerator may at times encounter problems either itself or issues with the peripheral equipment attached to it such as the generator and/or solar system, which would potentially disrupt its operation. In such situation, a manual self-built wood-fired

incinerator is considered a good option for the hospital to build at their own cost for back up in the long-term. Such units can be found in Atoifi and Kirakira hospitals and provide an alternative despite not being able to reach the desired degree of heat level for effective incineration as captured in a SPREP report on hazardous waste management baseline study<sup>2</sup>. However, it is considered appropriate to use these low tech units rather than not having any back up at all or reverting to the current practice of open-fire burning and dumping. The TH management will be advised to explore this opportunity. The PMU ESHS&CE and infrastructure officers will assist in securing the design and the design will be given to TH management for consideration.

In terms of flood risks during heavy rains, the plant will have a drainage network (Figure 4.8) that will provide control of heavy run-off from the hill and cliff at the back of the site. The cut slope will also be stabilized with vetiver grass. The ash-pit and waste-water soak pit are sealed to avoid filling from runoff. Although extreme high tides and storm waves have the potential to inundate the lower section of the site, it is unlikely to reach the main facilities which are have been placed further inland and on an elevated pad.

The ash pit would need proper management by the waste management team in order to avoid it being filled prior to another pit being prepared. This practice should be part of the ongoing commitment of the TH management and will be emphasized during waste management training and instructions included in the WMP.

Management of fuel supplies is important as it has direct relation to the operation of the incinerator. Immediate fuel required for a period of operation will be kept at the site, while bulk supplies will be stored at the Tulagi hospital storage shed. Fuel transportation to the incinerator will be made on a regular basis considering the fact that the incinerator fuel tank can store up to a week's worth of burning. Whenever there is no fuel to operate the incinerator, the manual wood fueled incinerator should be used, if it has been constructed. Otherwise, a land-fill site would need to be identified for the matter.

<sup>&</sup>lt;sup>2</sup> SPREP, Baseline Study for the Pacific Hazardous Waste Management Project - Healthcare Waste in Solomon Islands, April 2014

The piped water system would be used as a primary source, except in the event where it is disrupted or non-functional, a standby water tank for rainwater storage will be used and is included in the design. Include all the provisions for emergencies and outages in the WMP.

For energy, the generator will be the primary energy source and would be used interchangeably with the solar energy system. During long sunny and dry weather, the solar unit will be utilized more often to save fuel and costs for operating the generator.

It must be ensured that the site would not be left abandoned for longer periods when it is not in use due to issues with the incinerator or shortage of fuel or related hiccups. The responsible waste management staff bares the responsibility to always manage the facility. A barricade fencing, which has been part of the design, will be erected around the facility to avoid intrusion by animals or humans even if the area is unattended for a longer period. It will have a lockable entrance and managed by the waste management staffs of TH.

Concrete slabs are designed to be placed on surfaces of washing areas in order to control water splashes and waste residues from bins and equipment from spilling about in the area. A soak-pit is designed to enable containment of washed off wastes.

During natural disasters such as earthquake, landslides, tsunami and cyclone, it is essential to have a back-up plan to ensure continuity of proper waste management practice. The adjacent mangrove coast to the incinerator facility must be maintained through prohibition of unnecessary clearance or felling to protect the site from potential sea intrusion, high wave actions and coastal storm surges. In the same manner, the hill behind the site must be maintained of its vegetation through prohibition of unnecessary clearance or felling to protect the solution of unnecessary clearance or felling to protect the same manner, the hill behind the site must be maintained of its vegetation through prohibition of unnecessary clearance or felling of trees. This is to maintain intactness of the soil structure of the slope in order to reduce potentials of possible landslide occurring at the site due to earthquake or torrential rain.

A back-up land fill site is essential in any long tem outage the Tulagi solid waste dumpsite should be utilized in this case as highlighted in the solid waste management plan (SWMP) for Tulagi (Appendix 3)<sup>3</sup>. Putting in place a proper waste management system for Tulagi Township by the central islands provincial government as recommended in the SWMP is

<sup>&</sup>lt;sup>3</sup> ECD – MECCDMM, 2022, Solid-waste management Plan for Tulagi 2022 – 2026.

essential for creating an improved landfill system as back-up for this incinerator subproject.

For the purpose of back-up and/ or continuity of proper waste management practices, training will include other health workers or part-timers on how to handle and collect medical wastes. This is to complement the 2 IPC nurses, a driver and handy person of the hospital who are currently responsible for waste management.

## 8. Requirement for Construction Bidding Documents and E&S Mitigating Cost Estimates

The following **Table 8.1** should be included in the bidding documents along with the CoESP template (Appendix 1) for construction phase of the Subproject. To implement the management of the E&S mitigation strategies the contractor will be required, with the support of the PMU to develop a CoESP (Appendix 1). Development of the CoESP will be undertaken at the contractor's expense and development of the CoESP costs must be included in all bids for the bids to be valid.

Potential Impacts	Potential Risks	Mitigation	Contractors Requirements	Estimated Cost
All	All	Develop and implement the CoESP	Develop in collaboration with the PMU a CoESP, implement and train staff on CoESP including OHS	USD5,000
Degradation of flora and fauna	Loss of critical flora and fauna	The contractor should ensure that there is minimal disturbance to the Subproject site area The contractor shall as much as possible complete the works in such a manner that natural aesthetics shall be retained at the location Guidance included in the CoESP	The contractor to have a basic understanding of the site parameters and requirements for any earth works or other site disturbances during works	Contractor to include costs, if any, when bidding
Water quality	Erosion and sediment runoff	The contractor will ensure proper demarcation of the Subproject area to be affected by the works. Works to limit vegetation removal at the Subproject site; Any excavation activities should not interfere with local drainage	The contractor to have a basic understanding of the site parameters and requirements for any earth works or other site disturbances during works	Contractor to include costs, if any, when bidding

Table 8.1 E&S requirements and estimated costs for bidding documents

Potential Impacts	Potential Risks	Mitigation	Contractors Requirements	Estimated Cost
		or introduce physical changes that are not in harmony with the physical setting of the Subproject area. Retention of grass, herbaceous plants, shrubs and trees, to the extent possible on the Subproject site Drainage system to divert storm water around the facility as per design (Figure 4.8) Rehabilitate the cut slope with vetiver grass Guidance included in the CoESP		
	Pollution	Ensure proper handling, storage and disposal of waste oil, lubricants, oil filters and fuel from vehicles Guidance included in the CoESP	Best practice to be undertaken by the contractor and detailed in CoESP	Contractor to include costs, if any, when bidding
Noise and vibration	Community grievances	Undertake works at suitably agreed times that do not impact the community adversely Observe a common-sense approach to vehicle use, and encourage drivers to switch off vehicle engines when not in use Provision of appropriate PPE (hearing protection ear muffs) to the workers and any other person visiting the site Guidance included in the CoESP	Standard best practice to be undertaken by the contractor and detailed in CoESP	Contractor to include costs, if any, when bidding
Solid waste	Community grievances	Ensure all solid waste is deposed to approved landfill sites or in a manner that is acceptable to the community Guidance included in the CoESP	Best practice to be undertaken by the contractor and detailed in CoESP	Contractor to include costs, if any, when bidding
Local employment	Community grievances	Where possible use locals and local businesses	Contractors to priorities local employment and	No cost

Potential Impacts	Potential Risks	Mitigation	Contractors Requirements	Estimated Cost
		Guidance included in the CoESP	businesses	
Occupational health and safety	Injury or death	Contractor to conform to all OHS laws and regulations All construction workers should be inducted on the health and safety requirements while at Subproject site Workers should be provided with adequate and appropriate PPE (safety helmets, shoes, gloves, mask,) and enforce on use of the PPE's Provision of clean and accessible sanitary facilities and water to workers Install safety signage at the work site should be done by a trained certified, experienced personnel Contractor to report immediately to the PMU any OHS incidents Guidance included in the CoESP	Best practice to be undertaken by the contractor and detailed in CoESP	Contractor to include costs, if any, when bidding
Social disruption	Community grievances	Non local workers to treat locally community with respect and follow the code of practice (COP) as outlined in the CoESP)	Detailed in CoESP	No cost
COVID - 19	Community infections	All the current at time of construction COVID-19 prevention measures should be observed and may include the following: Regularly washing hands, sanitizing and observing social distancing at all times Seeking healthcare services immediately one experiences any of the following symptoms (while at home or work): cough, fever and shortness of breath.	Contractor to comply with COVID 19 mandates at time of construction	Contractor to include costs, if any, when bidding

### 9. Grievance Redressed Mechanism

A Grievance Redress Mechanism (GRM) has been established by the PMU to record and resolve any complaint based on the Subproject activities. Any complaints and grievance during the life cycle of the Subproject will be acknowledged and recorded by the PMU ESHS&CE Officer. If the complaints or grievance is minor, the PMU ESHS&CE Officer and/or contractor/site supervisor may resolve it on site. For complaints and grievance that are not resolved onsite, the PMU ESHS&CE Officer will forward to the PMU Program manager (PM). The PMU PM will liaise with the PMU ESHS&CE Officer to negotiate and implement resolution. However, for complaints and grievance that are not resolved at this level, the PMU PM will forward to the Permanent Secretary (PS) MHMH and its executive for resolution. The PMU ESHS&CE Officer will liaise with all the stakeholders of the Subproject. The CoESP (Appendix 1) will provide guidance to the contractor for managing complaints and grievance on site as well as contact details and channels that are available for grievances. The GRM provides the steps for recording and resolving of any complaint and grievance of the Subproject. Below are the steps for GRM that the Subproject will be using to invite and resolve grievances.



Figure 9.1 GRM process and timeframes

### 10. Stakeholder Engagement

Different stakeholders are involved over the Subproject lifespan. Since the recruitment of the ESHS&CE Officer, consultations were carried out as detailed in **Table 9.1 (and Appendix 2)**. The key stakeholders include TH, MHMS, nearby residents and the public. A Stakeholder Engagement Plan (SEP) has been prepared for the overall Project to assist the stakeholder engagement process. The PMU ESHS&CE Officer conducted several consultations with the TH management and staff on the Subproject activities. Following this, nearby residents, church, and vocational school representatives were consulted to provide them with information on the Subproject and likely impacts and risks.

Discussions between the PMU ESHS&CE Officer and the community members based on the direct impacts of incinerator included; how it will improve waste management for the hospital and the types of potential impacts and risks. A summary of community feedback is provided as Appendix 2.

A team from the WB consisting of international and regional representatives and specialists also visited the TH to assess and discuss with the hospital management regarding the Subproject activities. Here discussions were based on what the hospital needs and what activity the Subproject is offering for the hospital. The nearby residents mainly consist of the hospital staff and church workers. The WB E&S specialists were part of the team which they observe and assessed the sites for the incinerator. Risks are identified and possible mitigation are discussed with the hospital management on site.

Date	Stakeholders consulted	Activity Description
9 <sup>th</sup> - 10 <sup>th</sup> June 22	Formal and informal meeting with Tulagi hospital management, nearby residents and villages, Church rep, nearby schools and consulted	PMU ES officer carried out an E&S assessment mission to Tulagi hospital in leading to the drafting of an ESIA report for Tulagi waste incinerator
14 <sup>th</sup> July 2022	Tulagi hospital management, provincial schools, Tulagi based MHMS RWASH officer, Provincial Deputy Secretary (DPS)	Site assessment involving manual measure of available ground platform. General review of water source, power and landscape.
31st January 2023	<ul> <li>Formal and informal meeting with hospital management:</li> <li>hospital director, hospital secretary, nurse manager, IPC nurse, and nursing director</li> <li>Courtesy call with Tulagi provincial</li> </ul>	<ul> <li>PMU team comprise of the project manager, and infrastructure officer accompanied by WB ES staff do a follow up site visit to Tulagi hospital and waste incinerator site. Main activity involves;</li> <li>i) Consultation and update hospital management on progress of project and clarify the scope of project</li> </ul>

 Table 10.1 Summary of key stakeholder engagements (full reports Appendix 2

Date	Stakeholders consulted	Activity Description
	<b>government</b> . The project team meet the provincial premier	intervention as per planned in the financing agreement. ii) Infrastructure detail scoping and site planning Follow up ES screening and furnish other detail information about the bins and obtain clinical waste to calculate the volumes

# 11. Capacity Development and Training

Capacity development and training is essential for the sustainability of the Subproject. The supplier agrees to perform one on-site demonstration training on incinerator installation and operations as complementary to the purchase done. The PMU will organize to engage the bio-medical engineering team at the MHMS to attend the training and to thereafter roll out additional trainings to other incinerator sites including Tulagi Hospital. Apart from incinerator specific topics, the biomedical team would ensure to incorporate additional training topics such as IPC requirements and handling of medical wastes such as storage, segregation, transportation and handling. The PMU ESHS&CE implemented accordingly. Additionally, a representative from each ward within the hospital will be trained on waste segregations and handling to ease sorting process at the ward level before transportation.

### 12. Incident Management and Emergency Response

Any accident or incident to construction workers, Tulagi Hospital staff or the public that occur during the Subproject activities and/or on Subproject site will be reported to the PMU ESHS&CE Officer within 24 hours. The PMU ESHS&CE Officer shall provide its contact to the contractor and/or the contact to be displayed at the Subproject site for Subproject contact purposes. During any accident, the affected individual (s) will be transferred to a nearest hospital. In addition, medical safety and first aid kits will be provided on site. Incident investigations will be completed as required by MHMS PMU in accordance with the World Bank ESIRT process. The Subproject will contact the nearest police post for any fire response incidents. The contractor will designate an emergency assemble area for the workers.

In an incident of fatal and life threatening injury, the Tulagi Hospital is the nearest and it has vehicles to transport patients. There is cell phone network coverage throughout the island that makes communication easier and quicker to get assistance. There is also a new sea ambulance donated by JICA through UNICEF to Tulagi Hospital for referrals to Honiara. There is also a sports field that always been used for chopper landing during disaster responses which provide possibility to engage the service of a helicopter for emergency. Tulagi also has a police station that could be engaged in times of emergencies.

### 13. Implementation

The PMU will implement and supervise the Subproject. The PMU ESHS&CE Officer shall ensure that the contractor shall abide to the WB and national E&S frameworks and regulations. The PMU ESHS&CE Officer and infrastructure officer will monitor the overall progress of the Subproject by conducting regular site visits and requesting progress reports from the contractor. The contractor shall provide a Subproject construction schedule to the PMU infrastructure officer. The PMU ESHS&CE Officer shall ensure there is proper coordination between the MHMS, PMU and contactor.

## 14. Monitoring

The PMU and specifically the PMU ESHS&CE Officer will be responsible for monitoring the implementation of the CoESP on site. The contractor will appoint an onsite E&S focal point who will be responsible for ensuring the implementation of the CoESP's E&S provisions. The focal person will liaise with the PMU ESHS&CE Officer and reporting incidents to the PMU. The PMU ESHS&CE Officer should attend the induction training to monitor the implementation of the training and the signing of the company and individual code of practice (COP) as detailed in the CoESP. The ESHS&CE Officer should visit the site at least once every week that construction is underway to monitor the implementation of the E&S impact and risk mitigation strategies. These visits should be recorded and reported on in the regular PMU Subproject Reporting.

The ESHS&CE Officer will establish incident and reporting log to record the monitoring and incidents. Identification of non-compliance by the contractor on any of the provisions within the CoESP will require notification in writing to the contractor within 24 hours of the ESHS&CE Officer identifying the issue. Depending on the severity of the issue the letter should outline the timeframe for rectification and the actions required.

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Appendix 1 Code of Environment and Social Practice Template



# SOLOMON ISLANDS GOVERNMENT MINISTRY OF HEALTH AND MEDICAL SERVICES P. O. BOX 349, HONIARA, SOLOMON ISLANDS

# **CODE OF ENVIRONMENTAL**

# and SOCIAL PRACTICE

TEMPLATE

# **Document history**

Revision history				
Version #	Date	Description	Name	
1	31/01/2023	Template	Greg Andrews E&S Specialist	
2	12/06/2023	Revised	John P.Labere (ESHS&CE officer) PMU	
3	04/07/2023	Revised	Greg Andrews E&S Specialist	

# Table of Contents

Document history	i
Abbreviations and Acronyms	iii
1. Introduction	1
2. Purpose of the Code of Environmental & Social Practice	1
3. Objectives	1
4. Scope of Works	2
5. Contractor Obligations	2
5.1 Community Engagement	5
5.2 Worksite Induction	5
5.3 Roles and Responsibilities	6
6. Company Acknowledgment of CoESP and Code of Conduct (COC)	6
6.1 Code of Conduct (COC)	8
Annex 1. Grievance Redress Mechanism (GRM)	13

COC	Code of Conduct
CoESP	Code of Environmental and Social Practice
CSS	Contractor's Site Supervisor
E&S	Environmental and Social
EHS	Environmental Health and Safety
ESF	Environmental and Social Framework (World Bank)
ESH	Environmental, Social and Health
ESS	Environmental and Social Standard
GBV	Gender based violence
GRM	Grievance Redress Mechanism
GRS	Grievance Redress System
HCC	Honiara City Council
LUA	Land Use Agreement
MHMS	Ministry of Health and Medical Services
MLHS	Ministry of Lands, Housing and Survey
NMS	National Medical Store
OHS	Occupation Health and Safety
PMU	Project Management Unit
POA	Plan of Action
PPE	Personal protective equipment
PS	Permanent Secretary
SIG	Solomon Islands Government
SWD	Social Welfare Department
VAC	Violence Against Children
WB	World Bank

## **Abbreviations and Acronyms**

### 1. Introduction

Generally, construction of small works poses limited environmental and social (E&S) impacts and risks, however it is still very important to take into consideration and implement the principles of best practice environmental and social risk management to facilitate outcomes that are harmonized with World Bank (WB) Environmental and Social Frameworks (ESF) Environmental and Social Standards (ESS) and to avoid any negative E&S impacts on local staff, workers and local communities. An Environmental and Social Assessment (ESIA) has been undertaken as a part of the Subproject approval. The ESIA should guide and be referred to in the completion of this CoESP.

### 2. Purpose of the Code of Environmental & Social Practice

The Code of Environmental and Social Practice (CoESP) is developed purposely to manage and guide the contractor in their management of environmental and social risks and impacts and the construction of WB projects. The contractor is obliged by the provisions of the contract to understand the actions detailed in this CoESP which has been approved by the PMU. Should the contractor fail to comply with the provisions of this CoESP, the PMU shall withhold payment of invoices until the contractor resolves the issue(s).

### 3. Objectives

Key objectives of the CoESP are:

- To guide compliance with relevant Solomon Islands legislation and the CoESP conditions
- To describe the conditions and mitigation measures the contractor will undertake to manage the environmental and social impacts and risks including health and safety of workers
- To clearly define key personnel roles and responsibilities for the management, implementation, monitoring and reporting of the provisions within the CoESP
- To detail the contractor's responsibility for any training and internal communications, which ensures their workers, understand the risks and impacts associated with the Subproject.
### 4. Scope of Works

Contractor to insert scope of works as detailed in their contract.

## 5. Contractor Obligations

The following information details the minimum actions the contractor must take to mitigate the E&S impacts and risks identified in the ESIA and any additional impacts and risks identified on site.

### 5.1 Impact and risk mitigation

Table 5.1 identifies the mitigation actions identified in the ESIA. The contractor with the PMU during site takeover will identify any additional impacts and risks and include them in Table 5.1. The contractor will implement the E&S mitigation strategies detailed in Table 5.1.

**Table 5.1** Potential Impacts and Risk ESIA mitigation strategies and additional contractor requirements

Potential Impacts & Risks	Mitigation as outlined in the ESIA	Site specific actions (contractor to add)
Loss of critical flora and fauna	The contractor should ensure that there is minimal disturbance to the Subproject site area The contractor shall as much as possible complete the works in such a manner that natural aesthetics shall be retained at the location No removal of any mangroves	Contractor to add any additional actions after site assessment
Loss of crops	Document any food crops onsite and facilitate written agreements through consultation if they are impacted by site works	Contractor to add any additional actions after site assessment
Water quality, erosion and sediment runoff	The contractor will ensure proper demarcation of the Subproject area to be affected by the works Works to limit vegetation removal at the Subproject site; Any excavation activities should not interfere with local drainage or introduce physical changes that are not in harmony with the physical setting of the Subproject area Retention of grass, herbaceous plants, shrubs and trees, to the extent possible on the Subproject site Drainage system to divert storm water around the facility as per design	Contractor to add any additional actions after site assessment

Potential Impacts & Risks	Mitigation as outlined in the ESIA	Site specific actions (contractor to add)
	Rehabilitate the cut slope with vetiver grass Soak-hole pit to be constructed for waste water runoff	
Pollution	Ensure proper handling, storage and disposal of waste oil, lubricants, oil filters and fuel from vehicles	Contractor to add any additional actions after site assessment
Noise and vibration	Undertake works at suitably agreed times that do not impact the community adversely Observe a common-sense approach to vehicle use, and encourage drivers to switch off vehicle engines when not in use Provision of appropriate PPE (hearing protection ear muffs) to the workers and any other person visiting the site	Contractor to add any additional actions after site assessment
Road damage, dust and traffic	Undertake works that do not coincide with King Tides or the wet season to avoid damage to the road and heavy vehicles getting stuck Reduce speed close to sensitive receptors to reduce dust and traffic accidents	Contractor to add any additional actions after site assessment
Solid waste	Ensure all solid waste is deposed to approved landfill sites or in a manner that is acceptable to the community	Contractor to add any additional actions after site assessment
Local employment	Where possible use locals and local businesses	Contractor to add any additional actions after site assessment
Occupational health and safety	Contractor to conform to all OHS laws and regulations. Occupational Health and Safety (OHS) is an important mechanism in workplace safety. <b>Table 5.2</b> best describes on-site OHS ways to manage the risks of injury or death during construction activities All construction workers should be inducted on the health and safety requirements while at Subproject site Workers should be provided with adequate and appropriate PPE (safety helmets, shoes, gloves, mask,) and enforce on use of the PPE's Provision of clean and accessible sanitary facilities and water to workers Install safety signage at the work site should be done by a trained certified, experienced personnel and include contacts and locations for nearest emergency services Contractor to report immediately to the PMU any OHS incidents	Contractor to add any additional actions after site assessment
Social disruption	Non local workers to treat locally community with respect and follow the workers code of	Contractor to add any additional actions after site assessment

Potential Impacts & Risks	Mitigation as outlined in the ESIA	Site specific actions (contractor to add)
	conduct (COC) as detailed in Section 6.1 Provide signs that have contacts for complaints and utile the GRM as detailed in Annex 1. Construction traffic to be managed in a way to minimize accidents and conflict with neighboring businesses and community	
COVID - 19	<ul> <li>All the current at time of construction COVID-19 prevention measures should be observed and may include the following:</li> <li>Wearing prescribed and appropriate PPE (masks) on site at all times.</li> <li>Regularly washing hands, sanitizing and observing social distancing at all times</li> <li>Seeking healthcare services immediately one experiences any of the following symptoms (while at home or work): cough, fever and shortness of breath.</li> <li>Further guidelines are provided as Annex 2</li> </ul>	Contractor to add any additional actions after site assessment

55	Sufficient and clean drinking water to be on site at all times for workers.	∦ &	Toilets on or near the site to be available for all workers.
俞	Suitable protection from rain and sun during rest breaks or weather stoppages to be made available.	R R	Workers are not forced to work in extreme weather (heavy rain, strong winds, etc.) or other weather that is dangerous or impactful.
(1)	Site Supervisors should be trained in basic first aid to be able to provide care.		The Site Supervisor should know where the nearest hospital/clinic is and where an ambulance or quick transport can be found/accessed.

₽ ₽	A first aid kit is to be kept up to date, and on site at all times in a visible, accessible location.	No alcoholic drinks or drugs to be taken before starting or during work (kwaso, bettlenut, kava, beer, marijuana). Workers should be not be affected by drugs or alcohol while on site at any time.
Ro	Machinery operators must be properly trained to use the machine.	Protective clothing to be worn at all times: Safety boots. Reflectorized yellow or orange-colored safety vests or harnesses. Hats where there is strong sun. Goggles/masks when working in dusty condition Gloves when working in bush clearing and removal of obstructions, or mixing concrete/handling other toxic materials. Hard hats/helmets when working on sites where there is a danger of falling objects, e.g., in deep drains, digging pit latrines, work in quarries, etc.

### 5.2 Community Engagement

The PMU will develop some basic community information to make aware the recipient community, groups and individuals of the Subproject activities and responsibilities of the contractor. It is very important that the contractor is required to have the name and contact of a community leader/representative and work closely with the community leader/representative on activities regarding any noise, dust or inconvenience that may be caused to the local community during construction. The contractor must erect a construction sign with contact details for making a complaint or seeking further information as detailed in the grievance redress mechanism (GRM) **Annex 1**.

### 5.3 Worksite Induction

A site induction prior to start of work is very important and it must be undertaken for all site workers to ensure employees are aware of:

• The importance and purpose of the CoESP

- OHS onsite
- Any significant environmental hazards, actual or potential, that may be caused as a result of their activities or the Subproject
- Roles and responsibilities in relation to this CoESP
- Any spill response and or emergency procedure
- Accident and incident reporting and methods of prevention
- Codes of Conduct including responsibilities around Gender based Violence (GBV), Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and Violence against Children (VAC).

The PMU ESHS&CE officer must be present at the initial site induction.

### 5.4 Roles and Responsibilities

The contractor has the responsibility to apply this CoESP during construction and to:

- Nominate an onsite supervisor:
  - $\circ$   $\,$  To be the focal point for the PMU  $\,$
  - To manage any public interaction
  - To be responsible for reporting any issues to the PMU
  - To ensure all individuals understand this CoESP and their obligations.

The PMU will be responsible for ensuring that the contractor complies with this CoESP with regular site visits and discussions with the nominated onsite manager.

# 6. Company Acknowledgment of CoESP and Code of Conduct (COC)

The Contractor is committed to ensuring that the Subproject is implemented in a way which minimizes any negative impacts on the local environment, communities, businesses, NMS staff and its workers. This will be done by respecting the environmental and social issues detailed in this CoESP, reporting and if appropriate, responding to issues that are unforeseen and ensuring appropriate OHS standards on-site. The company is also committed to creating and maintaining an environment in which they will not tolerate any breaches of the provisions within the CoESP by any employee, sub-contractor, supplier, associate, or representative of the company.

To ensure that all those engaged in the Subproject are aware of their obligations, the contractor commits to the following core principles and minimum standards of behavior that will apply to all company employees, associates, and representatives, including subcontractors and suppliers, without exception:

- The company and all employees, associates, representatives, sub-contractors and suppliers commits to complying with all relevant national laws, rules and regulations.
- The company commits to fully implementing this CoESP.
- The company commits to treating women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.
- The company shall ensure that interactions with local community members are done with respect and non-discrimination.
- Demeaning, threatening, harassing, abusive, culturally inappropriate, or sexually provocative language and behavior are prohibited among all company employees, associates, and its representatives, including sub-contractors and suppliers.
- The company will follow all reasonable work instructions from the PMU (including those pertaining to environmental and social safeguards).
- The company will protect and ensure proper use of property (for example, to prohibit theft, carelessness or waste).
- The company will ensure that the Subproject's OHS standards are effectively implemented by company staff, as well as sub-contractors and suppliers.
- The company will ensure that all people on-site wear prescribed and appropriate personal protective equipment (PPE), preventing avoidable accidents and reporting conditions or practices that pose a safety hazard or threaten the environment.

To ensure that the above principles are implemented effectively the company will:

- a) Prohibit the use of alcohol during or before work activities.
- b) Prohibit the use of narcotics or other substances which can impair faculties at all times.
- c) Provide adequate sanitation facilities on site and at any worker accommodation provided for those working on the Subproject.
- a) Have all personnel on site sign the Code of Conduct (6.1) confirming their agreement to comply with the CoESP and OHS standards

- b) Provide copies of the Company and Codes of Conduct are translated into the appropriate language of use in the work site areas.
- c) Have employees attend an induction prior to commencing work on site to ensure they are familiar with the company's commitments within the CoESP and the OHS standards.

I do hereby acknowledge that I have read the abovementioned Code of Practice and Company Code of Conduct, and on behalf of the company agree to comply with the standards contained therein. I understand my role and responsibilities to support the CoESP and OH&S standards. I understand that any action inconsistent with this CoESP or failure to act mandated by this CoESP may result in disciplinary action.

### Company name: Insert company name

Signature:	
Printed Name: _	
Title:	
Date:	

### 6.1 Code of Conduct (COC)

The following Code of Conduct (COC) must be read and understood by all workers on site including any subcontractors (if required):

I, individual's name, acknowledge that adhering to the provisions as detailed in this COC and following any of the Subproject's Environmental, Social and Health (ESH) or Occupational Health and Safety (OHS) provisions is important.

The Client considers that failure to follow the COC, ESH or OHS standards, be it in an office, on a work site, office and work site surroundings, at workers' camps, in worker's homes, or the surrounding communities constitutes acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment.

I agree that while working on the Subproject I will:

- 1. Attend and actively participate in any induction or training required for OHS, GBV/SEA/SH and VAC as requested by my employer.
- 2. Will wear my personal protective equipment (PPE) at all times when required.

- 3. Implement any OHS requirements
- 4. Comply with all laws of the Solomon Islands, regulations and other requirements, including protecting the health, safety and well-being of other Contractor's worker and any other persons.
- 5. Not drink alcohol or use narcotics or other substances which can impair faculties and potentially cause incidents, before or during work activities.
- 6. Consent to a Police background check if required.
- 7. Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.
- 8. Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- 9. Not engage in sexual harassment—for instance, making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct, of a sexual nature, including subtle acts of such behavior (e.g., looking somebody up and down; kissing, howling or smacking sounds; hanging around somebody; whistling and catcalls; giving personal gifts; making comments about somebody's sex life; etc.).
- 10. Not engage in sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.
- 11. Not participate in sexual contact or activity with children (persons under the age of 18) including grooming, or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
- 12. Unless there is the full consent by all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non- monetary) to community members in exchange for sex, such sexual activity is considered "non-consensual" within the scope of this COC.
- 13. Report to my manager any suspected or actual GBV/SEA/SH or VAC by a fellow worker, whether employed by my company or not, or any breaches of this COC.

With regard to children under the age of 18:

- 14. Wherever possible, ensure that another adult is present when in the proximity of children.
- 15. Not invite unaccompanied children unrelated to my family into my home, or the works site unless they are at immediate risk of injury or in physical danger.
- 16. Not use any computers, mobile phones, video and digital cameras or any other medium to exploit or harass children or to access child pornography.
- 17. Refrain from physical punishment or discipline of children.
- 18. Refrain from hiring children for domestic or other labor below the minimum age of 14 unless national law specifies a higher age, or which places them at significant risk of injury.
- 19. Comply with all relevant local legislation, including labor laws in relation to child labor and World Bank's safeguard policies on child labor and minimum age.

#### Sanctions

I understand that if I breach this COC, my employer will take disciplinary action which could include:

- a) Informal warning.
- b) Formal warning.
- c) Additional Training.
- d) Loss of up to one week's salary.
- e) Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
- f) Termination of employment.
- g) Report to the Police if warranted.

I do hereby acknowledge that I have read the foregoing Code of Conduct, have attended the induction training, I understand my role and responsibilities to support the Subproject's CoESP, OHS, GBV/SEA/SH, VAC and any other E&S conditions determined by the Subproject or the World Bank. I understand that any action inconsistent with this COC may result in disciplinary action and may affect my ongoing employment.

- I have read and understand the contents and of the COC and my responsibilities
- I have attended the induction training and understand my responsibilities with regards to OHS, GBV/SEA/SH and VAC

Signature:

Printed Name:

Date:

### Annex 1. Grievance Redress Mechanism (GRM)

The purpose of the GRM is to address and record any complaints that may arise during the implementation of the contract. The GRM works within existing legal and cultural frameworks.

The key objectives of the GRM are:

- Settle the grievances through consultation with all stakeholders including informing stakeholders of the solutions.
- Forward any unresolved cases to the relevant authority.
- Record, categorize and prioritize the grievances.

Potential construction grievances, which are minor and site-specific, could be easily resolved on-site by the Contractor's Site Supervisor (CSS) or the PMU ESHS&CE officer . They usually revolve around nuisances generated during construction such as obstruction of access, noise, dust, vibration, workers' dispute's etc. On-site grievances that are easily resolved still need to be communicated to the PMU ESHS&CE officer for recording, including how the dispute came about and how it was resolved. However, some complaints are likely to unresolved on site. The CSS shall inform the PMU ESHS&CE officer and formal GRM will be activated.

The PMU ESHS&CE Officer will endeavor to address the issue with direct dialog with the complainant in the first stage of the GRM. If the PMU ESHS&CE Officer is not able to resolve the complaint to the satisfaction of the affected person(s), it will then be forwarded to the PMU Project Manager (PM). The PMU PM and ESHS&CE Officer will develop a Plan of Action (POA) to resolve the issue and communicate this back to the complainant. At all stages, the complainant must be kept informed about the course of action being taken within a period of five days from the date that the complaint was received. If it is a land related issue, the PMU PM will inform the MHMS to communicate with MLHS to provide relevant documents to develop best resolution.

If the complaint is not resolved by the PMU PM to the satisfaction of the complainant, it will then be referred to the Permanent Secretary (PS) MHMS. The PS MHMS will be supported by the PMU to inform and advice. The PS MHMS is required to address the concern within 10 days. The PMU ESHS&CE Officer will draft a revised POA to resolve the issue based on the PSs' determination and take this POA to the complainant for

resolution. In circumstances where measures outlined in the POA fail to satisfy the complainant, the aggrieved party is free to take his/her grievance to the Ombudsman's Office for mediation and a decision by the Ombudsman. If the complainant does not accept any resolution at this stage, the GRM will not obstruct complainants' access to the legal system. At any time, the complainant may take the matter to the appropriate legal or judicial authority as per the laws of Solomon Islands. Complainants can also access the WB Grievance Redress System (GRS <u>www.worldbank.org/grs</u>).

Signs must be erected at the sites of all works providing the public with updated information and summarizing the GRM process, including contact details of the PMU ESHS&CE Officer. Anyone will be able to lodge a complaint through a number of methods (including the complaints form, in person, by telephone in either English or Solomon Islands Pidgin). The PMU must provide a GRM that makes every effort not to inhibit the lodgement of a complaint. The PMU ESHS&CE Officer, who will log the details and maintain the Complaints Register. This information will be included in PMU progress reports to the WB.

#### GRM process and timeframes



# Gender Based Violence (GBV), Sexual Exploitation and Abuse, (SEA) Sexual Harassment (SH) and Violence against Children (VAC) Process

This process includes serious and minor incidents of Gender Based Violence (GBV)/SEA/SH and VAC and Sexual Exploitation and Abuse (SEA). Issues of minor

sexual harassment on project construction sites such as lewd remarks, wolf whistling or bad language should use the normal GRM.

For incidents that are more serious the complainant must be made aware they can make a complaint directly to the MHMS Social Welfare Department (SWD) and PMU ESHS&CE officer. The MHMS SWD may report the incident to the Police at the discretion of the complainant.

**GBV/SEA/SH and VAC incidents** related to a World Bank project will include the following:

- Incidents of GBV/SEA/SH and VAC perpetrated by, or upon, a person directly contracted by a World Bank project. This includes PMU staff and any direct workers and contracted workers as determined by the LMP
- Incidents of GBV/SEA/SH and VAC that have been perpetrated at a designated construction or project site funded by the World Bank
- Incidents of GBV/SEA/SH and VAC that are perpetrated by local civil works contractors and subcontractors and their staff as detailed in the LMP.

# Appendix 2 Stakeholder Consultation and Attendance Lists

Dates	Stakeholder	Stakeholder feedback		
	Tulagi Hospital:	So pleased to be going to have a proper waste incinerator.		
	1. TH Management	• Need to have the layout plan of the facility consistent with IPC		
		standard – basically ensure water for washing bins and equipment		
		is available.		
		Hope the incinerator would not create enormous operational costs		
		that would be beyond the hospital's financial capacity, unless		
		MHMS would guarantee a pitched to cater for anticipated cost hikes.		
		• If the incinerator faces problem with its running, are we going to		
		revert back to our old waste disposal practice? Although it is an		
		inappropriate practice, it is less costly and easy to operate. Unless		
		MHMS create another less costly yet environmentally safe		
		to our old dumping practice during incinerator down time		
		<ul> <li>More hospital staff need to receive waste management training</li> </ul>		
	2. Central islands	<ul> <li>So pleased to be given a proper waste incinerator for the</li> </ul>		
1.9 <sup>th</sup> – 10 <sup>th</sup>	provincial	province's major hospital facility. This is the first of its kind for the		
June 2022	government	hospital to have, having it built properly and providing proper		
		training on handling and operation is essential for long term		
2. 14 <sup>th</sup> July		sustainability.		
2022		• Look through best alternative land spaces available at the waste		
		management zone area and recommend to us to arrange		
3. 31 <sup>st</sup> Jan		necessary land acquisition formalities for the investment.		
2023	3. Tulagi residents	Fume and odor emission from the old open burning practice and the little integration of the used and the little integration of the second		
4. 10" March		the intering of the roadside by sharps and medical wastes has		
2020		the vicinity for recreational nurnose		
		<ul> <li>On several occasions in the past fish caught in the seas around</li> </ul>		
		the area through spear diving have in their stomach and mouth		
		tissues and wool which could have littered into the sea. We are		
		thankful for the improvement in medical waste management		
		currently proposed as that would stop the long-standing issue of		
		litter around the coast.		
		• We want contractors and workers who will be engaged to respect		
		our community, especially, women and children are more		
		vulnerable. We had past experiences that workers do not respect		
		our communities. Selection of workers must be within our		
		community so that we well understand them and they would be		
		strangers due to scarcity of skills, we want the project to impose		
		heavy selection criteria and rules to ensure bringing in well-		
		mannered and respectable workers.		

	• The area is isolated hence noise during construction would not be of much concern. Although vehicle movement to and from the site to Tulagi station would just be as normally experienced, we want drivers to at least show some manners when passing residences and commuters by slowing down to minimize dust and noise. During extremely dry or windy weather, dust swivels in the air quite easily hence caution must be taken by road users to at least use
5. Villages & settlements	<ul> <li>Our young school aged children frequent the road to school and Tulagi. Our Women and very young kids also follow the road to Tulagi for market, shopping, accessing hospital and church worship. Sometimes our children play at the roadside. All these factors must be considered by the contractor and workers when transporting heavy equipment, materials and or driving along the road.</li> <li>Our houses are close to the road and easy to be filled with dust by</li> </ul>
	<ul> <li>Our nouses are close to the road and easy to be fined with dust by running vehicles. We want drivers to be considerate and have manners when passing our settlements.</li> <li>Waste transportation past our settlement has been an usual and ongoing activity which we have over the years abated its odour by not staying close to the road when waste truck approaches. However, it would be good to improve transportation by always covering the wastes with tarpaulin over the truck trailer.</li> </ul>
5. School (McMahon school)	• Transporting of waste past the school is not a new thing, so as vehicles noisily passing the school as well. However, if for the sake of construction at the other end of the island that vehicles frequent the road more than normally experienced, then there would certainly be concern. Concern of dust and noise especially is anticipated.
	<ul> <li>We are happy to hear a waste incinerator to be installed for proper disposal of clinical wastes that have for too long been overlooked. Our children are often exposed to infections for playing with used syringes, tubes and other materials they come across at the roadside dumpsite on their way home and to school.</li> <li>Our school children frequent the road daily to and from the school. Some of them live in settlements along the road. If the construction brings is warkers from outside, was peed to be guested to be supported that the school being the road from the school.</li> </ul>
	workers will respect our students, especially young girls. The road heading westward is quite remote and isolate.
6. Church reps	<ul> <li>Contractor or workers need to be advised that we have our Church buildings close to the road and our main worship days are Saturday for Seventh-day Adventist (SDA) and Sunday for non-SDAs. We would not want noisy construction and or loading vehicles running past our churches during worship days as that would be disturbing.</li> <li>Tulagi is a small community and everybody knows each other and have respect and regards for one another. At the most Sunday</li> </ul>

		keepers are the majority and all noisy work around the station normally stops on that day, thus, we expect construction works or
		even transportation of materials etc to not be done on Sundays.
		Violating this will seemingly be a weird sight for the community.
7.	. Sports club	<ul> <li>Our athletes usually run around the around along the road and some of them are girls. As the south pacific games is coming up, we frequent the road more than ever to train and maintain fitness of our athletes. Having a construction at the other end of the island would mean frequenting of the road by construction vehicles and presence of work men beside the road at the remote and isolated section of the island. We want workers to respect our athletes if they pass by or if they drive pass our athletes.</li> <li>Vehicle drivers must be mindful when driving even when at the remote and isolated part of the island as our athletes have been frequenting the area at various times even when least expected or</li> </ul>
		at dusk and/or dawn.

Summary of feedback from the Consultation on the incinerator:

- Tulagi hospital management express their delight and appreciation for the WB funding support towards the two hospital projects (Incinerator and Hospital renovation). Despite their long wait for a master plan for a new Hospital development by the National government, the management however decided to simply accept whatever improvement initiative being available to at least improve the condition of the existing hospital as it rapidly deteriorates.
- The provincial government executives were also pleased to learn of the funding support from the World Bank Covid-19 emergency response financing agreement. The project will greatly contribute to raise the capacity at Tulagi Hospital which will serve the residents in Tulagi provincial center and the surrounding villages around Ngella. With the lesson learned from Covid-19 pandemic, it is important to improve hospital infrastructure capacity. The provincial office assured their support to the project undertaking and will ensure land registration process for the incinerator is cleared and ready for development within the project timeframe.
- The hospital management were very much looking forward to the incinerator. The hospital over the last decade have been without proper waste management truck. However a new waste management truck has now been procured.
- The proposed site is far from the station and at the moment no one resides near the location hence will no major issues of complain from incinerator smokes and odor.

### Attendance records of site visit dated 31 January

	SOLOMON ISLANDS COVID 1	9 ERP
	FIELD VISIT - Person Consulted Meeting 1 - With	Hospital Administration
	Date	31.01.2023
Full Name	Organizations	Signature
Catherine Au	MHMS, Tulagi Hosp	A A A A A A A A A A A A A A A A A A A
Havry Keveselle	Pmu-mittingu -	and and
Joyce Orguglo Barbara Leinag	WB Social Der Specialis Tulagi Hospital /Mbhus	Blanga
BOKAH PHILIP	Fmo- MHms (Pmu)	ALCO
John Water	ADOW - MAND - CIP	AND '
Jonathan Bisi	MHMS PMU	A zili
JIMMY Kalvae	Represent 1PC/Mus He	
Self Hebi		

SOLOMON ISLANDS - COVID 19 ERP FIELD VISIT - Person Consulted record with CP Excelled cull Meeting ale: 31.01.2023 Organizations Signature Full Name Touattion Bigli Mitins PMV WB-Health team Jimmy Kalvae Milms - Fmo BUKAH PHIP PLANKLING DIVISION CPG Cherles Konai Philip Tovongo LANDS DIVISION CIP WB-Health Consultant Michael Mike PttDs - Health Divis Lesle Burton DPS - CIPG. DELILAH LOWE MPA-previer Polycarp Galarigu (mu Pm-Koupa Havid

### Field Trip Report – Stakeholder consultation

Field Mission undertaken by MHMS Planning & Policy/PMU Team to Tulagi



### Location: Tulagi

### Date of Travel: 9th March 2023 to 12th March 2023

The schedule undertaken is as follow:

Schedule						
Days	Date	Departure	Arrival	Destinat	Activity	Team
1	Thursday 9 March 2023	5:30pm	6:50pm	Tulagi	Arrival and settle in at Tualgi	DPP/IO/PM
2	Friday 10 March 2023	9:00 am	2:30 pm	Tulagi	Meeting with Hospital Management and Provincial Government. Wider consult with community	DPP/IO/PM
3	Saturday 11 March 2023	8:00 am	3pm	Tulagi	Continue work at Tulagi - Infrastructure Officer continue the detail scoping at Tulagi Hospital while the project manager consult the public and targeted groups and individuals	IO/PM
4	Sunday 12 March 2023	6:45am	7:50am	Honiara	Arrive back in Honiara	DPP/IO/PM

### Staff Travelling:

- a. Ivan Ghemu Director Policy and Planning
- **b.** Jonathan Bisili Infrastructure Officer
- c. Harry Kereseka Project Manager PMU

### Purpose of travelling:

a. Tulagi Hospital Buildings:

- Existing Building assessments/consultations to firm up the decision and scope of the proposed renovations.

### b. Incinerator Site:

- Follow up on land plot registration
- Do wider consultation through interviewing individuals and groups from the surrounding communities and beneficiaries. Target groups, schools, youths, women rep and nurse
- Establish communication with community liaison officer from Gold Ridge and Human Resource Manager to gather and collate data.

### List of meetings held and people met:

- a. Meeting with Tulagi Hospital Senior Management
- b. Courtesy call to Central Island Provincial Government
- c. Meet with Central Island provincial Police Commander (Supervision)
- d. Nurses (IPC nurse, Waste management truck driver)
- e. Police officers
- f. Market Venders
- g. Villagers
- h. Business owners
- i. Individuals
- j. School students
- k. Youths and sports

### Outcome of the trip:

The key meetings and agreed actions are presented in the attached minutes:

MEETING 1 TULAGE HOSPITAL PROJECT CONSULTATION			
Date: 10th Ma	ite: 10th March 2023. Time: meeting starts 10:30am		
Venue: Tulagi Hospital Admin CR			
TULAGI HOSPITAL SENIOR MANAGEMENT TEAM         CP Hospital Director - Lesley Bunabo & Hospital Secretary -         Catherine Wakiosa         MHMS & PMU Team Attendees         Director PPD- Ivan Ghemu, Infrastructure Officer - Jonathan Asapio & c19 ERP Project Manager - Harry Kereseka         Chairman:       Director Planning Policy - MHMS			
Agenda/item	Discussion	Agreed Action	
Opening Prayer: Ivan Ghemu			

Tulagi Hospital Renovation	The WB funded renovation project budget allocation amounts to SBD 7M. MHMS emphasis that this funding must be committed and disbursed for the hospital renovation per as preplanned and agreed on in the project financing agreement. Actual renovation work on the ground needs to be kicked off soon as all the preliminary requirements are cleared. This include the need to first finalize the ES screening, master plan, detail drawing, BOQs and then may proceed to procurement of materials and contractor.	IO officer to finalize masterplan and costing by March 2023. Harry and WB ES team to clear CoESP by March 2023. PMU to proceed to RFQ for supply of material and construction.
	Tulagi Hospital Management raised other priorities includes; staff housing and medical equipment. MHMS immediate focus is to utilize this WB funding and the foremost priority is the upgrade of the current hospital infrastructure and improve the service. Housing will be considered under other funding arrangements	Tulagi to provide lists of medical equipment and their medical specifications and provide to PMU
Incinerators	Confirmation on land and signed land commitment required. ES screening yet to be cleared by WB. It is pending answers to WB queries on the suitability of site as the current site was viewed to be prone from flooding or high seas when kind tide.	To follow up with Lands officer and CPG. PMU to provide the response and further information and re-submit the ESIA within March 2023
AOB	Chair wrapped up the meeting	
Meeting Closed	11:15 am	

MEETING 2 COURTESY CALL TO CENTRAL PROVINCIAL GOVERNMENT - (CPG shared meeting summary)				
Purpose:       Update on WB health projects for Tulagi         Date:       10th March 2023\         Time:       Meeting         starts 1:15pm         Venue:       CPG mini conference room         CPG REPRESENTIVE - Deputy Provincial Secretary - Delila T Lowe         MHMS & PMU Team Attendees         Director PPD- Ivan Ghemu         Infrastructure Officer - Jonathan Asapio & c19 ERP Project         Project Manager - Harry Kereseka				
Agenda/item	Discussion	Agreed Action		
Opening Prayer: Ivan Ghemu				
Update on Tulagi Hospital Renovation	1. Tulagi Hospital renovation project \$7 million to be implemented before end of 2024. <u>Hospital land</u> <u>plot confirmation is requested from CPG</u> <u>Administration</u> . Design is underway and mobilization and renovation works is to start as soon as final requirements are all met.			
	2. Tulagi Hospital incinerator equipment was procured and to be shipped to Tulagi however needs confirmation of the land plot allocated for the project. Environment and social impact assessment have been conducted and subject to WB clearance once			

	PMU response to the queries. Land confirmation document is requested from the CPG administration.	
	3. Ministry of Health embarks on the building of staff housing and requires confirmation from CPG on the 15 plots allocated at Smoke Hill sub Division as previously agreed upon by the CPG.	
	4. Hospital jetty project. Need confirmation on sea front land space from CPG for the development. A sea ambulance 150 HP engine is in Honiara to be moved to Tulagi next week and needs a dedicated space to construct a ramp. As interim measure, arrangement will be made with Tulagi Police to allow the craft to be stored at the police ramp	Follow up meeting with CP PPC and PMU.
	5. Others - Mid-term development. Hospital Redevelopment Preliminary design and required land area was shared during the meeting. It is proposed that the extension of land outside the existing boundary is necessary. Two Private houses at northern end and St Luke Chapel at the western end are in the proposed area. This is not immediate development; however, land plot confirmation and the need to demolish and relocate two private houses may be needed by the Central Provincial Government to free up space for the development. St Luke church is a landmark historical site. Could proposed design accommodate and preserve the chapel and instead extend boundary northwards.	
Incinerators	Confirmation on land and signed land commitment required. ES screening yet to be cleared by WB. It is pending answers to WB queries on the suitability of site as the current site was viewed to be prone from flooding or high seas when kind tide.	To follow up with Lands officer and CPG. PMU to provide the response and further information and re- submit the ESIA within March 2023
AOB Meeting	Chair wrapped up the meeting	
<u>Closed:</u>		

<u>MEETING 3</u> <u>MEETING WITH CP POLICE PPC REGARDING INTERIM MEASURES USE POLICE RAMP</u> FOR THE SEA AMBULANCE					
Date: 10th March 2023					
Time: meeting star	Time: meeting starts 4:40				
Venue: Lulagi Police station					
TULAGI POLICE S					
Deputy Police Co	ommander - CP - George Mouli				
MHMS & PMU Team Attendees Jonathan Asapio – ESHS&CE Officer					
Harry Kereseka Project Manager					
Agenda/item	Discussion	Agreed Action			
Stabicraft speed boat	MHMS has allocated a sea ambulance (Stabi speed boat powered by 150 Mercury HP) to Tulagi Central Hospital. These speed boats has been kept at the rented warehouse owned by Samlinsun company at Lunga and needs to be distributed to the provincial AHC and Hospitals at the earliest.	MHMS to organise transfer of Stabi over to Tulagi any time from now			
	An understanding has been agreed with the police commander (supervising) in the meeting that MHMS can use their current ramp and space to keep the stabi. The PPC (supervising) also offer to MHMS that their current skipper can train the hospital staff how to operate and drive the stabi.	PPC/Tulagi hospital management to liaise on further arrangement in the temporary custodian and training of skipper			
AOB	No AOB				
Meeting Closed	11:15 am				

Other consultations are done on-one-on basis and involving various individuals that represents groups making the community that the Incinerator project may have direct or indirect impact on them.

### Next Steps:

Based on the consultations and the feedback received, the ESIA for the incinerator will be revised and updated for re-submission for WB review.

### Photos of field trip



Admin Block and Inpatient (Blue building)



Team meeting with Tulagi Hospital management



Consulting youths and students





Left - (Bock hosting various units ) , Right - Maternity ward and inpatient



IPC unit – Load clinical waste and general waste to dispose at the landfill



IPC unit waste management team



Market



Appendix 3 Tulagi Solid Waste Management Plan (embedded pdf)





SOLID WASTE MANAGEMENT PLAN (2022 – 2026)

NOVEMBER 2022

TULAGI CENTRAL PROVINCE