

# NABORO INCINERATOR PROJECT

Ministry of Health and Medical Services

Environmental and Social Impact  
Assessment



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# EXECUTIVE SUMMARY

## Introduction

With financing support from the World Bank (WB), the Government of Fiji is implementing the Fiji COVID-19 Emergency Response Project (Fiji COVID-19 ERP, P173903). The Fiji COVID-19 ERP includes the procurement and installation of a medical waste incinerator for the management of healthcare waste. The incinerator is proposed to be installed at the existing Naboro Landfill. The scope is called as the Naboro Incinerator Project and is thereby known as the “Project”. The proponent and Implementing Agency for the Project is the Ministry of Health and Medical Service (MOHMS).

The objective of the Project is to enhance healthcare waste management within the Central Division (which covers the area from Navua to Tailevu) by providing a reliable facility with sufficient capacity to incinerate healthcare waste. Healthcare waste from the Central Division was incinerated at the Colonial War Memorial (CWM) Hospital incinerator in Suva, however, the incinerator become dysfunctional during the COVID19 pandemic and healthcare waste is now disposed of at the Naboro Landfill without treatment. Once the Project is operational, the Naboro Incinerator will be the primary facility for the treatment of all healthcare waste for the Central Division.

The proposed key project activities involve minor earthworks, freighting and installation of the incinerator with the emissions control unit and stack, and construction of the incinerator base and shed building. Additional works will include improvement to plumbing, drainage and electrical works. A fence will also be erected around the site.

## Objective of the Environment and Social Impact Assessment

As part of Project financing, the Project is required to comply with the requirements outlined in the WB’s Environmental and Social (E&S) Framework and ten Environmental and Social Standards (ESS). The purpose of this Environmental and Social Impact Assessment (ESIA) is identify the potential E&S risks/impacts associated with the Project and provide a system for managing such risks/impacts in alignment with the WB requirements and relevant national regulations. A separate ESIA and Environmental and Social Management Plan (ESMP) were prepared to meet the regulatory requirements of Fiji and submitted to the Department of Environment (DOE).

The scope of this ESIA includes:

- Description of the Project design and activities, and analysis of the alternatives considered for the Project.
- Applicable Fijian regulations and WB standards/guidelines.
- Environmental and social baseline conditions.
- E&S risks, potential impacts and mitigation.

- System for managing E&S risk/impacts including implementation responsibilities, resources and capacity building

The ESIA is one of several instruments that will be used to manage the E&S aspects of the Project and is supported by the documents prepared for the wider Fiji COVID19 ERP, such as the Environmental and Social Management Framework (ESMF), Labour Management Procedure (LMP), Stakeholder Engagement Plan (SEP), Infection Prevention Control and Healthcare Waste Management (IPC & HCWM) Manual, Project Operational Manual (POM) and Grievance Redress Mechanism (GRM).

### **Baseline Information**

The proposed Project is located on the southern coast of the island of Viti Levu and approximately 15 km west of the country's capital, Suva. The land is state-owned, Lot 1 S 291. The proposed site is adjacent to the existing Naboro Landfill and is approximately 400 m west of the Naboro Prison community (at the nearest point). Access to the site is from an existing access road (known as Rubbish Dump Road) which leads to the Naboro Landfill. The access road is currently solely used to access the Naboro Landfill and branches off the Queen's Highway.

The project site is located within the floodplain of Naboro Landfill and the leachate system for the landfill runs past the site. The main sources of noise at the site are from trucks passing along the Rubbish Dump Road to access the landfill, and the equipment and machinery used for the operation of the landfill. The ambient air quality at the site met the US EPA guidelines for all parameters tested aside from carbon dioxide which was over double the guideline value. The high levels of carbon dioxide are likely from the nearby landfill. The site has been previously cleared of forest and the vegetation onsite currently comprises para grass and small shrubs. No rare or endangered vegetation was observed at the site and the site is unlikely to support large animals given the minimal vegetation.

Sensitive receptors within 1 km of the proposed site include the Naboro Landfill office (280 m from the site), Naboro Prison Complex (400 m from the site), farming communities (400 m from the site), and the Navakacoko Settlement (950 m from the site). Consultation was undertaken with residents of the Navakacoko settlement, guards at the prison, and a resident at the nearby farming settlement. Most of the feedback received related to the respondent's dissatisfaction with the existing Naboro Landfill and the perceived impacts the landfill has caused, and the respondent's hope that the proposed Project will have minimal impacts.

### **Summary of Potential Risks and Impacts**

Potential negative risks and impacts are likely to occur during both the construction and operational phases of the project. Construction phase impacts would relate to the

movement of vehicles, hazardous waste from potential oil spills, and solid waste from any site clearance/preparation activities. These impacts are expected to be minor and short-term. The key potential impact associated with the operation of the incinerator is air pollution. Uncontrolled emissions from the incinerator could contribute to air pollution, however, the proposed incinerator has an emissions control system with continuous monitoring and meets WB and Fijian standards emissions standards. Therefore, air quality impacts at receptors are predicted to be negligible provided the incinerators are operated and maintained correctly. The key mitigation for managing this potential impact is the preparation and implementation of an Incinerator Operations Manual.

The key positive impact associated with the Project is the provision of a reliable facility with sufficient capacity to incinerate healthcare waste. Healthcare waste is currently disposed of at the Naboro Landfill without any primary treatment, which is a hygiene issue and contributes to the odor and scavenging issues that were raised in community consultation sessions. Once the Project is operational, healthcare waste will not be disposed of at the landfill.

### **Mitigation Measures**

The key mitigation measures for the construction phase include establishing plans for Occupational Health and Safety, Solid Waste Management, and Traffic Management. Contractors will be expected to produce the above plans, along with a Construction ESMP. All workers will be required to sign a Code of Conduct as part of their engagement on the project that addresses behavioral expectations, including those relating to the prevention of sexual harassment and sexual violence. To manage stakeholder expectations, the existing Fiji COVID-19 ERP GRM will continue to be implemented and communities around the site made aware of how the GRM works.

For the Operations Phase, an Incinerator Operations Manual will be developed and implemented. The manual will be in alignment with good international industry practice (GIIP) guidelines and include incinerator operations, troubleshooting, maintenance requirements (e.g., daily, weekly, fortnightly, etc.), training, ash disposal, record keeping (e.g., waste records, burn temperature, smoke color, fuel usage, etc.) and air emissions monitoring. In addition, the existing healthcare waste training program will continue to be rolled out to healthcare personnel at the hospitals to ensure wastes are correctly segregated at the course to ensure that wastes requiring incineration are separated from other wastes.

### **Alternatives**

The no project alternative is not preferred as it would mean the current practice of disposing of untreated healthcare waste at the Naboro Landfill would continue. Replacement of the dysfunctional incinerator at the CWMH was considered as this incinerator was previously used to treat healthcare waste, however, the location of the incinerator at CWMH was not

ideal as it was in a populated area and the emissions from the stack were dispersed over the hospital wards. A site near the existing Naboro Landfill was selected for the Project as it has the following advantages:

- Away from densely populated areas
- Previously disturbed and not 'pristine'
- Area already used for waste management
- Hospitals and other medical facilities already bring their general waste to the area (i.e., they will not need to make a separate trip to two locations to dispose of their general and healthcare waste)
- Ash from the incinerator can be easily transported to the landfill for disposal

### **Environment and Social Management and Monitoring**

An Environmental and Social Management Plan (ESMP) was developed and included as a chapter in the ESIA. It details the impacts and mitigation measures to be implemented, along with reporting and monitoring requirements. The important element that requires monitoring during the operations phase is air quality.

### **Implementation Arrangements**

The MOHMS is the key party responsible for the implementation of the ESMP and complying with any permit conditions that may be imposed by DOE. Other organizations involved in the implementation of the ESMP are with the Ministry of Infrastructure (who will assist MOHMS oversee the construction of the Project), construction contractors and their subcontractors, and the various health facilities that will dispose of healthcare waste through the Project.

## ACRONYMS AND ABBREVIATIONS

CESMP	Construction Environment and Social Management Plan
CWMH	Colonial War Memorial Hospital
DOE	Department of Environment
E&S	Environment and Social
EHS	Environmental, Health, and Safety
ESF	Environment and Social Framework
ESIA	Environment and Social Impact Assessment
ESMP	Environment and Social Management Plan
ESMF	Environment and Social Management Framework
ESS	Environment and Social Standard
Fiji COVID-19 ERP	Fiji COVID-19 Emergency Response Project
GBV	Gender-based Violence
GIIP	Good International Industry Practice
GRM	Grievances Redress Mechanism
HCWM	Healthcare Waste Management
IPC	Infection Prevention Control
LMP	Labour Management Procedure
MOHMS	Ministry of Health and Medical Services
OHS	Occupational Health and Safety
PMU	Project Management Unit
POM	Project Operational Manual
PPE	Personal Protection Equipment
SEA/H	Sexual exploitation and abuse/ harassment
SEP	Stakeholder Engagement Plan
TOR	Terms of Reference
WB	World Bank
WBG	World Bank Group

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## **1.0 INTRODUCTION**

With financing support from the World Bank (WB), the Government of Fiji is implementing the Fiji COVID-19 Emergency Response Project (Fiji COVID-19 ERP, P173903). The Fiji COVID-19 ERP includes the procurement and installation of a medical waste incinerator for the management of healthcare waste. The incinerator is proposed to be installed at the existing Naboro Landfill. The scope is called as the Naboro Incinerator Project and is thereby known as the “Project”. The proponent and Implementing Agency for the Project is the Ministry of Health and Medical Service (MOHMS).

This Environment and Social Impact Assessment (ESIA) has been undertaken to meet the WB Environmental and Social (E&S) assessment requirements. A separate ESIA and Environmental and Social Management Plan (ESMP) were prepared to meet the regulatory requirements of Fiji and submitted to the Department of Environment (DOE).

The original draft version of this ESIA report was prepared by Envi-Green Pacific Consultancy Limited (GreenPac) and the document was revised by an independent international E&S consultant to the World Bank who was engaged to support the MOHMS.

### **1.1 Project Objective**

The objective of the Project is to enhance healthcare waste management within the Central Division (which covers the area from Navua to Tailevu) by providing a reliable facility with sufficient capacity to incinerate healthcare waste. Healthcare waste from the Central Division was incinerated at the incinerator at the Colonial War Memorial Hospital (CWMH) in Suva, however, the incinerator become dysfunctional during the COVID19 pandemic and healthcare waste is now disposed of at the Naboro Landfill without any primary treatment. Once the Project is operational, the Naboro Incinerator will be the primary facility for the treatment of all healthcare waste for the Central Division.

### **1.2 Project Proponent and Implementing Agency**

The Project Proponent and Implementing Agency is the MOHMS. The MOHMS is responsible for the implementation of the Project, including overall coordination, results monitoring and communicating with the WB on the status of the Project.

### **1.3 This ESIA**

The objective of this ESIA report is to identify potential environment and social (E&S) risks and provide mitigation measures for managing potential risks and impacts associated with the planning and design, construction, and operation of the Project. The potential risks and impacts were determined from investigations carried out on and around the site proposed for incinerator; from consultation made with surrounding communities and other key stakeholders; literature review on healthcare waste management; and from related healthcare waste regulations and guidelines.

According to the WB's Environmental and Social Framework (ESF), this project activity has been classified as 'Moderate' therefore requires an E&S assessment to manage potential environmental and social risks and impacts associated with the Project. This ESIA follows the requirements outlined in the WB's Guidance Note for Borrowers on the assessment and management of environmental and social risks and impacts<sup>1</sup>. The ESIA must receive a "no objection" from the WB before construction can commence.

The ESIA report is structured in the format outlined in Table 1.

**Table 1: Structure of the ESIA**

Section	Title	Content
	Executive Summary	Introduces the ESIA; project background and objectives; and summary of impacts and mitigation measures
Chapter 1	Introduction (i.e., this chapter)	Introduces the Project and explains the content and purpose of the ESIA
Chapter 2	Legal and Institutional Framework	Provides details the WB policies and guidelines and the national regulatory, legislative and administrative framework
Chapter 3	Project Description	Provides a description of the project locations, design, construction activities and operational activities.
Chapter 4	Baseline Conditions	The environmental and social setting of the Project is described, including climate, air quality, nearby receptors, etc.
Chapter 5	Stakeholder Consultation	Provides details of the consultation that was undertaken as part of the Project and the feedback/concerns raised by stakeholders.
Chapter 6	Impact Identification and Assessment	Identifies and describes potential environmental and social impacts of the various phases of the project and proposes mitigations measure to minimize impacts. Also provides an assessment of the significance of the potential impacts.
Chapter 7	Analysis of Alternatives	Compares alternatives to the proposed project
Chapter 8	Environment and Social Management Plan	Provides a summary of the mitigation measures identified in Chapter 6 and information on how they will be implemented (e.g., responsibilities, timeframe, verification, etc). Also includes a monitoring plan, details of the implementation arrangements
Chapter 9	Conclusion	Conclusion

<sup>1</sup> World Bank. 2018. Guidance Note for Borrowers. Environmental & Social Framework for IPF Operations. ESS1: Assessment and Management of Environmental and Social Risks and Impact.

## **2.0 LEGAL AND INSTITUTIONAL FRAMEWORK**

### **2.1 World Bank Group**

#### **2.1.1 Environmental and Social Framework**

The WB ESF sets out the 'World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards (ESS) that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity'. The framework became effective on 1 October 2018 and applies to all Investment Project Financing (IPF) initiated after this date. The framework consists of three parts:

- A Vision for Sustainable Development - the Bank's aspirations regarding environmental and social sustainability.
- The World Bank Environmental and Social Policy for Investment Project Financing - requirements that apply to the Bank.
- The ESS requirements that apply to the Borrower and projects - comprised of ten standards covering various topics.

#### **2.1.2 Fiji COVID19 ERP E&S Instruments**

To meet the requirements of the WB ESF, the wider Fiji COVID19 ERP was required to prepare and implement various documents for managing E&S risk/impacts, including:

- Environmental and Social Management Framework (ESMF)
- Labour Management Procedure (LMP)
- Stakeholder Engagement Plan (SEP)
- Infection Prevention Control and Healthcare Waste Management (IPC & HCMP) Manual
- Project Operational Manual (POM)
- Grievance Redress Mechanism (GM)
- Environment and Social Commitment Plan (ESCP).

The ESCP was prepared to document the commitments that the borrower made in relation to the management of E&S risk/impacts. The Fiji COVID19 ERP Project ESCP identified that the Project required an ESIA to meet the WB requirements.

The EMSF was prepared to guide the MOHMS on the environmental and social screening processes and subsequent assessment during implementation, including activity-specific documentation, in accordance with the WB with the WB ESF. The proposed Project (a subproject of the wider Fiji COVID19 ERP Project) was screened using the using the process in the ESMF and this identified which WB ESS applied to the Project (

Table 2).

**Table 2: WB ESS Applicable to the Project**

Environmental & Social Standard	Required Measures and Actions
<b>ESS1: Assessment and Management of Environmental and Social Risks and Impacts</b>	<p>The standard is relevant. Assessments have been conducted for the incinerator and building for environmental and social risks/impacts and the conclusions are contained within this ESIA. The assessments indicate that there are potential environmental and social risks and for that, management/mitigation measures have been included within Chapter 8. The MOHMS has assessed the environmental and social risks and impacts of proposed Project activities, in accordance with the ESMF, to ensure that individuals or groups are not disadvantaged to access the development benefits resulting from the Project.</p>
<b>ESS2: Labour and Working Conditions</b>	<p>The standard is relevant as there is use of labour for the construction and operation of the Incinerator and building. The MOHMS has adopted the Labour Management Procedures (LMP) incorporating the relevant requirements of ESS2.</p> <p>The project's LMP incorporates issues for contracted workers such as working conditions and management of worker relationships, protecting the workforce and ensuring correct OHS procedures, and a grievance mechanism for project workers. There are not expected to be any primary supply<sup>2</sup> or community workers involved in the Project.</p> <p>The requirement for an LMP will be incorporated into the Incinerator project bidding documents with the contracts having enforceable conditions to ensure compliance with this LMP. This is in line with GoF legislation.</p>
<b>ESS3: Resource Efficiency and Pollution Prevention and Management</b>	<p>The standard is relevant as there are identified opportunities to reduce pollution through the selection of an incinerator that meets all WB and GoF emission standards and will be fitted with appropriate pollution control equipment, as well as in the selection of materials for the building that will house the incinerator. There will be minimum opportunity to minimise resource consumption, adopt circular economy principles and manage wastes that will be generated through the construction and operation of the incinerator facility. The MOHMS has reviewed the Infection Prevention Control &amp; Healthcare Waste Management (Waste (IPC &amp; HCWM) Manual for Fiji as part of the Fiji COVID19 ERP. Management strategies within this ESIA for managing any potential pollution as well as maximising resource efficiency have been described in Section 10.</p> <p>These strategies range from a preference in selecting construction materials that have been recycled and/or purchased locally through to the development of waste management operating procedures for the construction and operational phases of the project (this includes providing infrastructure such as bins and training of staff).</p>
<b>ESS4: Community Health and Safety</b>	<p>The standard is relevant. A number of potential OHS issues have been identified for the community and project workers (e.g., traffic, noise, injuries etc.). OHS plans are to be developed by the construction contractor and operators of the incinerator and approved by MOHMS. The requirements for this are specified in Chapter 8 of this ESIA. For smaller scopes of work, the OHS Plan may be included as a chapter or section of the CESMP.</p> <p>The requirement in Chapter 8 states that the OHS plans will be incorporated into the Incinerator project bidding documents with the contracts having enforceable conditions to ensure compliance with the developed OHS plan. Compliance will be undertaken by the PMU and MOHMS with the contractor(s) submitting monthly reports as per Chapter 8 of this ESIA.</p>

<sup>2</sup> The supply of material for construction of the pad and drainage system would be a once-off activity and therefore workers involved would not meet definition of primary supply workers.



Environmental & Social Standard	Required Measures and Actions
	In addition to the required OHS plans, the Stakeholder Engagement Plan as per ESS10, will also be used to management any potential impacts to the wider community.
<b>ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</b>	The standard is not relevant. The proposed land for the Incinerator is Government owned. MOHMS has secured agreement with the Government to utilise the land for the purpose of the Incinerator. No land acquisition is required. The project does not require any physical or economic displacement, resettlement or result in restrictions on land for the incinerator operations. The land is appropriately zoned.
<b>ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>	The standard is not relevant. The evaluation for this ESIA has concluded that the site for the proposed Incinerator is disturbed land with no flora/fauna species at risk from development.
<b>ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</b>	This standard is not considered relevant as there are no minority indigenous communities that could be impacted.
<b>ESS8: Cultural Heritage</b>	The standard is not relevant. According to the Fiji Department of Heritage and Arts, there are no Cultural or Heritage locations around the proposed site (tangible), or any intangible aspects that could be impacted from this proposed Incinerator (during construction and/or operation).
<b>ESS9: Financial Intermediaries</b>	The standard is not relevant. There are no financial intermediaries for this Incinerator project.
<b>ESS10 Stakeholder Engagement and Information Disclosure</b>	The standard is relevant. The MOHMS will adopt and implement the Project's Stakeholder Engagement Plan (SEP) at the incinerator site. The SEP includes a Grievance Mechanism (GM) that will be established and functional at the site.

### 2.1.3 Environmental, Health and Safety Guidelines

The Project will utilise the WB Group's Environmental, Health, and Safety (EHS) Guidelines<sup>3</sup>. The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). It contains the performance levels and measures that are normally acceptable to the WB Group and are generally considered to be achievable in new facilities at reasonable costs by existing technology. The EHS Guidelines are comprised of General Guidelines which are organised by themes (environmental; occupational health and safety; community health and safety; construction and decommissioning) and industry-specific guidelines that cover over 60 specific industries relating to agribusiness and food production; chemicals; forestry; general manufacturing; infrastructure; mining; oil and gas; and power.

The WB Group requires borrowers/clients to apply the relevant levels or measures of the EHS Guidelines. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects will be required to achieve whichever is more stringent.

<sup>3</sup> [https://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/sustainability-at-ifc/policies-standards/ehs-guidelines](https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines)

The following EHS guidelines are relevant to the Project:

- General EHS Guidelines: Environmental (including management air quality, water quality, noise, waste and hazardous materials)
- General EHS Guidelines: Occupational Health and Safety
- General EHS Guidelines: Community Health and Safety
- General EHS Guidelines: Construction and Decommissioning
- EHS Guidelines for Healthcare Facilities
- EHS Guidelines for Waste Management Facilities

## 2.2 Government of Fiji

This ESIA has been prepared to meet the requirements of the WB. A separate ESIA has been prepared for submission to the Fiji regulatory authority. The Terms of Reference (TOR) for the local ESIA, issued by the Department of Environment (DOE), is provided in Appendix 1. For context, a summary of the key relevant national legislation, regulations and other planning documents is provided in the following sections.

All consents relevant to the proposed Project will be sought prior to commencement of the development. Table 3: Local consents required for the Project provides the list of local consents required for the Project.

**Table 3: Local consents required for the Project**

Item	Institution	Responsibility
ESIA document	Department of Environment	To approve ESIA document
Waste Management Unit	Department of Environment	Provide waste permits
Concept plans	Department of Town and Country Planning and Lami Town Council	To approve Concept plans
Power plans	Electricity Fiji Limited	Electrical connection needed
Water pipe systems	Water Authority of Fiji	Water connection at the site

### 2.2.1 Environmental Management Act 2005

Part 5 of the Environmental Management Act 2005 sets out the framework for Waste Management and Pollution Control in the Fiji Islands. It establishes a waste and pollution permit system that aims to protect the environment by controlling the release of solid and liquid wastes, the emission of polluting gases, smoke and dust, and the handling, storage and disposal of waste and hazardous substances.

### **2.2.2 Environmental Management (Waste Disposal and Recycling) (Amendment) Regulations 2011**

The purpose is to prevent environmental pollution by controlling the discharge and disposal of solid wastes, air emissions, and hazardous substances. It also prescribes permitting conditions for landfills, waste dumps, waste transport, waste recycling facilities, importing/manufacturing plastic bottles, and lead acid battery handling.

### **2.2.3 National Solid Waste Management Strategy 2011 - 2014**

Key objectives of this strategy are to:

- reduce the amount of waste that each community generates.
- make the best use of the waste that is generated,
- develop and implement economic and social incentive mechanisms to change wasteful behavior.
- improve and upgrade existing waste management and disposal systems.
- encourage /provide waste management practices, which minimise the environmental risk and harm to human health.
- provide a guideline template for rural or community level solid waste management practices.

### **2.2.4 Public Health Act 2005**

This act:

- Requires persons engaged in carrying or removing garbage to apply for a permit from the local authority.
- Allows local authorities to formulate bylaws in respect of the storage, collection and disposal of garbage, and prescribing the fees to be paid for removal of garbage.
- Regulates (i.e., garbage dumps, and incineration of garbage or refuse).
- Includes healthcare management policy and guidelines.

### **2.2.5 Draft Health- care Waste Management Policy (2011)**

Reference from National Solid Waste Management Strategy 2011 – 2014 indicates that all healthcare waste (including from small clinics) must be incinerated in Fiji.

### **2.2.6 Town Planning Act 1946**

The Town Planning Act provides for the development of land, buildings and other operations and for any material change in the use of land and buildings. The Act provides for the Director of Town and Country Planning and local authorities to have extensive responsibilities and discretion in the application of conditions for building approval. Where environmental issues are concerned the Director will call for advice from the Department of Environment, which is guided by the Environmental Management Act 2005.

### **2.2.7 The Health and Safety at Work Act 1996**

The Health and Safety at Work Act was enacted in 1996. This legislation identifies the responsibility of both employers and employees to improve workplace safety. The legislation requires the preparation of health and safety plans that identify workplace hazards and the appropriate action to deal with them. Training is identified as an important mechanism for improving safety in the workplace

#### **2.2.8 Building Line Restriction**

The building line refers to the distance between the structure to be erected and a public street, road or right-of-way. No building is permitted within the building line restriction unless the Director of Town and Country Planning approves a relaxation application through the jurisdiction of Suva City Council.

#### **2.2.9 National Disaster Management Plan (1995)**

Incorporates the Navua Flood Plan and Consists of a list of arrangements of how flood warnings will be disseminated to people in the Navua region for the primary purpose of saving lives and property in the event of a sudden onset flood event. This Plan also describes how Response Agencies will operate at a time of a flooding disaster

#### **2.2.10 The National Disaster Risk Management Arrangements (2006)**

The establishment of the National Disaster Management Office and its existence to facilitate, coordinate and management of national disaster risk reduction and disaster management activities to enhancing the provisions of a safer and secure Fiji.

### 3.0 PROJECT DESCRIPTION

This chapter provides a description of the proposed Project including location, design, construction activities and operational activities.

#### 3.1 Location

The proposed Project is located on the southern coast of the island of Viti Levu and approximately 15 km of west of the country's capital, Suva. The land is state-owned, Lot 1 S 291. The proposed site is adjacent to the existing Naboro Landfill and is approximately 400 m west of the Naboro Prison community (at the nearest point). Access to the site will be via the existing access road (known as Rubbish Dump Road) which leads to the Naboro Landfill (Figure 1). The access road is currently solely used to access the Naboro Landfill and branches off the Queen's Highway. The proposed Project is located on the east side of the access road, just past the Naboro Landfill main office building and weighbridge.



**Figure 1: Access to the proposed Project site**

The site was chosen following a site selection assessment process that considered three different locations within the vicinity of the Naboro Landfill. A summary of this assessment is provided in Chapter 7, Project Alternatives.

#### 3.2 Timeline

Construction works are expected to commence upon granting of the relevant approvals and “no objection” being obtained from World Bank on this ESIA. This is anticipated to occur in Q1 2023.

Construction is expected to take around three months and will be followed by commissioning and operations. It is expected that the WB-funded incinerator will be replaced when it is no longer serviceable and therefore the duration of operations is not defined.

### 3.3 Design

The site for the proposed incinerator and supporting infrastructure is around 5,000m<sup>2</sup>. As the site is located on a low-lying area, it will be raised using clean fill material to prevent induction and provide for drainage. The height that the site will be raised, and the details of the drainage system will be determined by the Contractor who will undertake both detailed design and build. This is expected to be completed by June 2023.

Infrastructure at the site will include:

- Fencing – to prevent access by unauthorized personal and large animals
- Drainage system – to diverting storm water
- Incinerator – for the incineration of waste
- Emissions control device – to reduce the emissions to air
- Fuel tank – for storage of fuel (LPG or diesel) to run the incinerator, fuel tank will be bunded
- Covered garbage bins – for receiving and storing waste
- Concreted area – for parking and to capture spills
- Drainage system – for capturing spills and potentially contaminated runoff, and for flood mitigation
- Incinerators shed – to house the incinerator and provide an undercover area for workers with a staff room, kitchenette, ablutions, office space, etc.
- Generator – for back-up power supply (base case will be mains power)
- Water supply – from the nearby Naboro Reservoir (connection already in place)
- Power supply – from mains power (connection already in place)
- Septic tank – for managing wastewater from the staff facilities that will be installed at the incinerator shed
- Unloading/loading bay/area

The concept layout plan and 3D concept plan for the site is provided as Figure 2 and Figure 3, respectively.



**Figure 2: Site layout of the Naboro Incinerator (LionGIS, 2022)**



**Figure 3: Concept plan superimposed on the proposed site (LionGIS 2022)**

The exact model of incinerator to be installed will be selected based on responses to a tender request. The incinerator will meet the following technical specifications (which are included in the tender request):

- Capacity of 300 to 400 kg per burn, which is sufficient to manage the 300 to 400 kg per day of medical waste that is generated by the CWMH and other health facilities in the Central Division.
- Provision of primary and secondary chambers with minimum two second residence time in secondary chamber.
- Minimum temperature of 950°C for primary chamber and 1,300°C for secondary chamber.
- Emissions to air from the stack to meet Fijian National Air Quality Standards (Part B – Emissions Standards)<sup>4</sup> and WB EHS Guidelines for Healthcare Facilities (emissions targets for small incinerators)<sup>5</sup> with evidence of emission tests to be provided.
- Provision of air pollution control device/s to ensure emissions meet the stated requirements. This will be in the form of a “dry” scrubber to negate the need to manage wastewater with is associated with wet scrubbers.
- Able to treat the Clinical Waste, Pathological Waste, Pharmaceutical Waste and Sharps.
- Fuel type – LPG (preferred) or diesel.
- Chimney stack type – proposed height of 4-6 m (minimum) and fitted with a dispersion cap. To be constructed with a non-corrosive material and include an air emission sampling port and exhaust exit velocity of not less than 10 meters per second.
- Continuous emission monitoring equipment (e.g., SO<sub>2</sub>, CO<sub>2</sub>, CO, O<sub>2</sub>, NO<sub>x</sub>, HCl).
- Thermocouples to monitor chamber temperatures – alarms to advise operators when temperatures decrease.
- Noise levels to meet Government of Fiji requirements.
- Warranties – minimum 12 months.
- Provision of a maintenance schedule (3 years).
- Capacity to supply replacement parts.
- Operator Training Program.

### **3.4 Construction Activities**

Construction activities include:

- Minor clearing (the site is largely cleared and contains only para grass and shrubs)
- Removal of topsoil
- Construction of a raised earthen pad using clean fill material (if required).
- Raising the existing Ground level height as per design and built (DB) agreement with the contractor.
- Floor Footing and Foundations to be raised as per DB agreement with the contractor
- Pouring of a concrete slab on the earthen pad.

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<sup>4</sup> Part B of Schedule 5 of the Environment Management (Waste Disposal and Recycling) Regulations 2007

<sup>5</sup><https://www.ifc.org/wps/wcm/connect/960ef524-1fa5-4696-8db3-82c60edf5367/Final%2B-%2BHealth%2BCare%2BFacilities.pdf?MOD=AJPERES&CVID=nPtgRx5&id=1323161961169>

- Installation of a perimeter fence.
- Completion of drainage works.
- Construction of the incinerator shed.
- Fit out of the incinerator shed (e.g., plumbing, electrical, etc).
- Installation of the incinerator unit and air pollution control device/s.
- Installation of the fuel tank and generator.
- Connection to utilities (e.g., power and water).
- Generation and disposal of construction waste – a dedicated waste collection point will be established onsite and recyclable waste will be transported to an appropriate recycling facility. Other wastes will be disposed of at the Naboro Landfill.

Once construction is complete, the incinerator unit will be commissioned, and training provided to the incinerator operators by the vendor supplying the incinerator. The training will cover:

- How to operate the incinerator
- Waste sorting and blending
- How to use the air emissions monitoring equipment
- How to carry out preventative maintenance and repairs
- Occupational health and safety
- Emergency response
- Basic infection control in medical waste management
- Environmental impacts from inappropriate operation and management of incineration residues
- Ash disposal

As part of the commissioning process, the vendor will carry out test burns to confirm that the emissions meet the required specifications.

### **3.5 Operational Activities**

The incinerator will be operated by dedicated and trained staff. Operational activities will include:

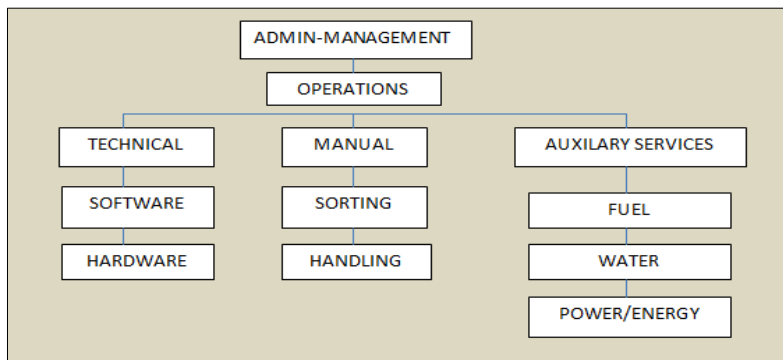
- Receiving, weighing and sorting waste
- Loading the incinerator
- Operating the incinerator, which will result in emissions to air
- Removing and disposing of the ash generated from the incineration process – ash and other incineration residuals shall be temporarily stored in tightly sealed containers in the incinerator room, and regularly taken to the Naboro Landfill (note that the ash will remain in the sealed containers when disposed of and/or mixed with concrete to prevent being lost within the landfill and mitigate risk of being dispersed into the air).
- Maintenance of the incinerator
- Refueling the fuel tank
- Maintenance of the septic system



### 3.6 Labour requirements

Labour for the construction phase will be supplied and managed by the construction contractor. It is expected that a small team of semi-skilled workers will be sourced from the local communities by the contractor (and sub-contractors) to complete the work. The vendor, which is likely to be an international company, will also provide oversight during construction and commissioning. Working conditions and management of occupational health and safety will be undertaken in accordance with the Fiji COVID-19 ERP LMP.

A small team of dedicated staff will run the operations at the incinerator site. The staff will include incinerator operators and laborers for sorting and loading the waste. Contractors or hospital staff will also be required on an ad hoc basis to assist with the maintenance of the auxiliary services at the site (fuel, water and power). An organizational structure for staffing arrangement is shown in Figure 4.



**Figure 4: Organizational structure for operations**

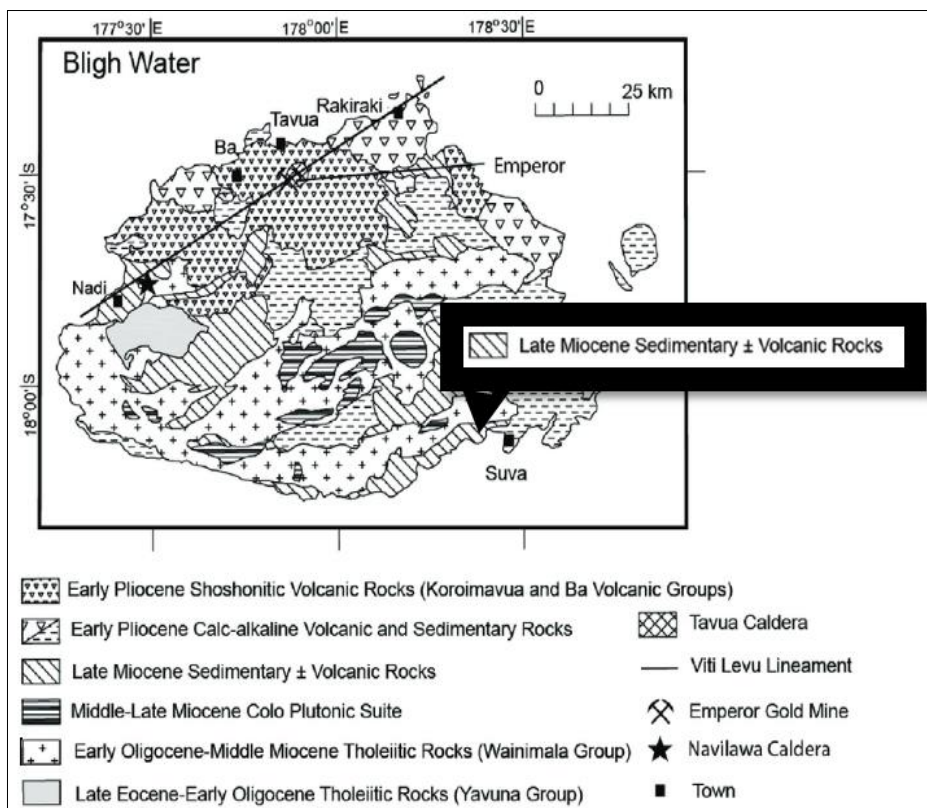
## 4.0 BASELINE CONDITIONS

This chapter provides details of the environmental and social conditions at and around the proposed site.

### 4.1 Environmental

#### 4.1.1 Geology

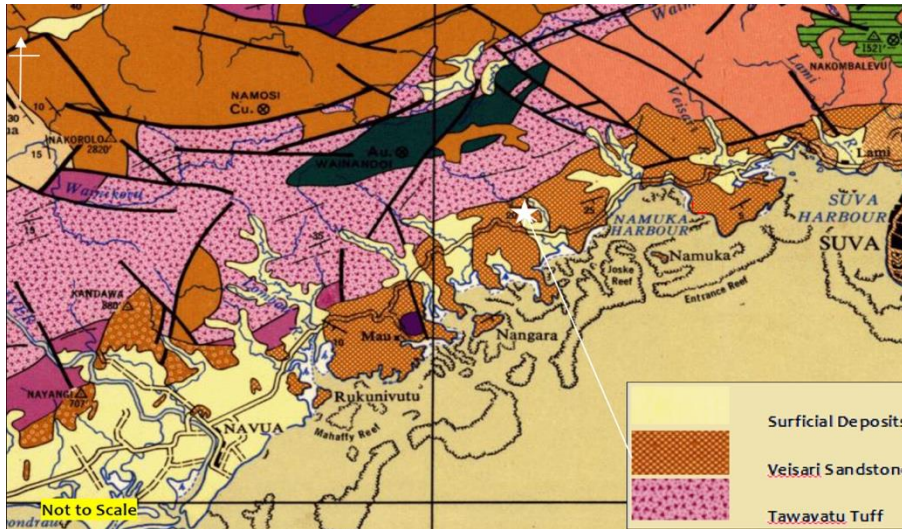
The project site falls under the late Miocene Sedimentary volcanic rocks known as Medrausucu Andesitic Group named as the Serua Conglomerate thus dominated by recent alluvium as shown in Figure 5. It's western and eastern boundaries are bordered by Navua Mudstone and Namosi Andesite, and which consist of andesitic flows, pyroclastic and associated epiclastics, mudstone and sandstone with minor limestone and basal conglomerate respectively (MRD, 2014).



**Figure 5: Geology Map of Viti Levu**

**The Project site geological feature is shown on**

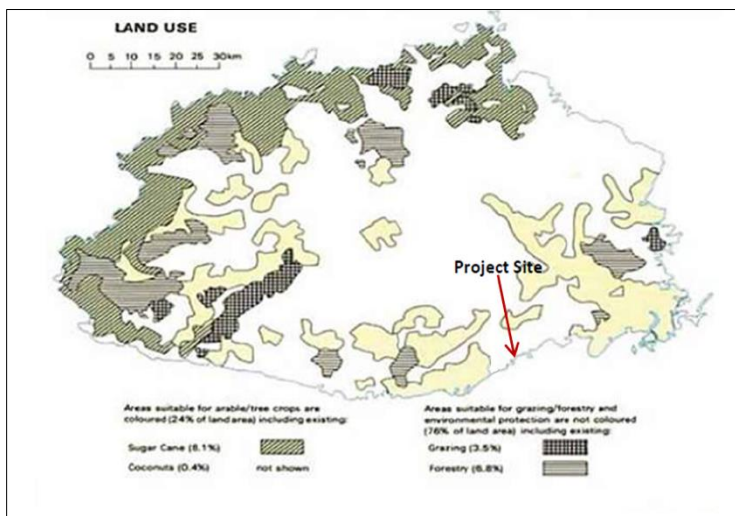
Figure 6 in detail. The site is affiliated under the Medrausucu Andesitic Group and known as the Veisari sandstone. It is consisted of relatively young Andesitic derived Sandstone and Minor conglomerate. The other formations in the group entail the Serua conglomerate, Suva Marl, Waidina sandstone and Namosi Andesite.



**Figure 6: Geological feature of the Project site and surrounds**

#### 4.1.2 Soils

Naboro soils are derived from mainly intermediate and basic alluvium and lies in the Naboro floodplains (Figure 7). The surface water drains easily through the soil laterally to the lower natural depressions and the site is usually waterlogged and reduction of ferric iron produces characteristics mottling and streaking in the zone where the water table fluctuates between the wet and the dry season of the water table. The site is suitable for cultivation of fodder crops such as rice, corn and water tolerant crops such as dalo, and via etc. If the area is well drained with proper ditches and culverts, it would be suitable for cocoa, coffee, bananas and/or arable crops.<sup>6</sup>



**Figure 7: Land Use Map of Viti Levu (source: Ministry of Primary Industries)**

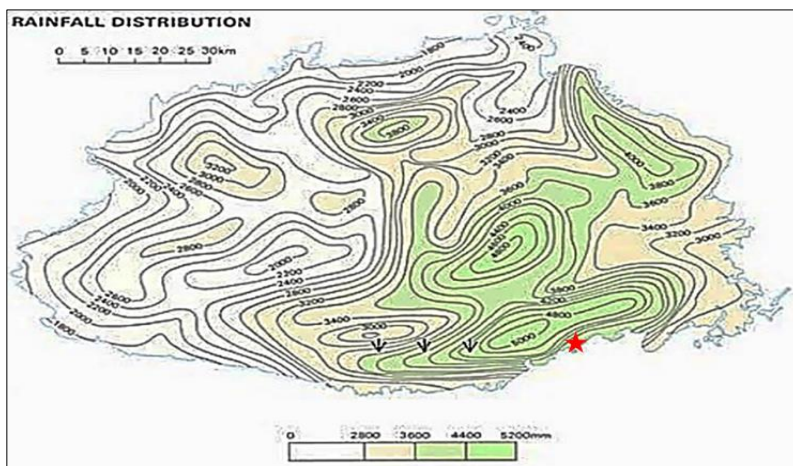
<sup>6</sup> Twyford & Wright, 1957

#### 4.1.3 Rainfall

Rainfall is usually plentiful between December and April. The site is located within the 'wet zone' that receives around 2800 mm to 5200 mm per year (Figure 8). Due to the large size of the Navua/Namosi catchment area, the amount of rainfall received is retained in its vast Navua-Naboro deltaic area; this meant that saturation levels are high and in turn can translate into immediate flooding and inundation periods within a small timeframe.

Commonly thunderstorms and heavy showers, particularly in the late afternoons bring 50 mm of rain within an hour or more. Rainfall of 100 mm in a day is not uncommon when either:

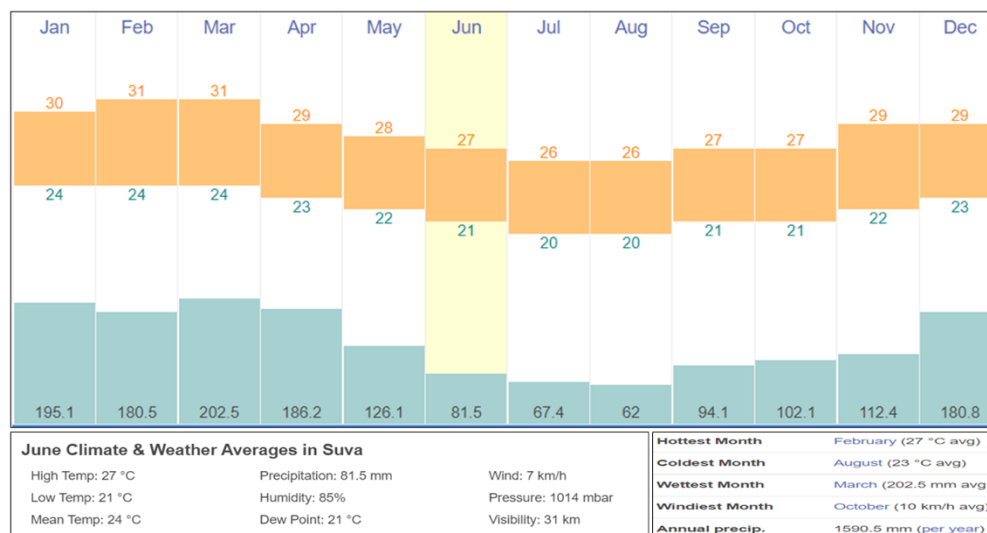
- The subtropical convergence zone lies over the country,
- North/south frontal system across the country from west,
- Intense high pressure to the south brings onshore southerlies, or
- During cyclones.



**Figure 8: Viti-Levu Rain Fall Distribution (Source: Fiji Meteorological Services)**

#### 4.1.4 Temperature

The average temperatures in Suva by month are provided in Figure 9. This is likely to be representative of the site, which is only 15 km from Suva. These are based on the average temperature from weather records collected from 1985 to 2015 and collated by Fiji Meteorological Services.



**Figure 9: Climate & Weather Averages in Suva (Source: Fiji Meteorological Services 2022)**

#### 4.1.5 Wind

The Project site sits on the windward side of Viti Levu and experiences the Easterly Tradewinds all year round with an average wind speed of 7km/hr. Due to the high mountainous area of Naboro located westward; it is well protected both from the foreshore and eastern front from the Southerlies and South-easterlies. The cyclone frequencies recorded in the Navua and Rovodrau Bay which is about 16 km to 20 km away registered extreme wind conditions of 99.9% of hourly wind speeds above 27knots (50 km/h) and often recorded hourly speeds exceeding 37 knots (68.5 km/h) from the South-easterly direction, in a 20 year return period (Kinhill & Byrne, 1994).

#### 4.1.6 Topography

The topography of the area is relatively flat and low lying (Figure 10). However, the site was built up and used as a laydown area during construction of the Naboro Landfill. As such, it is levelled with the road and does not have a history of flooding. The landscape of the wider area surrounding the site mainly flat with hills to the east. The hills, commonly referred to as Naboro Hills or Naboro Prison Hills, are shown on Figure 11.



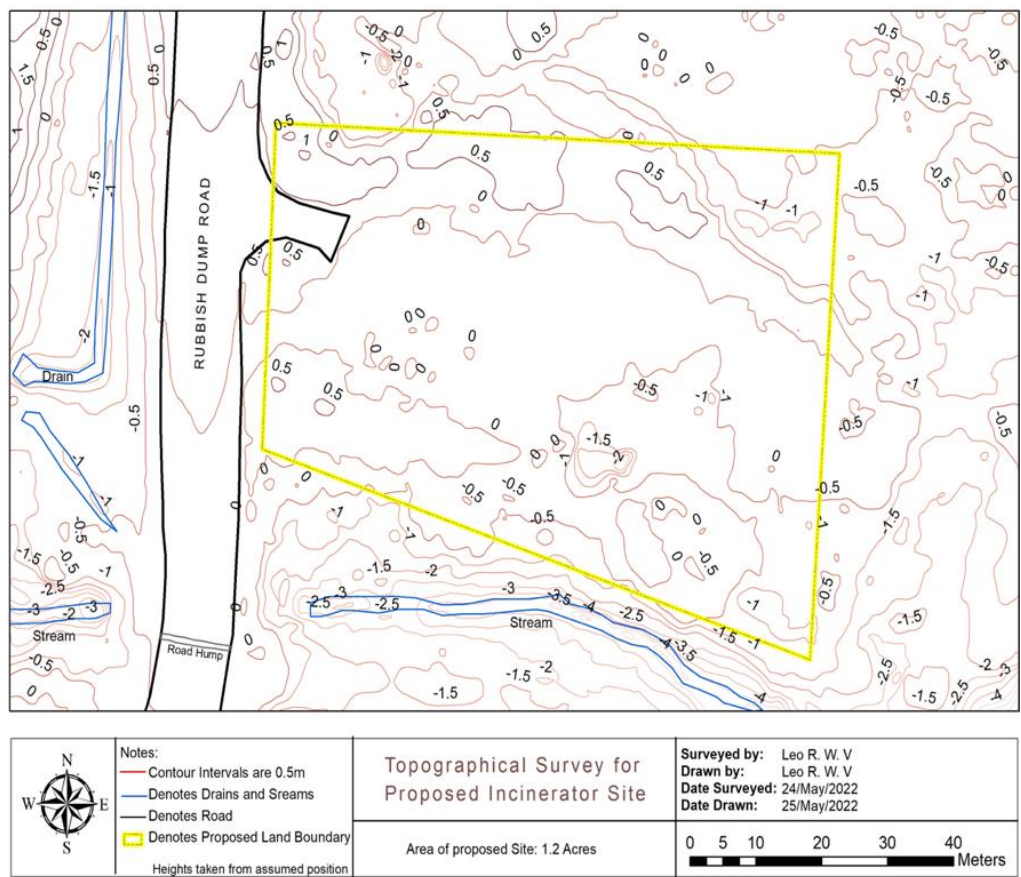


Figure 10: Topography of the proposed site

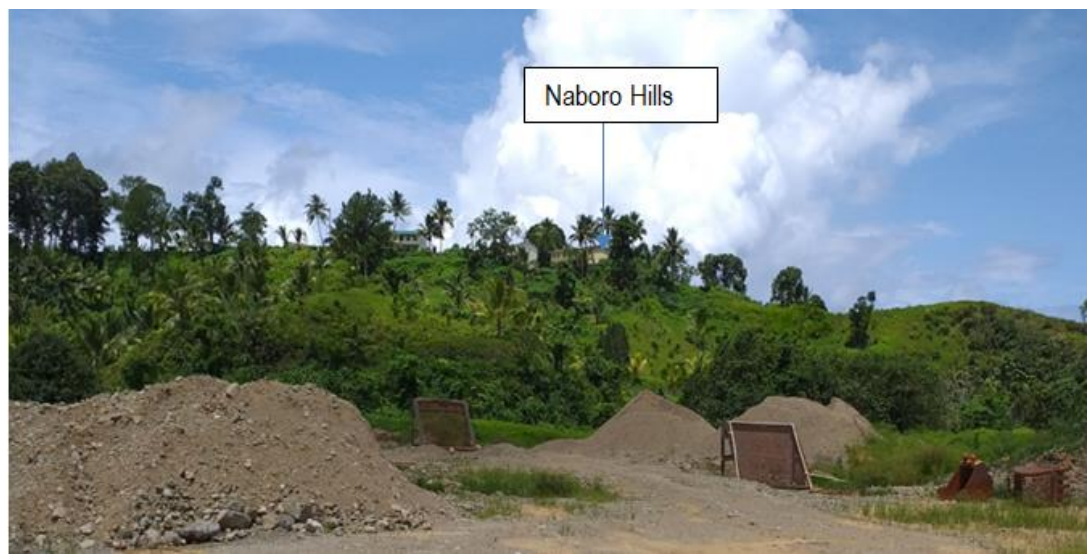
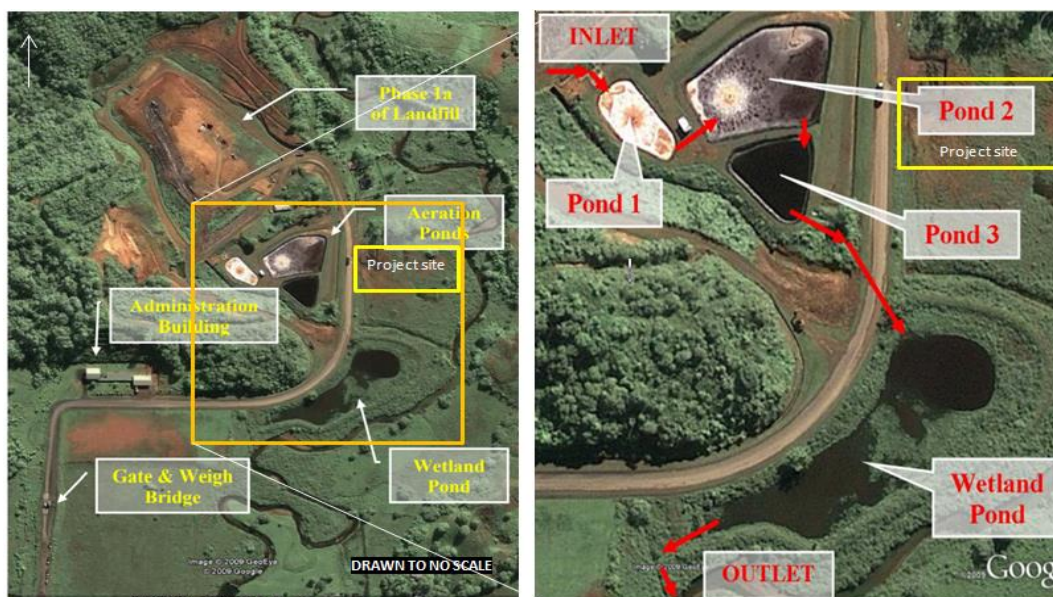


Figure 11: Naboro Hills

#### 4.1.7 Drainage and Water Quality

The project site is located within the floodplain of Naboro Landfill. There is an existing man-made pond and a natural pond that contains the flow from the leachate treatment system from the landfill. The leachate treatment system (Figure 12) was described by Liebermann (2009)<sup>7</sup>:

*"The initial leachate treatment system passively collects the leachate generated into lateral leachate collectors connected to a leachate collector with an internal diameter of 400 mm. The leachate collector then discharges the leachate into a leachate storage tank where it continues to a series of sedimentation ponds, provided by two partially aerated lagoons. The first pond has a water surface area of about 740 m<sup>2</sup> and a hydraulic detention time of three days (design flow of 301m<sup>3</sup>/day). The following pond has a water surface area of about 2,350 m<sup>2</sup> and corresponding hydraulic retention time of twelve days. The effluent flows into a one-hectare surface-flow wetland. The vegetated zones of the wetlands have a depth of 0.3 m and free-space porosity of 90%, with deeper (1.5-2 m) open-water zones to provide for enhanced settling, re-aeration, and flow redistribution. The wetland system has a nominal residence time of over twelve days under predicted average wet season flows. The wetland was constructed in existing wet fields to the south of the landfill site with side bunds to retain flow through the wetland and exclude normal flood-flows from the stream. The wetland discharges directly into the stream feeding a creek which empties into an estuary"*



**Figure 12: Leachate drainage system adjacent to the Project site**

There is also an existing creek located west of the project site including an existing drainage system that runs past the leaching ponds across the access road and runs parallel south of the Project site boundary linking it to the existing creek that flows from the north into the south toward the Naboro coastal area (Figure 13).

The raising of the site and drainage requirements will be detailed during design and build.

<sup>7</sup> <http://cee.eng.usf.edu/peacecorps/5%20-%20Resources/Theses/Sanitation/2009Liermann.pdf>



**Figure 13: Existing drainage system and creek that is located near to the Project site**

Recent water quality data for the area is not available, however, a summary of data from a water quality assessment carried out by Liebermann (2009) from 2006 to 2009 is provided in Table 4. Although this data is not recent, the study was undertaken after the landfill became operational and therefore provides some useful context. The results show that the pH and levels of total dissolved solids increased over time which is not unexpected given the presence of the landfill and associated leachate.

**Table 4: Water quality analysis reported by Liebermann (2009)**

Date Sampled			16-Jan-06		25-May-06				1-Jun-06				8-Apr-08				1-Aug-09				
Sample Location			L1	L2	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L5
Parameters Tested	pH	(units)	6.5	7.1	7.3	7.3	7.8	8.1	7.7	7.7	8.2	8.1	7.71	7.91	8.31	8.28					8.4
	Conductivity	(µS/cm)			9.97	9.77	5.77	3.25													
	EC	(mS/cm)	2.71	1.71					11.6*	11.3*	4.07*	2.31*	24.4	18.7	8.2	3.5	123.2	82.2	81.4	58.4	52.2
	DO	(mg/L)			0.1	0.1	0.13	0.19	0.12*	0.12*	0.19*	3.28*									0.64
	Turbidity																				20
	Ammonia	(mg/L)											2324*	1571*	526*	116*					
	Ammonia-N	(mg/L)																			164
	Nitrate	(mg/L)																			0.074
	Nitrite	(mg/L)																			0.055
	Phosphate	(mg/L)																			3.54
	Sulphate	(mg/L)																			5
	COD	(mg/L)											9416	5681	1284	361					
	BOD	(mg/L)	n.deter.	n.deter.																	
	Arsenic	(µg/L)	1.4	0.7																	
	Cadmium	(µg/L)	<0.4	<0.4																	
	E.coli		n.detect.	n.detect.																	
	Lead	(µg/L)	<2.5	<2.5																	
	Mercury		<0.3	<0.3																	
	Oil & Grease	(mg/L)	4	2																	
Total Coliform	(c/100ml)	1.70E+06	1.10E+06																		
Zinc	(mg/L)	68.5	55.9																		
Parameters Calculated	Ammonia-N	(mg/L)											1914	1294	433	96					
	TDS	(mg/L)	1734	1094	6	6	4	2	7398	7213	2605	1478	15616	11968	5248	2240	78848	52608	52096	37376	33408
	BOD (60%)	(mg/L)											5650	3409	770	217					
	BOD (40%)	(mg/L)											3766	2272	514	144					

Notes: n.deter. = not determined due to available volume of sample being insufficient. n.detect. = not detectable. \*Tests were outside the accreditation of the laboratory.



#### 4.1.8 Noise

The main sources of noise at the site are from trucks passing along the Rubbish Dump Road to access the landfill, and the equipment and machinery used for the operation of the landfill. Workers from the landfill can also be heard communicating with each other from the Project site. Noise also comes from natural sources, such as rain, wind and animals (e.g., birds). The Project site is situated approximately 400 m from Queens Highway which is frequently traversed with buses, vehicles and trucks, and some of this traffic noise may also be heard from the site.

#### 4.1.9 Air Quality

An air quality assessment was carried out at the proposed Project site. The detailed results of the study are in Appendix 1. The results show that the ambient air quality at the site met the US EPA guidelines for all parameters tested, aside from carbon dioxide. The reading for carbon dioxide ( $1,761 \text{ mg/m}^3$ ) was over double the guideline value (300 to 400 ppm, which is around 540 to 720  $\text{mg/m}^3$ ). The high levels of carbon dioxide are likely from the nearby landfill, as landfills are known to emit carbon dioxide.<sup>8</sup>

#### 4.1.10 Vegetation

The site has been previously cleared of forest and the vegetation onsite currently comprises of para grass and small shrubs like such as *Euryops pectinatus*, commonly known as bush daisy. No rare or endangered vegetation was observed at the site and it is unlikely to support large animals given the minimal vegetation. Photos showing the vegetation at the site are provided as Figure 14 and Figure 15.



**Figure 14: The proposed Project site (1)**



**Figure 15: The proposed Project site (2)**

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<sup>8</sup> <https://www.atsdr.cdc.gov/HAC/landfill/html/ch2.html>

## 4.2 Social

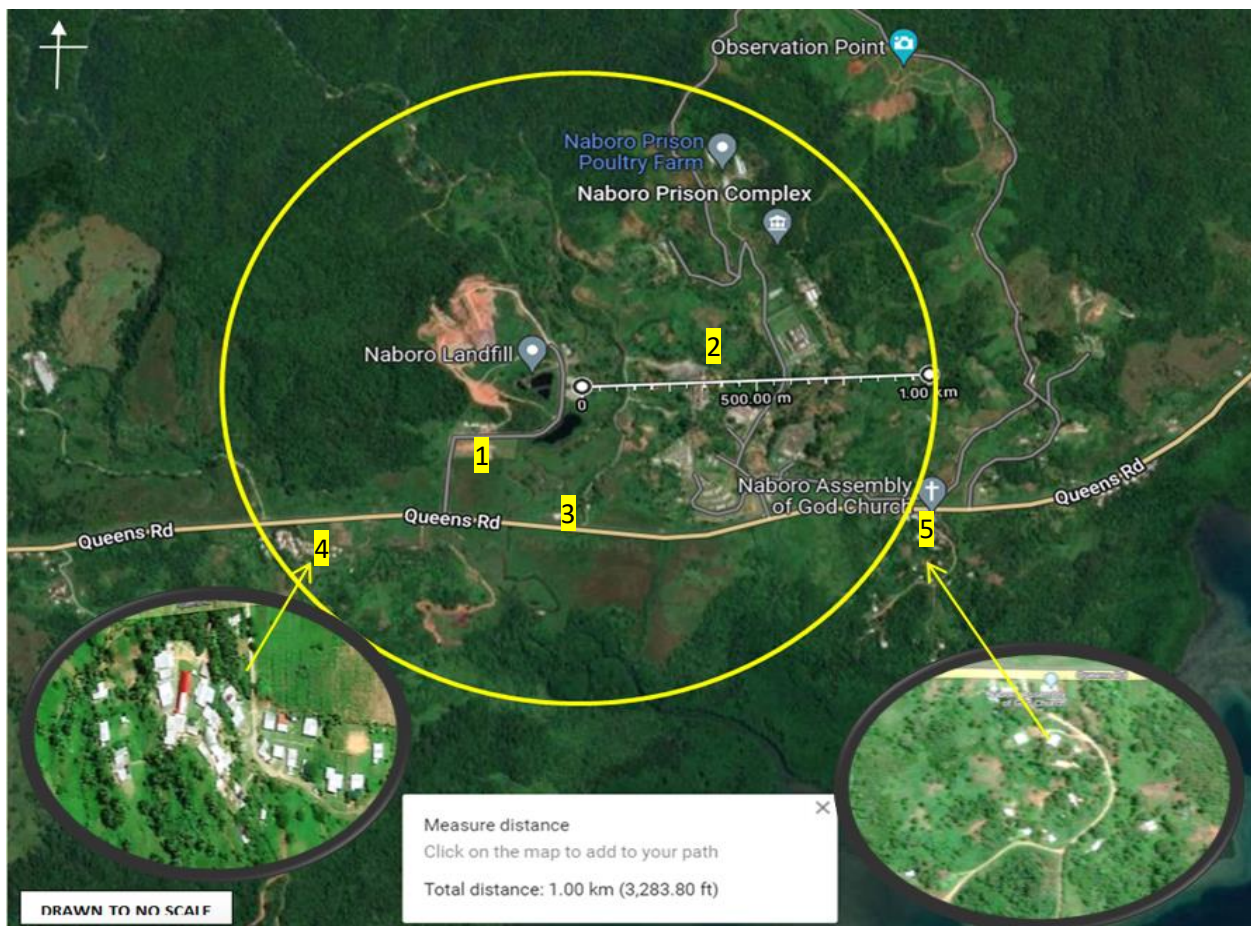
This section provides detail of the social environment surrounding the proposed Project site.

### 4.2.1 Nearby Sensitive Receptors

Sensitive receptors within 1km of the proposed site were identified using Google Earth (Figure 16):

- **Naboro Landfill office (1)** – The office is situated at the entrance of the road leading to the site, approximately 280 m from the site.
- **Naboro Prison Complex (2)** – The prison complex is spread over a large area and the nearest point to the proposed project site is approximately 400 m east of the site.
- **Farming communities (3)** – There are a few sparsely distributed farming communities located southwest and southeast of the site along the Queen's Highway. The closest is approximately 400 m south of the proposed Project site.
- **Navakacoko Settlement (4)** - This settlement comprises is located approximately 950m southwest of the proposed Project site.

The Naboro Assembly of God Church (5) is also located nearby, just over 1 km from proposed Project site.



**Figure 16: Nearby sensitive receptors**



#### 4.2.2 Local communities

This section provides a description of the local communities near the proposed Project site.

**Naboro Prison Complex.** The Naboro Prison complex was established in the 1960s and 1970s. It currently houses more than 200 inmates and about 50 prison officers and their families. The complex is comprised of a maximum-security compound (capacity of 60 inmates), a medium-security compound (capacity of 112 inmates) and minimum-security compound (capacity of 170 inmates). The complex also includes farmland that the inmates upkeep and various buildings for training, etc. Housing for the prison officers and their families is also at the complex.

Detailed aerial imagery of Naboro Prison Complex is provided as Figure 17.



**Figure 17: Detailed aerial imagery of Naboro Prison Complex**

**Farming settlement.** The farming settlement approximately 400 m to the south of the proposed Project site is owned by an agricultural family which has more than 1,200 acres of land. The family has since been living at the site for most of their lives. It was owned by their forefathers for more than two generations back. Part of their property also covers the Naboro Landfill and is being leased by the DOE.

A photo of the main residence on the farming settlement is provided as Figure 18.



**Figure 18: Main residence on the farming settlement**

**Navakacoko settlement.** Navakacoko settlement is on state land with an area of around 340 acres. The settlement stretches from the Queens Highway in the north to the coastal area in the south. The settlement is centered around a church group called Holy Spirit Congregation of the Poor. There are approximately 40 households and around 200 residents at the settlement. Many of the residents were former prison inmates of Naboro Prison that settled at Navakacoko for rehabilitation purposes, with many having stayed at this settlement for most of their lives. Photos of the Navakacoko settlement are provided as Figure 19 and Figure 20.



**Figure 19: Turn off to Navakacoko settlement from the Queens Highway**



**Figure 20: Entrance to the settlement Hall at Navakacoko**

#### **4.2.3 Archaeological, cultural or historical sites**

The proposed Project site has previously been disturbed and is largely cleared. There are no archeological, cultural or historical sites recorded within the proposed Project site.

#### **4.2.4 Existing infrastructure, utilities and transportation**

Infrastructure near the proposed Project site includes the Naboro Landfill, the Naboro Prison Complex and the Naboro Water Treatment Plant. The proposed Project site has connections for water and power, and sewage from the toilet will be collected in a septic tank.

The site is accessed off the Rubbish Dump Road, a road built to service the landfill. Rubbish Dump Road comes off the Queens Highway, a main road that links the area to Suva.

#### **4.2.5 Existing land use**

The Naboro Landfill operators currently use the site to temporarily store equipment and aggregate. During a site visit undertaken by MOHMS and WB staff, the landfill operator stated that they will cease to use the site and remove whatever they have on-site once the project has the greenlight to commence site preparation.

There is no visible sign of oil and hydrocarbon spills, or waste at the site.

## **5.0 STAKEHOLDER CONSULTATION**

Stakeholder consultation for the Project comprised household surveys and public consultation. The method of and findings from the consultation are described in the following sections.

### **5.1 Method**

The household survey was carried out on 8 August 2022. The objective of this survey was to collect community feedback on the proposed development. The survey method was developed GreenPac's Social Scientist Consultant, Mr. Epeli Nasome. A total of 30 questionnaires were distributed randomly to stakeholders within 1 km of the proposed Project site. The questionnaire is provided in Appendix 3. The areas covered included the Naboro Prison Complex residents, Navakacoko settlement, and other residents within the 1 km range of the site. The survey team found it difficult to ascertain individual views and opinions from the survey because:

- When GreenPac staff approached the individual homes, the staff was redirected to the leader of the group to seek his opinions on the proposed development. Their spiritual leader, Ratu Isoa, was the spokesperson and represented the whole view of the settlement. This makes overall response of the settlement subject to one man's opinion and views.
- Prison officers that were approached were reluctant to comment and were not willing to disclose their individual position of the proposed development. GreenPac officials were told to contact their superiors or management.

Due to this, the GreenPac staff arranged a public consultation session to gather information on the views of residents. Permission was sought and received from the Turaga ni Koro (village headman) to hold a public consultation.

The public consultation was carried with residents of the Navakacoko settlement on 8 September 2022 at Navakacoko Village Hall (Figure 21). It was attended by approximately 15 members of the community. The remaining community members did not attend as they were involved in the afternoon farming program that forms the daily religious farming activities of the residents of the settlement. The public consultation session was chaired by Dr. Paulo Vanualilailai (the EIA Consultant from GreenPac) and attended by Mr. Soro Toutou (the Project Manager for the Project Management Unit [PMU] for the Fiji COVID-19 ERP). Minutes of the consultation session are provided in Appendix 4.





**Figure 21: Consultation with the residents of Navakacoko settlement**

Data was managed using verbatim transcription to transcribe the interviews. Data was also collected by voice recordings and were transcribed and rechecked to ensure that quality is maintained. Everything spoken by the participants was transcribed. Notes taken during the interview were also compared to ensure that similar information is captured. Data analysis of the transcripts was carried out using thematic analysis. All data were analyzed and examined to identify common themes topics, ideas and patterns of meaning that came up repeatedly. The steps that were taken to analyze data were: familiarization of data; generating initial coding; generating themes; validity and reliability of themes; defining and naming themes; interpretation and reporting.

## **5.2 Findings**

The results of the household surveys and public consultation session were analyzed and results provided in Table 5 and Table 6, respectively. The concerns raised were considered in terms of the potential implications for the Project and this information is also included. Much of the feedback and discussion centered around the respondent's dissatisfaction with the existing Naboro Landfill and the perceived impacts the landfill has caused, and the respondent's hope that the proposed Project will have minimal impacts. The respondents largely understood the need for the Project to enable healthcare waste to be managed appropriately. Further

awareness about the project will be undertaken prior to construction to provide the community with a summary of the findings of the ESIA (to ensure they understand the potential EHS/OHS impacts associated with this Project and how they differ from the existing landfill) and to ensure the community understand how to access the Fiji COVID-19 ERP GRM. Where relevant, suggestions from consultation participants will be incorporated into the ESMPs for construction and operations.

**Table 5: Results of the household surveys**

Respondent of	Agree/Disagree/Not sure	Benefits/Concerns raised	Implications for the Project
Navakacoko Settlement  (Spokesman representing 40 households)	Agree	Concerned that the project will be similar to that of the landfill where during the survey they were informed that the rubbish will be disposed of appropriately however it is not true now that it is in full operation  Hopes that the development will not have a negative impact on their community	The proposed Project will enable the appropriate disposal of waste. Healthcare waste is currently being disposed of untreated in the landfill and once the project is operation such waste will be able to be incinerated.  The proposed Project is expected to have a minimal impact on the community.
Naboro Prison Compound residents	Did not wish to comment on this and asked for GreenPac to make contact with Management  GreenPac made contact but no response to formal requests  Eventually was able to ask 5 Officers standing at the bus stop area to ascertain their views	Raised the issue of the dump site and the promise that was made to them that it would not smell but that is not the case during operation.  Also experience skin irritation and feel this could be the result of the landfill  Hope the impact will be trivial.	It is understood that the community has outstanding grievances around the operation of the existing landfill.  The proposed Project is expected to have a minimal impact on the community.
Nearby houses (individuals)	Not sure	Aware of the need of the incinerator plant.  Raised concerns of the rubbish dump and its impacts on their livelihood (i.e., they no longer fish and bath in the creek).  Hopes that the new incinerator will not further deteriorate their natural surroundings.	It is understood that the community has outstanding grievances around the operation of the existing landfill.  The proposed Project is expected to have a minimal impact on the community.



**Table 6: Results of the public consultation**

Benefits/Concerns raised	Implications for the Project
One of the main concerns is the impact of the air pollution that would affect human lives if toxic fumes were emitted into their areas during windy conditions	The proposed Project is not expected to impact air quality at residences as the incinerator being installed meets international and local standards for air quality. The incinerator will also include a scrubber to further reduce emissions to air. The distance between the nearest residence and the incinerator will also allow for dispersal of the emissions.
Issues regarding monitoring of wastes particularly human bodies that might be scavenged by feral dogs, mongoose and birds. Issues were raised if these infectious wastes are being spread by dogs, mongoose and birds if such wastes are not properly kept and deposited of.	Healthcare waste is currently being disposed of untreated in the landfill and at risk of being scavenged by animals. Once the incinerator is operational, healthcare waste will be incinerated prior to disposal in the landfill and therefore unable to be scavenged. Healthcare waste, while awaiting incineration, will be kept in a covered (e.g., in large bins with lids) to prevent scavenging. The site will also be fenced to prevent access by larger animals (e.g., dogs).
The settlements have no say in the project because it is already a governmental project	This is not correct as the Project is being funded by the WB. Further awareness is required with the community to ensure they understand their rights and how to access the Fiji COVID19 ERP Project GRM.
The process of public awareness to disseminate the nature of the project is well received and there is nothing that can be done but only to raise issues that concerns the health and wellbeing of the settlement	This is not correct as the Project is being funded by the WB. Further awareness is required with the community to ensure they understand their rights and how to access the Fiji COVID19 ERP Project GRM.
Existing problems such as promises from governmental officers regarding the initial public awareness of the Landfill dumpsite was also presented to the settlers, regarding the foul smell and the increase in pests' infestation particularly flies and vermin etc., were not being fulfilled due to lack of plans to create compost from biodegradable substances such as discarded food stuff, cut tree branches, leaves and roots etc. This in turn pollutes the soil and leaches into the existing creeks. Now the settlers no longer could use the lower creek that runs through their settlements.	It is understood that the community has outstanding grievances around the operation of the existing landfill.  The proposed Project will not contribute to the issues noted as the healthcare waste will be incinerated (and hence the odour will be less than if this waste was placed in the landfill) and there will be no liquid waste produced by the Project as the scrubbers used for air emission control will be dry.
Problems of the creek being polluted from the grey waters that seep through the soil and washes into the existing creeks, have affected their source of protein from freshwater prawns, freshwater shells, and eels including freshwater fish etc.	It is understood that the community has outstanding grievances around the operation of the existing landfill.  The proposed Project will not produce liquid waste as the scrubbers used for air emission control will be dry.

## 6.0 POTENTIAL ENVIRONMENT AND SOCIAL IMPACTS AND PROPOSED MITIGATION MEASURES

The construction and operation phases of the project will have both positive and negative impacts on the bio-physical and social environment. Construction phase impacts will be minor, localized, and of a temporary nature. The operational phase will have minor impacts on the local community and environment and albeit will improve the current practice of healthcare waste disposal.

### 6.1 Summary of Project Activities

A summary of the project activities considered in the impact assessment is provided in Table 7. Further details of the Project are provided in Chapter 3.

**Table 7: Summary of Project activities**

Project Phase	Project Activities
Planning	<ul style="list-style-type: none"> <li>• Detailed design of the site, drainage and incinerator shed</li> <li>• Selection and onboarding of the construction contractors</li> <li>• Selection and procurement of the incinerator and emission control unit</li> <li>• Preparation of the Contractor ESMP</li> </ul>
Construction	<ul style="list-style-type: none"> <li>• Site clearing and excavations for foundation trenches and drainage</li> <li>• Building of raised pad</li> <li>• Construction of a concrete slab</li> <li>• Installation of prefabricated walls and roofing of the building</li> <li>• Fit out of the incinerator shed</li> <li>• Installation of the septic tank</li> <li>• Installation of incinerator, emission control unit and stack</li> <li>• Connection of power and water</li> <li>• Generation of waste</li> </ul>
Operations	<ul style="list-style-type: none"> <li>• Weighing and sorting waste</li> <li>• Loading the incinerator</li> <li>• Operating the incinerator, which will result in emissions to air</li> <li>• Removing and disposing of bottom ash generated from the incineration process</li> <li>• Maintenance of the incinerator</li> <li>• Refueling the fuel tank</li> <li>• Monitoring and maintenance of the surface drainage system</li> </ul>

### 6.2 Potential Positive Impacts and Enhancement Measures

This section describes the potential positive impacts associated with the Project and proposed enhancement measures to maximize such impacts.

#### 6.2.1 Planning Phase

Impacts on the biophysical or social environment are not expected to occur during the planning phase of the Project, however, during this stage design measures to reduce the potential impacts during operations were developed and included in the request for tender documents. These included:

- Provision of air pollution control device to reduce emission to air. This was chosen to be in the form of a “dry” scrubber to negate the need to manage wastewater with is associated with wet scrubbers.
- A chimney stack with minimum height of 4-6 m, fitted with a dispersion cap to maximize dispersion of emissions.
- Continuous emission monitoring equipment.
- Continuous chamber temperature monitoring equipment with alarms.

In addition, the need for a drainage system for capturing spills and potentially contaminated runoff, and for flood mitigation was identified during the planning stage and will be designed prior to construction.

### 6.2.2 Construction Phase

The potential positive impacts of the construction phase activities are:

**Employment opportunities.** The construction works will provide employment opportunities for local people, although this will be short term and few locals will be employed (about 10 to 20 people). Impact enhancement measures would include:

- The contractors must observe the Fiji COVID-19 ERP LMP.
- Subcontractor workers must be paid fairly for the services rendered.

**Acquisition of skills in the construction of prefabricated buildings.** The local laborers will acquire skills in the construction of prefabricated buildings. The main contractor will engage a sub-contractor who will have to recruit local laborers. The local laborers are expected to acquire new skills from their counterparts through observation and training. To enhance the impacts, the contractor must be encouraged to provide on the job training to the laborers.

**Income to material and equipment suppliers.** Construction of the slab and drainage will require cement, sand, pipework, etc. Equipment, such as concrete mixers, will also be required. This will provide business opportunities for local material suppliers, hence increasing income. The impact can be enhanced by paying suppliers within the agreed time. Local suppliers must also be encouraged to supply quality products.

### 6.2.3 Operations Phase

The potential positive impacts from the operations phase activities are:

**Improved management of healthcare waste.** The objective of the Project is to enhance healthcare waste management within the Central Division by providing a reliable facility with sufficient capacity to incinerate healthcare waste. Healthcare waste from the Central Division is currently disposed of at the Naboro Landfill without any primary treatment which, in addition to being a hygiene issue, would be contributing to odor and scavenging issues at the landfill mentioned during the community consultation. Once the Project is operational, the Naboro Incinerator will be the primary system facility for the treatment of all healthcare waste for the Central Division and negate the need for healthcare waste to be disposed of at the landfill.

**Acquisition of skills in incinerator operations.** A team of dedicated personnel will run the incinerator. The Project will prepare an Incinerator Operations Manual that covers the operation and maintenance requirements for the incinerator, along with the process for disposal of the ash generated from the incineration operations. Incinerator operators will be trained in the content of the manual. This training will improve the capacity to monitor emissions, keep proper waste weight records, IPC, operations of the incinerators, trouble shooting and use of Personal Protection Equipment (PPE).

### **6.3 Potential Negative Impacts and Mitigation Measures**

#### **6.3.1 Planning Phase**

Impacts to the biophysical or social environment are not expected during the planning phase of the Project.

#### **6.3.2 Construction Phase**

The potential negative impacts of the construction phase activities are:

**Inadequate compliance with the ESMP.** There is a risk of inadequate implementation of the ESMP due to capacity and awareness issues, causing inadequate mitigation and management of impacts during the construction phase of the project. Mitigation measures would include:

- Collaboration by all project stakeholders in implementing the ESMP.
- Contractors to develop and implement Construction ESMPs (CESMPs) in compliance with this ESMP to be included in bidding documents.
- MOHMS to review, approve and monitor the implementation of the CESMPs.
- MOHMS to ensure contractors have suitable experienced personnel to implement ESMP requirements and/or to provide training and capacity building as required.
- Contractors to ensure compliance with the ESMP is included in the bid conditions for subcontractors.

**Impacts on air quality, noise, and vibration from minor works.** Minor construction works may cause impacts on air quality (e.g., from dust generation), noise and vibration, which may cause nuisance for nearby receptors. These would be short-term (i.e., construction is likely to take less than three months). Dust is likely to be generated during dry periods, which are infrequent at the site due to the high rainfall and humidity. Noise would occur only during daytime hours when the construction teams are working. The nearest residence is 400 m from the site and therefore unlikely to be impacted. There is likely to be dust and noise generated by trucks, etc., accessing the site along Queens Highway, however this road is currently frequented by trucks and such impacts would already be experienced by these residences near the highway. Impacts relating to air quality, noise, and vibration are readily minimized using standard environmental management measures.

Mitigation measures relating to air quality include:

- Materials used shall be covered and secured properly during transportation to prevent scattering of soil, sand, materials, or generating dust.

- Keep stockpile of aggregate materials covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals.
- Minimize dust from exposed work sites by applying water on the ground regularly.
- No burning of site clearance debris (trees, undergrowth) or construction waste materials.
- Hydrocarbons shall not be used as a method of dust control; and
- Immediately re-vegetate and/or stabilize exposed areas.

Mitigation measures relating to noise and vibration include:

- Plan activities in consultation with communities so that noisiest activities are undertaken during periods that will result in least disturbance.
- If necessary, use temporary noise-control methods such as fences, barriers or deflectors (such as muffling devices for combustion engines) and select equipment with lower sound power levels where possible.
- Transport construction materials through community areas during daylight hours only.
- Works to only be undertaken during daylight hours.

**Erosion and sedimentation.** There is risk of erosion and subsequent sedimentation of watercourses from vegetation clearing associated with the incinerator shed construction and run-off from stockpiles of aggregate, soils., etc., used in concrete making and to build the raised pad. The impacts from these works are unlikely to be significant given the small construction footprint and small quality of materials required, nevertheless, the following mitigations are proposed:

- Implement suitable project design (e.g., establish appropriate erosion and sediment control measures) to minimize soil erosion.
- Scheduling to avoid heavy rainfall periods, where practicable.
- Use mulch, grasses or compacted soil to stabilize exposed areas promptly.
- Cover stockpiles and/or provide sediment control downstream to prevent runoff.

**Inappropriate construction material supply.** There is risk of materials being sourced from sources that are not licensed or permitted and therefore contributing to the unsustainable extraction of resources. There is also a risk that the fill used to build the raised pad could introduce additional weeds to the site. The risk of this occurring is high, although given the small quantities of materials required for each site the potential result impact is low. Mitigation measures include:

- Source raw materials locally (where practicable) from licensed/permitted facilities only.
- Using recycled or renewable building materials (e.g., timber) where practicable.
- Source fill material locally and avoid bringing topsoil to the site to minimum risk of introducing weeds to the site.

**Damage to underground utilities from construction works.** The use of machinery to dig for footings, locate existing utilities to tie into, etc., could result in damage to the utilities (and associated repair costs) and risk to worker safety and the environment. To mitigate this excavation works must be done by hand if services

cannot be located and marked. Additionally, the local utility providers should be contacted to mark out existing underground utilities on site prior to excavations.

**Traffic obstruction, congestion, and traffic and road safety.** Impacts on local communities during general construction activities from traffic obstruction, congestion, and traffic and road safety is likely to be minimal and short term. The main sources of traffic related to the Project will be from the small number of workers travelling to/from the site each day and deliveries of materials (including fill material) and equipment. Mitigation measures would include:

- Notice to the community about the timing of works and expected increased traffic.
- Co-ordination with the operators of the Naboro Landfill about traffic management along Rubbish Dump Road should the volume of Project-related traffic interfere with the safe operation of the landfill (i.e., if Project-related traffic impedes the movement of trucks to/from the landfill).

**Damage to cultural heritage.** There are minimal risks involving excavation of cultural sites given the incinerator will be installed in previously disturbed area. Nevertheless, a chance find procedure (that outlines the actions to be taken if previously unknown cultural heritage is encountered) has been prepared for the wider Fiji COVID-19 ERP and included in the Fiji COVID-19 ERP ESMF. As a mitigation measure, the contractor(s) shall have a Chance Finds Procedure in place prior to works beginning.

**Inadequate waste management.** Inadequate management of solid and hazardous waste and wastewater from general construction work could pollute land and surface water. Due to the ease of access to a landfill facility, waste disposal should not be challenging. Mitigation measures to be implemented by the contractor(s) undertaking works area as follows:

- Implement strategies to avoid/reduce waste generation in the first instance
- Develop and follow a site-specific Waste Management Plan (separation of waste streams, storage, provision of bins, site clean-up, bin clean-out schedule, etc.) before commencement of any financed works
- Use litter bins, containers and waste collection facilities at all places during works
- Store solid waste temporarily on site in a designated place prior to off-site transportation and disposal
- On-site and off-site transportation of waste should be conducted to prevent or minimize spills, releases, and exposures to workers and the public
- Recyclable materials such as packaging material etc., shall be segregated and collected on-site from other waste sources for reuse or recycle, where practicable. Other wastes should be disposed of at the Naboro Landfill.
- Ensure any onsite temporary worker latrine/s (if required for the Project) are properly operated and maintained to collect and dispose of wastewater
- Minimize hazardous waste generation by ensuring hazardous waste is not co-mingled with non-hazardous waste.

- Areas that store hazardous waste and materials, including fuel and ash, should be on constructed hard surface and fully bunded.
- Design training for staff in the segregation of wastes.

**Land and water pollution by hazardous substances.** Land and/or water pollution as a result of use and inappropriate storage of hazardous substances e.g., fuel, oils, lubricants. There are unlikely to be large amounts of hazardous substances used as only small quantities will be required for the construction and commissioning of the incinerators, and the nearby waterbodies (e.g., leachate ponds and downstream watercourses) are already impacted from the operation of the landfill. Therefore, impacts are likely to be minimal. Mitigation measures would include that the contractor(s) undertaking works shall implement the following at a minimum:

- Using impervious surfaces for refueling areas and other fluid transfer areas
- Ensure that refueling and maintenance facilities are not located, or that activities do not take place, within 30m of a watercourse, or in ecologically sensitive areas. If a 30 m limit is impracticable, then a lesser limit of 10 m shall be used.
- Ensure that vehicles and plant are not stored within 10 m of a watercourse, or in ecologically sensitive areas, overnight or when not in use
- Regular checks for leaking oil or fuel from machinery undertaken. Any leaks are promptly repaired and/or parts replaced within two days as part of maintenance of vehicles and equipment.
- Training workers on the correct transfer and handling of fuels and chemicals and the response to spills.
- Spill kit, appropriate to the hazardous materials being used, to be kept on-site and workers to be trained in its deployment.
- Do not use asbestoses containing materials in construction.
- Areas that store hazardous waste and materials, including fuel and ash, should be on constructed hard surface and fully bunded.

**Workers occupational health and safety.** Occupational Health and Safety (OHS) risks for workers from general construction activities. Injuries resulting from on-site construction activities could range from injuries requiring on-site first-aid (e.g., minor cuts and bruising), to and fatal injuries as a result of activities such as falls from height and impacts with motor vehicles. The level of OHS awareness varies across Fiji and can be poor within some contractor organizations, particularly those who have limited experience working with international companies. Contractor(s) undertaking works shall as mitigation measures, comply with GIIP regarding workers' safety and develop an OHS Plan<sup>9</sup> prior to construction and implement the following at a minimum:

- Develop and follow a brief site-specific construction/renovation OHS Plan.

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<sup>9</sup> For contractors with small scopes of work, the OHS Plan could be a chapter/section within the CESMP.

- Appoint a health and safety officer at site, who will have the authority to issue directives for the purpose of maintaining the health and safety of all personnel authorized to enter and or work on the site.
- Prepare and implement a simple action plan to cope with risk and emergency (e.g., fire, food, earthquake, tsunami, cyclone).
- Have or receive minimum required training on occupational safety regulations and use of PPE.
- Undertake training of staff to meet standards for the proper operation and use of equipment.
- Training of workers in lifting and materials handling techniques in construction and decommissioning projects, including the placement of weight limits above which mechanical assists or two-person lifts are necessary.
- Implementing good house-keeping practices, such as the sorting and placing loose construction materials or in established areas away from foot paths.
- Locating electrical cords and ropes in common areas and marked corridors.
- Planning and segregating the location of vehicle traffic, machine operation, and walking areas, and controlling vehicle traffic through the use of one-way traffic routes, establishment of speed limits, and on-site trained flag-people wearing high-visibility vests or outer clothing covering to direct traffic.
- Ensuring moving equipment is outfitted with audible back-up alarms
- Provide PPE and other safety measures as appropriate during works such as safety glasses with side shields, face shields, hard hats, hi-vis vests and safety shoes, first aid kits, restricted access zones, warning signs, overhead protection against falling debris.
- Provide project workers with accessible means to raise workplace concerns.
- Provide wash stations at the site, with a supply of clean water, liquid soap and paper towels (for hand drying), with a waste bin (for used paper towels) that is regularly emptied. Wash stations should be located wherever there is a toilet, canteen/food and drinking areas and at waste stations. Where wash stations cannot be provided, alcohol-based hand rub should be provided.
- Undertake health awareness and education initiatives with construction workers e.g., providing information on COVID-19 symptoms, transition paths etc.

**Sexual exploitation and abuse/ harassment (SEA/H) and HIV.** There is a potential for sexual exploitation and abuse/ harassment (SEA/H) to be perpetrated by the Project workforce, and/or members of the Project workforce to be a victim of SEA/H. The spread of HIV related to Project workforce behaviour is also a risk. The Contractor(s) should at a minimum:

- Comply with all relevant national laws and legislations.
- Include SEA/H and HIV prevention requirements in the site-specific construction Health and Safety management plan including aspects relating to preventing Gender-based Violence (GBV) and SEA/H and zero tolerance for these behaviors.
- Ensure that workers are well briefed on the GBV and SEA/H requirements in the Health and Safety Plan.
- Provide separate bathroom facilities for female and male workers.
- Implement measures in the Fiji COVID-19 ERP LMP.



- Ensure a Code of Conduct is part of Workers contracts.

**Underage workers.** Child Labour or forced labour is prohibited on the project. All contractors will need to maintain evidence that their staff are at least 18 years old.

### 6.3.3 Operations Phase

The potential negative impacts from the operations phase activities are:

**Inadequate ESMP implementation.** Implementation of the ESMP will be the responsibility of MOHMS who will own and manage the incinerators. There are potential risks for inadequate implementation of the ESMP due to lack of capacity, training and budget for implementation of mitigation measures. Mitigation measures include:

- Appoint an E&S Focal Person within MOHMS to monitor compliance on ESMP
- Build capacity of the E&S Focal Person to monitor compliance on ESMP
- Adequate budget annually to meet responsibilities outlined in the ESMP

**Audits on the ESMP.** Apart from implementing mitigation measures outlined in the ESMP, there is also potential risk for inadequate capacity to implement audits on ESMP. Mitigation measures include:

- MOHMS to work closely with DOE to facilitate Environmental Audits against the Operational Phase ESMP and permit conditions, and budget for environmental audits annually
- Audits are to include (but not limited to), incinerator monitoring data, observations of waste segregation within facilities, and management of all incinerator residues. These will be undertaken by MOHMS with regular reporting to WB.
- E&S Focal Person to be trained on the ESMP and EP compliance requirements.

**Air pollution from the incinerator.** Uncontrolled emissions from incinerators can contribute to air pollution and pose risk to nearby receptors. However, the incinerator being installed for the Project meets good industry practice (i.e., double chamber, minimum two second residence time in secondary chamber, minimum temperature of 950°C for primary chamber and 1,300°C for secondary chamber), includes an air pollution control device and will meet the Fijian National Air Quality Standards<sup>10</sup> and WB EHS Guidelines for Healthcare Facilities emissions targets for small incinerators<sup>11</sup>. The incinerator will also be fitted with continuous emission monitoring equipment and alarms to advise operators when temperatures decrease, which will enable the operators to act in the event the incinerators are not operating correctly and posing risk of releasing emissions that do not meet standards. Furthermore, as the predominant wind direction at the site is from the south-east, the emissions will be dispersed towards the northwest (over the landfill) and

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<sup>10</sup> Part B of Schedule 5 of the Environment Management (Waste Disposal and Recycling) Regulations 2007

<sup>11</sup><https://www.ifc.org/wps/wcm/connect/960ef524-1fa5-4696-8db3-82c60edf5367/Final%2B-%2BHealth%2BCare%2BFacilities.pdf?MOD=AJPERES&CVID=nPtgRx5&id=1323161961169>

away from residences most of the time. Therefore, the risk of impact to ambient air quality at receptors is low, providing the incinerators are operated and maintained correctly. The greenhouse gas emissions from the use of diesel to run the incinerators is estimated to be around 60 to 120 tonnes CO<sub>2</sub>-eq per year.<sup>12</sup>

The key mitigation for managing this potential impact is the preparation and implementation of an Incinerator Operations Manual. This document will include:

- Scheduled training and refresher training to sensitize workers on healthcare waste segregation at point of generation to ensure only combustible waste goes into the incinerator
- Only qualified personnel are allowed to operate the incinerator
- Operation of the incinerator to be conducted according to manufacturer's specifications
- Trouble shooting and steps to take in event the temperature and/or emissions sensors indicate that there is an issue
- Loading of the incinerator to be in accordance with manufacturer's specifications and only with permissible waste materials
- Maintenance of the incinerator and air pollution control equipment to be undertaken in accord with manufacturers specifications
- Adequately budget for fuel for the incinerators
- Daily logs maintained for each "burn" – this to include type and volume of wastes processed, temperature operated at fuel consumption and monitoring data
- Conducting air quality monitoring at nearby receptors as described in Section 9.6.2
- Establishing optimal times for operating the incinerator based on local wind patterns to minimize dispersal of emissions onto populated areas

**Inappropriate management of hazardous materials.** Inadequate management of hazardous materials can result in pollution of land and water and pose OHS risks. In the context of incinerator operations, the most risk is posed from the transfer and storage of fuel that will be used to run the incinerators. Mitigation measures include:

- Refueling procedures to be developed for filling the fuel tank.
- Fuel tank to be fully bunded and erected above-ground on a hard stand area (as per the WB EHS Guidelines) that drains to an oily water separator.
- Fuel tank and pipes to be inspected regularly for leaks and/or corrosion.
- Maintenance procedures for the incinerator to include use of drips trays, bunds, etc to capture minor spill and leaks.
- Spill kit to be placed at the incinerator area and checked regularly.
- Emergency Response Plan to be developed by MOHMS, outlining emergency prevention, preparedness, and response arrangements to emergency situations.

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<sup>12</sup> Data provided from similar incinerators estimates diesel usage to be around 10 to 15 L per 50 kg of waste incinerated. Assuming the waste to be incinerated is 300 to 400 kg per day, this is a total diesel usage of between 60 and 120 L per day. This equates to around 58 to 116 tonnes CO<sub>2</sub>-eq per year.

**Inappropriate management of hazardous solid waste.** Inadequate management of hazardous waste (e.g., ash from the incinerator) can result in pollution of land and water and pose OHS risks. Mismanagement of hazardous waste can also result in inappropriate wastes being placed in the incinerator (i.e., due to mis-labeling or contamination). Mitigation measures for mitigating this include:

- All hospitals shall implement an Infection Prevention Control & Healthcare Waste Management (IPC & HCWM) Manual that:
  - Requires that receptacles for waste should be sized appropriately for the waste volumes generated, and colour coded and labelled according to the types of waste to be deposited.
  - Includes protocols for the collection of waste and transportation to storage/disposal areas in accordance with WHO guidance.
  - Includes training for staff in correct waste management including the segregation of wastes at the point of generation.
  - Systems for segregating all wastes generated at the facility to be implemented to ensure only approved wastes are incinerated.
- Procedures for handling and disposing of ash will be included in the Incinerator Operations Manual, including PPE requirements (e.g., masks).
- Ash and other incineration residuals shall be temporarily stored in tightly sealed containers in the incinerator room, and regularly taken to the Naboro Landfill. The ash will remain in the sealed containers when disposed of and/or mixed with concrete to prevent being lost within the landfill (and mitigate risk of being dispersed into the air).
- Emergency Response Plan outlining emergency prevention, preparedness, and response arrangements to emergency situations.

**Fire Resulting in Injury and Pollution.** The potential for the incinerator to cause a fire, resulting in risk to workers and potential for pollution to air, land and/or water. Fire protection and preparedness measures include:

- Provide training in fire avoidance and management to relevant staff.
- Install firefighting equipment.
- Ensure firefighting equipment are inspected semi-annually.
- Conduct fire drills.
- Appoint fire volunteer aiders.
- Emergency Response Plan outlining emergency prevention, preparedness, and response arrangements to emergency situations.

**Occupational Health and Safety Risks to Workers.** There are OHS and security risks for workers from operating the incinerator. These include handling of hazardous (and infectious waste) and risk of burns from the incinerator. Hospitals as mitigation measures, comply with GIIP regarding workers' safety and ensure OHS measures at a minimum:

- Develop OHS guidelines, sensitize workers on regulations and use of PPE in relation to operations of the incinerator.

- Issue helmet, goggles, mouth respirators, overcoat/overalls, heavy duty gloves, heat resistant apron and boots on needs basis
- Sensitize workers on environmental and social impacts associated with incorrect incinerator operational practices
- Appoint an IPC or OHS officer at site, who will have the authority to issue directives for the purpose of maintaining the health and safety of all personnel authorized to enter and or work on the incinerator site.
- Provide project workers with accessible means to raise workplace concerns.
- Sensitize operators on importance of hand hygiene and ensure hand hygiene accessories are installed at Incinerator Site
- Sensitize operators and arrange medical examination prior to implement or regularly. Operators should be provided the opportunity to be vaccinated against Hepatitis B and Tetanus
- Train and Supervise Operators on correct operational procedures including handling of ash
- Ensure good housekeeping practice in incinerator shed and safe handling of electrical appliances
- Ensuring moving equipment transporting waste is outfitted with audible back-up alarms
- Emergency Response Plan outlining emergency prevention, preparedness, and response arrangements to emergency situations.

**Community Health and Safety.** Receptors near the incinerators are unlikely to be impacted by the operation of the incinerator as air pollution is likely to be minimal (see “Air Pollution from the Incinerator”) and the incinerator is not noisy, and the nearest residence is around 400 m from the site. The incinerator can pose a safety risk to the public should the public access the site, although this is unlikely to occur as the incinerator will be fenced. Mitigation measures include:

- Maintain fencing around the site to prevent unauthorized access
- Place signage on the fencing to alert the public to the dangers of the site
- Implement measures relating to minimizing air pollution (see measures under “Air Pollution from the Incinerator”)
- Maintain a site-specific GRM to address any complaints from the community and sensitize the community about the GRM through community meetings
- Take corrective operational actions to mitigate complaints
- Emergency Response Plan outlining emergency prevention, preparedness, and response arrangements to emergency situations.

**Lack of community support for the Project.** A lack of community support for the Project due to concerns could result in the incinerator not being used. There is a risk that impacts from the existing landfill could be misunderstood as coming from the incinerator and/or the community may see the landfill and incinerator as “one project”. Mitigation measures include:

- Conduct periodic public consultations.
- Maintain a site-specific GRM to address any complaints from the community and sensitize the community about the GRM through community meetings.

**Compliance with Legal and Regulatory Requirements.** There is a risk of non-compliance with legal and regulatory Requirements, including permit conditions. This could result in reputational damage and/or fines. The MOHMS should:

- Appoint an E&S Focal person to oversee permit conditions and ensure operations of the incinerator comply with the conditions.
- Ensure monitoring data on daily burns, continuous emissions monitoring and air monitoring data are adequately maintained for auditing and reporting purposes
- Allow for maintenance, training, monitoring, and auditing in annual budgets

**Emergency Response Procedures.** Inadequate or lack of emergency response could exacerbate the impact of emergencies.

- Include Emergency Response Procedure in Incinerator Operations Manual
- Keep a record of the emergency service phone numbers and other means of contacting relevant organizations
- Train staff on emergency response

**Flooding.** According to the Landfill Manager, the site has not flooded in the past 17 years, that would mean since the development of the Naboro landfill. However, since the area is low-lying and given the heavy rainfall experienced in the area and impact that inundation could cause (e.g., damage to the incinerator, release of hazardous materials into flood waters), the detailed design will inform the height the site should be raised, and the type of drainage needed around the site, which should connect to the main landfill drainage system. Given the distance inland, it is highly unlikely that the site would be impacted by a tsunami or storm surge other than during an extreme event.

#### **6.4 Cumulative Assessment**

Existing or proposed activities in the vicinity of the Project that may have similar impacts that could be exacerbated by the Project include the operation of the Naboro Landfill. Impacts from landfill operations include:

- Odour
- Emissions to air
- Downstream water quality issues
- Noise
- Vermin

Of these, the Project (as per the operations impact assessment in Section 6.3.3) would likely only contribute to air emissions. The incinerator will meet the Fijian National Air Quality Standards (Part B – Emissions

Standards)<sup>13</sup> and WB EHS Guidelines for Healthcare Facilities emissions targets for small incinerators<sup>14</sup>. These standards are, however, emissions standards and apply at the stack. The cumulative impact of emissions from multiple sources can result in elevated levels of various parameters at a receptor despite the sources meeting standards at the stack. Ambient air quality monitoring undertaken at the site did not indicate that any parameters from the Fijian National Air Quality Standards (Part A – Ambient Air Quality Standards)<sup>15</sup> were currently elevated and therefore it is unlikely that the cumulative impact of the Project and landfill would result in ambient air quality exceeding the national guidelines. Nevertheless, ambient air quality monitoring is proposed and described in Section 9.6.2.

## 6.5 Significance Assessment

The significance of the identified potential negative environmental and social impacts has been determined by assessing and rating the impacts using the available information, professional judgment and experience from similar development projects. The ratings are based on:

- Likelihood of occurrence (L) – a measure of the likelihood of the impact to occur
- Spatial Distribution (SD) - size of the area to be impacted
- Time (duration) of impact (TD) - the period of time over which the impact may occur.

The impact assessment takes into consideration the implementation of the proposed mitigation (i.e., it is a post-mitigation assessment). The significance of the impact has been determined by the product of L, SD and TD. Table 8 provides the significance rating of the impacts of the construction and operation of the incinerators. The severity of impact was rated as Low for all potential impacts/risks.

**Table 8: Significance Rating of Negative Impacts Post Mitigation**

Potential Risks or Impacts	Likelihood of Occurrence (L)	Spatial Distribution (SD)	Time (Duration of Impact)	Severity of Impact (LxSDxTD)
	Very likely to occur=3	Regional=3	Long Term=3	High: 8 to 27
	May occur=2	National=2	Medium Term=2	Moderate: 4 to 7
	Unlikely to occur=1	Local=-1	Short Term=1	Low: 1 to 3
<b>Construction</b>				
Inadequate compliance with the ESMP	2	1	1	2
Impacts on air quality, noise and vibration from minor works	1	1	1	1

<sup>13</sup> Part B of Schedule 5 of the Environment Management (Waste Disposal and Recycling) Regulations 2007

<sup>14</sup> <https://www.ifc.org/wps/wcm/connect/960ef524-1fa5-4696-8db3-82c60edf5367/Final%2B-%2BHealth%2BCare%2BFacilities.pdf?MOD=AJPERES&CVID=nPtRx5&id=1323161961169>

<sup>15</sup> Part B of Schedule 5 of the Environment Management (Waste Disposal and Recycling) Regulations 2007

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Erosion and sedimentation	1	1	1	1
Inappropriate construction material supply	2	1	1	2
Damage to underground utilities from construction works	1	1	1	1
Traffic obstruction, congestion, and traffic and road safety	1	1	1	1
Damage to Cultural Heritage	1	1	1	1
Inadequate Waste Management	1	1	1	2
Land and Water Pollution by hazardous substances	1	1	1	1
Workers Occupational Health and Safety	2	1	1	2
Sexual exploitation and abuse/ harassment (SEA/H) and HIV	1	1	2	2
Underage Workers	2	1	1	2
<b>Operations</b>				
Inadequate ESMP Implementation	2	1	1	2
Audits on the ESMP	2	1	1	2
Air Pollution from the Incinerator	2	1	1	2
Inappropriate Management of Hazardous Materials	1	1	1	2
Inappropriate Management of Hazardous Solid Waste	2	1	1	2
Fire Resulting in Injury and Pollution	1	1	2	2
Occupational Health and Safety Risks to Workers	2	1	1	2
Community Health and Safety	2	1	1	2
Lack of community support	2	1	2	4

Compliance with Legal and Regulatory Requirements	2	1	1	2
Emergency Response Procedures	1	1	2	2
Flooding	1	1	2	2

## 7.0 PROJECT ALTERNATIVES

This section provides an overview of the alternatives considered for the Project.

### 7.1 No Project

The no project alternative would mean the current practice of disposing untreated healthcare waste into the Naboro Landfill would continue. This alternative is not preferred due to the negative risks and impacts for the communities surrounding the landfill (due to risk of spread of disease, odour, scavenging, etc) and the workers at the landfill.

### 7.2 Replacing Incinerator at Colonial War Memorial Hospital

Replacement of the dysfunctional incinerator at CWMH was considered as this incinerator was previously used to treat healthcare waste generated at the CWMH and other medical facilities in the area. The location of the incinerator at CWMH was not ideal as it was in a populated area and the emissions from the stack were dispersed over the hospital wards. Internal consultation with practitioners and other hospital staff highlighted this concern and it was expressed that incinerator should be moved away from populated areas if possible.

### 7.3 Installing an Incinerator at a New Location

Given the issues with operating the previous incinerator at the CWMH, alternative sites away from populated areas were considered. The land around near the existing Naboro Landfill was investigated in detail as this area had the following advantages:

- Away from densely populated areas
- Previously disturbed and not 'pristine'
- Area already used for waste management
- Hospital and other medical facilities already bring their general waste to the area (i.e., they will not need to make separate trip to two locations to dispose of their general and healthcare waste)
- Ash from the incinerator can be easily transported to the landfill for disposal

Within the general vicinity of the existing Naboro Landfill, three sites were investigated (Figure 22) and the findings of the investigated are summarised in the following sections.





**Figure 22: Sites investigated for the proposed Project**

Site 1 and Site 2 were not preferred based on their proximity to (between 250 and 300 m) a small cluster houses to the south/southwest of the sites. Site 2 was also very open and close to the road.

Site 3 was the preferred (and selected) site for the Project. The advantages of Site 3 are:

- The site is surrounded by the Naboro Hills which will act as a buffer from strong winds and make the site less visible.
- The site is less exposed and away from the main road.
- The site is further from residences, with the closest house approximately 400 m from the site.

## 8.0 VULNERABILITY OF THE PROJECT TO NATURAL DISASTERS

This section describes the natural disasters that occur in the area, the Project's vulnerability to them and any design or mitigation measures required to minimize risk. A summary of the risk ratings for the Project site to natural hazards is provided in Table 9 and detail provided in the following sections. An Emergency Response Plan will be prepared by MOHMS prior to the commencement of works.

**Table 9: Risk ratings for the project site to natural hazards**

Cyclone	Flooding	Storm Surge	Earthquakes and Liquefaction	Tsunami
High	Medium	Low-Medium	Low	Low

### 8.1 Cyclones

Cyclones commonly occur in Fiji, with the cyclone season being from November to April. A study by Commonwealth Science and Industrial Research Organization (2014) reported that number of cyclones in Fiji are projected to either remain the same or decrease slightly. However, the intensity of the most intense cyclones is projected to increase.

The potential impacts of cyclones (e.g., strong winds) needs to be considered in the design of the project, in particular the incinerator shed and stack should be cyclone rated. Other risk reduction measures for cyclone proofing include burying of electric and telecom cables, trimming of large trees, etc. The Project should have in place an emergency response plan that outlines the steps to take in the event of a cyclone threat (e.g., store loose items, shut down incinerator, turn off power, secure all healthcare waste, turn off fuel source).

The risk of flooding and storm surges associated with cyclones is discussed on the following section.

### 8.2 Flooding

The Navua highland (inland from the proposed Project site) has some of the highest and intense rainfall for Fiji and is very steep sloped (e.g., 17% slopes). The cause of inundation or flooding in the Naboro catchment area is dependent on tides and the ability of the flood water to drain along the tidally influenced creeks and rivers downstream. The flood risk will be highest during the astronomical spring tides.

Good drainage provisions are essential to ensure uninterrupted passage of water influx in Naboro River east of the site. Although the site does not have a history of flooding, the part of the site where the incinerator shed is being placed should be built up and a drainage system installed to prevent the shed from any inundation during heavy rainfall. Details of the height the site will be built up and the drainage system will be determined during detailed design.

### 8.3 Storm Surge

Storm surges often occur with cyclones. In 2016, Category 4 Tropical Cyclone Winston caused widespread

devastation across Fiji when it made landfall. This cyclone causes coastal areas to experience inundation and flooding from the high waves that went above the high-water mark at more than 15 m into the low-lying coastal area of the northeastern side of Viti-Levu. It was predicted if the cyclone had veered toward a southwestern direction, most of the southeastern and south-central coastline of Viti-Levu (which the Project site is located) would be flooded and inundated. The site is some distance inland and it is unlikely that a storm surge would reach the site. However, the flood mitigations noted in the previous section (i.e., good drainage, and building up the site) would provide some protection in the unlikely event of storm surge reaching the site.

#### 8.4 Tsunamis

Tsunamis are induced from seismic activity, which is common in and around Fiji. The Suva earthquake in 1952 triggered the worst tsunami recorded in Fiji, with wave heights of 1.8 m to 4.5 m above MSL (MRD, 2010). The site around 1.5 km inland, however, it is very low lying and therefore there is potential for a significant tsunami to travel inland to the site.

The Project should have in place an emergency response plan that outlines the steps to take in the event of a tsunami threat, noting that there may not necessarily be time for the site team to act to secure the site as they may need to seek higher ground (e.g., to the Naboro Hills) immediately for their own safety.

The flood mitigations noted in the previous section (i.e., good drainage and building up the site) would provide some protection in the unlikely event of a tsunami reaching the site.

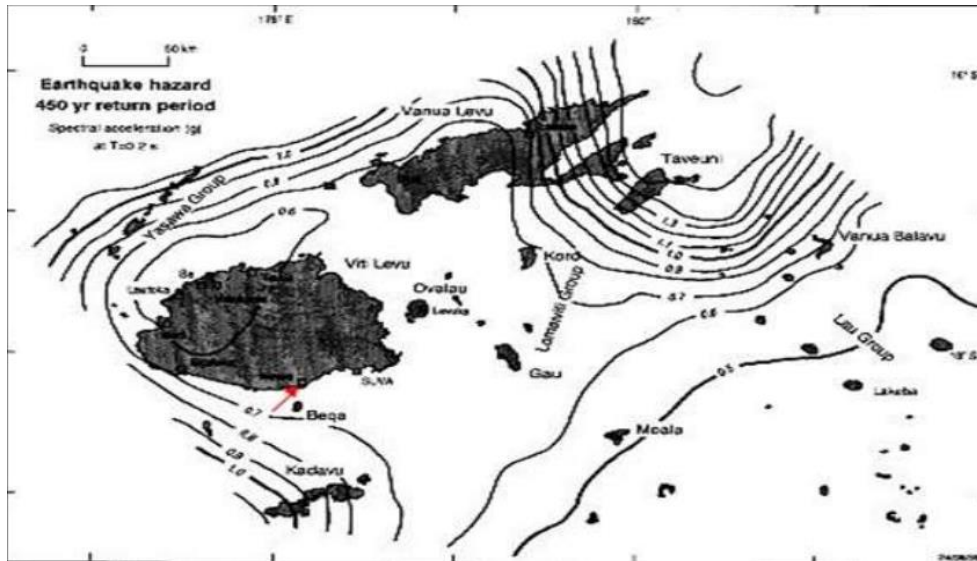
#### 8.5 Earthquake

Earthquakes are common in and around Fiji. Table 10 provides records of the strong earthquakes that occurred in Fiji during the period 1850 to 1984 and shows that two major damaging events in the Navua-Rewa River area have occurred during the record period.

**Table 10: Records of the Strong Earthquakes that Occurred in Fiji**

Date (local)	Place felt	Epicenter		Mag	I*
		Lat °S	Long °		
About 1850	Kadavu	19	178E	6.5?	8
1869 Oct 02	Upper Rewa River	17.8	178.E	5-6	7
1884 Jan	Naduri (Macuata)	16	179E	6.8?	7
1902 Aug 03	Yasawa, Ba	16.7	177.2E	6.8?	7
1919 Oct 03	Rabi, Tunuloa	16.4	180.0	6.9	8
1921 Sep 30	Lautoka Nadarivatu	17.0	176.5E	6.7	5
1928 Jun 21	Taveuni	17.0	179.5W	7.0	6
1932 Feb 17	Rabi Tunuloa	16.2	179.7W	6.6	7
1932 Mar 09	Koro Ovalau	17.5	179.6E	6.5	7
1950 Feb 13	Kadavu	18.9	177.8E	6.5	6
1953 Sep 14	Suva, Navua	18.25	178.25E	6.8	7
1957 Jan 03	Taveuni	16.70	179.80E	5.0	6
1979 Nov 17	Taveuni	16.50	179.75W	6.9	8
1983 Jul 19	Kadavu	19.06	177.77E	4.8	6
1984 Oct 13	Yasawas	16.79	177.30E	6.1	6
*Maximum intensity					

Fiji's earthquake 450-year return period zone is provided as Figure 23. The earthquake hazard in Fiji ranges from moderately low to very high (Everingham, 1986). The earthquake hazard map for a 450-year return period is recommended as a basis for the National Building Code for Fiji regulations (Jones, 1998). The site lies in a low hazard zone of 0.7 spectral acceleration value contours, meaning that proposed Project sites area lies in a relatively inactive seismic zone part of the Fiji group.



**Figure 23: Fiji's earthquake 450yr return period (Jones 1998)**

A risk with earthquakes is liquefaction, where a major earthquake can cause the soil to become a viscous fluid creating problems with structures that are founded on the soil (e.g., bridges, buildings, buried pipes, tanks, power poles, roads etc). This is the liquefaction phenomenon which develops from repeated seismic shaking and disturbances of saturated cohesion less soil to cause excessive displacements of the ground. Buildings sink in because the soil density becomes less than the building; and empty fuel tanks buried under ground can rise to the surface.

The potential impacts of earthquakes (e.g., from liquification) needs to be considered in the design of the project, in particular the incinerator shed should be designed to meet the relevant Fijian building code.

The Project should have in place an emergency response plan that outlines the steps to take in the event of and following an earthquake (e.g., shut down incinerator, turn off power, turn off fuel source).

## 9.0 ENVIRONMENT AND SOCIAL MANAGEMENT PLAN

### 9.1 Overview

This chapter describes the way the environmental and social impacts identified in Chapter 6 will be managed, including mitigation measures, responsibilities for implementation, budget requirements, verification, auditing, reporting and proposed environment monitoring.

Other documents that provide additional information for managing environmental and social risks and impacts associated with the Project include:

- **IPC & HCWM Manual** – this key document was prepared and implemented by MOHMS and updated in response to the COVID19 pandemic as part of the Fiji COVID19 ERP. It outlines a system improvement to mandate color coded receptacles and bin liners, labelling of receptacles, bin liners and wheeler bins, proper segregation of waste at source, etc. Continuous training on the implementation of this document is provided to the healthcare workers and such training was ramped up during the peak of the COVID19 pandemic.
- **Incinerator Operations Manual** – this key document will be the manual the incinerator operators follow to ensure the incinerators are operated and maintained safely and according to the vendor's specifications. It will include training requirements, correct operation (including not exceeding loading standards and what waste types can/cannot be incinerated), documentation requirements (e.g., for each load), troubleshooting, maintenance requirements (e.g., daily, weekly, fortnightly, etc.), training, ash disposal, record keeping (e.g., waste records, burn temperature, smoke color, fuel usage, etc.) and air emissions monitoring. This document will be prepared by the incinerator vendor and other parties prior to commissioning.
- **Construction ESMPs and OHS Plans** – the CESMPs and OHS Plans will be prepared by each contractor and identify environmental, social and OHS risks related to the task the contractor has been employed for and specify the mitigation measures, monitoring and reporting etc. Importantly, as a condition of engagement for this project, all contractors will ensure that there are clear statements as to compliance with all aspects of WB requirements (e.g., LMP, grievance mechanisms etc).
- **Emergency Response Plan** - the MOHMS will be responsible for the preparation of an emergency response manual that will contain the requirements as specified in the WB's ESF. This manual will be prepared prior to the commencement of any construction works (including site preparation), and detail all aspects of emergency prevention and preparedness and response arrangements to emergency situations. The manual will also detail reporting to WB and other relevant stakeholders as to compliance and/or any issues that have occurred (regardless of perceived level of the incident). MOHMS will also ensure that all appointed contractors prepare and submit for approval a similar document to address the scope of works that the contractor has been engaged for prior to the commencement of any works.
- **Fiji COVID-19 ERP ESMF** – this document provides the framework for how E&S issues will be managed for the overall Fiji COVID-19 ERP.
- **Fiji COVID-19 ERP LMP** – this document provides the labour management requirements for the overall Fiji COVID-19 ERP.

- **Fiji COVID-19 ERP SEP** – this document provides stakeholder engagement requirements for the overall Fiji COVID-19 ERP.

## **9.2 Mitigation Measures**

The mitigation measures for managing the impacts identified in Chapter 6 are provided in Table 11 (Construction Phase) and Table 12 (Operations). These are provided with the responsibilities for implementation, timeframe for implementation, budget required and verification method/s.

**Table 11: Mitigation Measures - Construction Phase**

Key Activities	Potential Environment and Social Risks and Impacts	Proposed Mitigation Measures	Responsibility	Timeframe	Budget (FJ\$)	Verification
ESMP Implementation to manage E&S risks and impacts for construction activities	Inadequate ESMP implementation results in E&S impacts	<p>Collaboration by all project stakeholders in implementing the ESMP.</p> <p>Contractors to develop and implement Construction ESMPs (CESMPs) in compliance with this ESMP to be included in bidding documents.</p> <p>MOHMS to review, approve and monitor implementation of the CESMPs.</p> <p>MOHMS to ensure contractors have suitable experienced personnel to implement ESMP requirements and/or to provide training and capacity building as required.</p> <p>Contractors to ensure compliance to the ESMP is included in the bid conditions for subcontractors.</p>	<p>MOHMS E&amp;S Specialist</p> <p>Contractors</p> <p>MOHMS PMU/Contractors</p>	Contractor CESMPs to be in place prior to works commencing and implemented during the entire construction phase	Included in Contractors Bid	<p>Compliance against this ESMP</p> <p>E&amp;S Risk Management conditions to be included in bidding documents</p> <p>Contractors CESMPs approved</p> <p>Inspections completed by MOHMS E&amp;S Specialist during construction activities</p>
General Construction activities	Air quality, noise, and vibration generated from minor civil works	<p><u>Air Quality:</u></p> <p>Materials used shall be covered and secured properly during transportation to prevent scattering of soil, sand, materials, or generating dust.</p> <p>Keep stockpile of aggregate materials covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals.</p>	Contractor	Throughout Construction Phase	Included in Contractor Bid Document	<p>CESMP Compliance Reporting</p> <p>Dust Suppression Measures in place</p>

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		<p>Minimize dust from exposed work sites by applying water on the ground regularly.</p> <p>No burning of site clearance debris (trees, undergrowth) or construction waste materials.</p> <p>Hydrocarbons shall not be used as a method of dust control; and</p> <p>Immediately re-vegetate and/or stabilize exposed areas.</p> <p><u>Noise and vibration:</u></p> <p>Plan activities in consultation with communities so that noisiest activities are undertaken during periods that will result in least disturbance.</p> <p>If necessary, use temporary noise-control methods such as fences, barriers or deflectors (such as muffling devices for combustion engines) and select equipment with lower sound power levels where possible.</p> <p>Transport construction materials through community areas during daylight hours only.</p> <p>Works to only be undertaken during daylight hours.</p>				<p>GRM in place</p> <p>Records of related grievances addressed</p>
General Construction – Foundation excavation, slab construction	Soil erosion causing impacts to surface or groundwater.	<p>Implement suitable project design (e.g., establish appropriate erosion and sediment control measures) to minimize soil erosion.</p> <p>Scheduling to avoid heavy rainfall periods, where practicable.</p> <p>Use mulch, grasses or compacted soil to stabilize exposed areas promptly.</p> <p>Cover stockpiles and/or provide sediment control downstream to prevent runoff.</p>	Contractor	During Construction	Included in Contractors Bid	Sedimentation Controls
Construction - Material Supply	Contribute to unsustainable extraction of resources; introduce weeds	<p>The contractor(s) undertaking works shall at a minimum:</p> <p>Source raw materials locally (where practicable) from licensed/permited facilities only.</p>	Contractor	Construction Phase	Included in Contractors Bid	Records (invoices) of materials purchased



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		<p>Using recycled or renewable building materials (e.g., timber) where practicable.</p> <p>Source fill material locally and avoid bringing topsoil to the site.</p>				
General Construction Works involving Excavation	Damage to underground utilities from construction works	<p>Contact local Utility providers to locate and mark underground utilities prior to excavation.</p> <p>Excavation works must be done by hand if services cannot be located.</p>	Contractor	Construction Phase	Included in Contractors Bid	Included in Work Method Statement
General Construction Activities – Traffic and Road Safety	Impacts on local communities from traffic obstruction, congestion, and traffic and road safety.	<p>Notice to the community about the timing of works and expected increased traffic.</p> <p>Co-ordination with the operators of the Naboro Landfill about traffic management along Rubbish Dump Road should the volume of Project-related traffic interfere with the safe operation of the landfill (i.e., if Project-related traffic impedes the moment of trucks to/from the landfill.</p> <p>Lead contractor to prepare traffic management procedure for the site</p>	Contractor	Construction Phase	Included in Contractors Bid	Traffic Management procedure
General Construction Works involving Excavation	Damage to cultural heritage.	The contractor(s) shall have a Chance Finds Procedure in place prior to works beginning ( <i>Note: the contractor can adopt the Chance Finds Procedure prepared for the Fiji COVID-19 ERP</i> )	<p>Contractor Site</p> <p>Engineer</p> <p>MOHMS E&amp;S Specialist</p>	Construction Phase	Included in Contractors Bid	Chance Find Procedure
General Construction Works – Waste Management	Land and/or water pollution generated (solid, hazardous, and wastewater)	<p>Implement strategies to avoid/reduce waste generation in the first instance</p> <p>Develop and follow a site-specific Waste Management Plan (separation of waste streams, storage, provision of bins, site clean-up, bin clean-out schedule, etc.) before commencement of any financed works</p> <p>Use litter bins, containers and waste collection facilities at all places during works</p>	Contractor	Construction Phase	Included in Contractors Bid	<p>Contractor Waste Management Plan</p> <p>Records of waste disposal</p>

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		<p>Store solid waste temporarily on site in a designated place prior to off-site transportation and disposal</p> <p>On-site and off-site transportation of waste should be conducted to prevent or minimize spills, releases, and exposures to workers and the public</p> <p>Recyclable materials such as packaging material etc., shall be segregated and collected on-site from other waste sources for reuse or recycle, where practicable. Other wastes should be disposed of at the Naboro Landfill.</p> <p>Ensure onsite any temporary worker latrine/s (if required for the Project) are properly operated and maintained to collect and dispose of wastewater</p> <p>Minimize hazardous waste generation by ensuring hazardous waste is not co-mingled with non-hazardous waste.</p> <p>Store hazardous waste and materials, including fuel and ash, on hard surfaces and fully banded.</p> <p>Design training for staff in the segregation of wastes.</p>				
General Construction Activities – Hazardous Materials Management	Land and/or water pollution from use and storage of hazardous substances e.g., fuel, oils, lubricants.	<p>Using impervious surfaces for refueling areas and other fluid transfer areas</p> <p>Ensure that refueling and maintenance facilities are not located, or that activities do not take place, within 30m of a watercourse, or in ecologically sensitive areas. If a 30 m limit is impracticable, then a lesser limit of 10 m shall be used.</p> <p>Ensure that vehicles and plant are not stored within 10 m of a watercourse, or in ecologically sensitive areas, overnight or when not in use</p> <p>Regular checks for leaking oil or fuel from machinery undertaken. Any leaks are promptly repaired and/or parts replaced within two days as part of maintenance of vehicles and equipment.</p> <p>Training workers on the correct transfer and handling of fuels and chemicals and the response to spills.</p>	Contractor(s)	Construction Phase	Include in Contractors Bid Document	<p>Training records</p> <p>Spill kits on site</p> <p>Spill prevention measures in CESMPs</p>

## Naboro Incinerator ESIA

		<p>Spill kit, appropriate to the hazardous materials being used, to be kept on-site and workers to be trained in its deployment.</p> <p>Do not use asbestoses containing materials in construction.</p> <p>Store hazardous waste and materials, including fuel and ash, on hard surfaces and fully banded.</p>				
General Construction activities	Workers Occupational Health and Safety – risk of injury/fatality	<p>Contractor OHS Plan to be developed and submitted for approval prior to the commencement of construction works by the contractor, and construction works completed accordingly. For smaller scopes of work, the OHS Plan may be included as a chapter/section of the CESMP.</p> <p>Induction briefing will be conducted to explain all potential risks and impacts for this project as well as the correct management processes as well as responsibilities of all personnel working on this project.</p> <p>Clear communication of risks and prevention measures will be included in training activities.</p> <p>Obligations under the WB EHS Guidelines, relevant Good International Industry Practice (GIIP), and legislation will be included in the ESMPs and fully enforced by including obligations in the contract.</p> <p>Establishment of worker grievance management procedures. These will be included in training as well as signage posted around construction areas advising as to the procedures.</p> <p>Provision of appropriate PPE for workers</p> <p>Provision of first aid and trained first aid officers.</p> <p>Signage advising as to what PPE is required and other safety related instructions (e.g., hazardous areas, electric cord placement, trenches, fall from height risks) placed in relevant areas around the site (e.g., lunch rooms).</p> <p>Frequent site inspections to ascertain compliance with EHS requirements.</p>	MOHMS PMU/Contractors	Contractor OHS management plan to be in place prior to works commencing and implemented during the entire construction phase	Included in Contractors Bid	<p>Compliance against this ESMP</p> <p>OHS Risk Management conditions to be included in bidding documents</p> <p>Contractors OHS Plan</p> <p>Inspections completed by MOHMS E&amp;S Specialist during construction activities</p>

## Naboro Incinerator ESIA

		<p>Bidding and Contractual documents will be incorporate above and will be legally binding.</p> <p>Training of workers in lifting and materials handling techniques in construction and decommissioning projects, including the placement of weight limits above which mechanical assists or two-person lifts are necessary.</p> <p>Planning work site layout to minimize the need for manual transfer of heavy loads.</p> <p>Implementing good house-keeping practices, such as the sorting and placing loose construction materials or demolition debris in established areas away from foot paths.</p> <p>Cleaning up excessive waste debris and liquid spills regularly.</p> <p>Locating electrical cords and ropes in common areas and marked corridors.</p> <p>Provision of and training in fall prevention and arrest systems.</p> <p>Ensuring the visibility of personnel through their use of high visibility vests when working in or walking through heavy equipment operating areas, and training of workers to verify eye contact with equipment operators before approaching the operating vehicle.</p> <p>Ensuring moving equipment is outfitted with audible back-up alarms.</p> <p>Using inspected and well-maintained lifting devices that are appropriate for the load, such as cranes, and securing loads when lifting them to higher job-site elevations.</p> <p>Traffic management plans will be required to be prepared and submitted for approval by lead contractor.</p> <p>First Aid area will be properly demarcated.</p> <p>OHS Officers will be trained, and their activities will be monitored to ensure compliance with all OHS requirements.</p>				
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## Naboro Incinerator ESIA

		<p>Provide project workers with accessible means to raise workplace concerns.</p> <p>Provide wash stations at the site, with a supply of clean water, liquid soap and paper towels (for hand drying), with a waste bin (for used paper towels) that is regularly emptied. Wash stations should be located wherever there is a toilet, canteen/food and drinking areas and at waste stations. Where wash stations cannot be provided, alcohol-based hand rub should be provided.</p> <p>Undertake health awareness and education initiatives with construction workers e.g., providing information on COVID-19 symptoms, transition paths etc.</p>				
Construction Work - Managing any case of Sexual exploitation, abuse and harassment and HIV relating to Project Workforce	Increase in sexual exploitation and abuse/harassment (SEA/H) and HIV related to project workforce	<p>The Contractor(s) should at a minimum: Comply with all relevant national laws and legislations.</p> <p>Comply with all relevant national laws and legislations.</p> <p>Include SEA/H and HIV prevention requirements in the site-specific construction Health and Safety management plan including aspects relating to preventing GBV and SEA/H and zero tolerance for these behaviors.</p> <p>Ensure that workers are well briefed on the GBV and SEA/H requirements in the Health and Safety Plan.</p> <p>Provide separate bathroom facilities for female and male workers.</p> <p>Implement measures in the Fiji COVID-19 ERP LMP.</p> <p>Ensure a Code of Conduct is part of Workers contracts.</p>	Contractors  MOHMS E&S Specialist	Construction Phase	Include in Contractors Bid	GBV and SEA/H Management in OHS Plan
Construction Work - Managing incidences of Underage Workers on Construction Work Team	Presence of Underage Workers	<p>Child labour or forced labour is absolutely prohibited on the project. All contractors will need to maintain evidence that their staff are at least 18 years old.</p>	Contractor  MOHMS E&S Specialist	Construction Phase	Include in Contractors Bid	<p>LMP</p> <p>No Child at Work</p> <p>Records of staff age</p>

**Table 12: Mitigation Measures – Operations**

Key Activities	Potential Environment and Social Impact	Proposed Mitigation Measures	Responsibility	Time Frame	Budget (FJ\$)	Verification
ESMP implementation	Inadequate implementation of the ESMP	<p>Appoint an E&amp;S Focal Person within MOHMS to monitor compliance on ESMP</p> <p>Build capacity of the E&amp;S Focal Person to monitor compliance on ESMP</p> <p>Adequate budget annually to meet responsibilities outlined in the ESMP</p>	MOHMS	All Project Stages	MOHMS PMU Costs	SEP
Environmental audits	Inadequate capacity to implement audits on ESMP	<p>MOHMS to work closely with DOE to facilitate Environmental Audits against the Operational Phase ESMP and permit conditions, and budget for environmental audits annually</p> <p>E&amp;S Focal Person to be trained on the ESMP and EP compliance requirements.</p> <p>Audits are to include (but not limited to), incinerator monitoring data, observations of waste segregation within facilities, and management of all incinerator residues. These will be undertaken by MOHMS with regular reporting to WB.</p>	MOHMS / DOE	Annually	20,000	Compliance with license conditions and ESMP requirements
Operation of incinerators	Air Pollution from the incinerator and Operational Risks	<p>Follow the Incinerator Operations Manual (which is to be provided by the vendor) which will include:</p> <ul style="list-style-type: none"> <li>Only qualified personnel are allowed to operate the incinerator</li> <li>Operation of the incinerator to be conducted according to manufacturer's specifications</li> <li>Trouble shooting and steps to take in event the temperature and/or emissions sensors indicate that there is an issue</li> </ul>	Incinerator vendor (managed by MOHMS) to provide Incinerator Operations Manual and training on	<p>Commissioning (provide Incinerator Operations Manual and training)</p> <p>At all times during operation (follow the Incinerator</p>	Costs to be captured in Annual Budget	<p>Daily logs and emission data – this latter aspect compared with license conditions</p> <p>Grievances related to air quality</p> <p>Incinerator Operations Manual</p> <p>Training records</p>

## Naboro Incinerator ESIA

		<ul style="list-style-type: none"> <li>Loading of the incinerator to be in accordance with manufacturer's specifications and only with permissible waste materials</li> <li>Maintenance of the incinerator and air pollution control equipment to be undertaken in accord with manufacturers specifications</li> <li>Daily logs maintained for each "burn" – this to include type and volume of wastes processed, temperature operated at fuel consumption and monitoring data</li> <li>Conducting air quality monitoring as described in Section 9.6.2</li> <li>Establishing optimal times for operating the incinerator based on local wind patterns to minimize dispersal of emissions onto populated areas</li> </ul> <p>Provide training and refresher training to sensitize workers on healthcare waste segregation at point of generation to ensure only combustible waste goes into the incinerator</p> <p>Adequately budget for fuel for the incinerators.</p>	<p>Incinerator operators</p> <p>MOHMS</p>	<p>Operations Manual)</p> <p>Annually (provide refresher training)</p>		
Operations phase – refueling and maintenance works	Inadequate management of hazardous materials can result in pollution of land and water and pose OHS risks	<p>Refueling procedures to be developed for filling the fuel tank.</p> <p>Fuel tank to be fully bunded and erected above ground on a hardstand area (as per the WB EHS Guidelines) that drains to an oily water separator.</p> <p>Fuel tank and pipes to be inspected regularly for leaks and/or corrosion.</p> <p>Maintenance procedures for the incinerator to include use of drips trays, bunds, etc to capture minor spill and leaks.</p> <p>Spill kit to be placed at the incinerator area and checked regularly.</p> <p>Emergency Response Plan will be developed outlining emergency prevention, preparedness, and response arrangements to emergency situations.</p>	<p>MOHMS</p> <p>Contractor who will undertake detailed design and build.</p>			<p>Procedure for refueling</p> <p>Records of fuel tank and pipe inspections</p>

## Naboro Incinerator ESIA

Operation phase – Management of Hazardous Solid Waste	Inadequate Management of hazardous waste	<p>All hospitals shall implement an IPC &amp; HCWM Manual that:</p> <ul style="list-style-type: none"> <li>Requires that receptacles for waste should be sized appropriately for the waste volumes generated, and colour coded and labelled according to the types of waste to be deposited</li> <li>Includes protocols for the collection of waste and transportation to storage/disposal areas in accordance with WHO guidance and the National Healthcare Waste Guidelines (Draft)</li> <li>Includes training for staff in correct waste management including the segregation of wastes at the point of generation</li> </ul> <p>Systems for segregating all wastes generated at the facility to be implemented to ensure only approved wastes are incinerated.</p> <p>Ash and other incineration residuals shall be temporarily stored in tightly sealed containers in the incinerator room, and/or mixed with concrete and then disposed of in the Naboro landfill.</p> <p>Procedures for the safe handling and disposal of incinerator ash will be included in the Incinerator Operations Manual.</p> <p>Emergency Response Plan will be developed outlining emergency prevention, preparedness, and response arrangements to emergency situations.</p>	MOHMS and the hospitals	Continuous	Costs to be captured in Annual Budget	<p>IPC &amp; HCWM Manual</p> <p>Procedure for ash disposal to be included in the Incinerator Operations Manual</p> <p>Records of waste treatment and disposal</p> <p>Record of ash disposal</p>
Operation phase	Lack of Fire protection preparedness	<p>Fire Preparedness should form part of the Emergency Response Procedures in the Incinerator Operations Manual.</p> <p>Firefighting equipment to be installed in the Incinerator Shed</p> <p>Firefighting equipment are inspected semi-annually and replaced as necessary</p> <p>Conduct fire drills</p> <p>Appoint fire volunteer aiders</p>	<p>Incinerator Vendor</p> <p>MOHMS</p>	During operation phase	Costs to be captured in Annual Budget	Fire safety preparedness and Emergency Response Procedures



## Naboro Incinerator ESIA

		Emergency Response Plan will be developed outlining emergency prevention, preparedness, and response arrangements to emergency situations.				
Operation phase – Handling of Healthcare Waste	Occupational Health and Safety of Workers involved in healthcare waste handling	<p>Occupational Health and Safety of Operators should form part of the Incinerator Operations Manual.</p> <p>Develop OHS guidelines, sensitize workers on regulations and use of PPE in relation to operations of the incinerator.</p> <p>Issue helmet, goggles, mouth respirators, overcoat/overalls, heavy duty gloves, heat resistant apron and boots on needs basis</p> <p>Sensitize workers on environmental and social impacts associated with incorrect incinerator operational practices</p> <p>Appoint an IPC or OHS officer at site, who will have the authority to issue directives for the purpose of maintaining the health and safety of all personnel authorized to enter and or work on the incinerator site.</p> <p>Prepare and implement a simple action plan to cope with risk and emergency (e.g., fire, earthquake)</p> <p>Provide project workers with accessible means to raise workplace concerns.</p> <p>Sensitize operators on importance of hand hygiene and ensure hand hygiene accessories are installed at Incinerator Site</p> <p>Sensitize operators and arrange medical examination prior to implement or regularly. Operators should be provided the opportunity to be vaccinated against Hepatitis B and Tetanus</p> <p>Train and Supervise Operators on correct operational procedures</p> <p>Ensure good housekeeping practice in incinerator shed and safe handling of electrical appliances</p>	MOHMS	During operation	Costs to be captured in Annual Budget	OHS Training

## Naboro Incinerator ESIA

		<p>Ensuring moving equipment transporting waste is outfitted with audible back-up alarms</p> <p>Emergency Response Plan will be developed outlining emergency prevention, preparedness, and response arrangements to emergency situations.</p>				
Operation phase - Community Health and Safety	Nuisance caused by the operations of the incinerator through air emissions and odor; incinerator area a safety risk to the public	<p>Maintain fencing around the site to prevent unauthorized access</p> <p>Place signage on the fencing to alert the public to the dangers of the site</p> <p>Implement measures relating to minimizing air pollution (see measures under "Air Pollution from the Incinerator")</p> <p>Maintain a site-specific GRM to address any complaints from the community and sensitize the community about the GRM through community meetings</p> <p>Take corrective operational actions to mitigate complaints</p> <p>Emergency Response Plan will be developed outlining emergency prevention, preparedness, and response arrangements to emergency situations.</p>	MOHMS	During operations	Included as part of maintenance budget	<p>Fencing and signage in place and in good repair</p> <p>Grievance records</p>
Operation phase	Lack of community support for the Project could result in the incinerators not being used	<p>Conduct periodic public consultations</p> <p>Maintain a site-specific GRM to address any complaints from the community and sensitize the community about the GRM through community meetings</p>	MOHMS	During operations	Costs to be captured in Annual Budget	<p>Consultation records</p> <p>Grievance records</p>
Operation phase – EP Permit Compliance	Lack of Compliance to the Legal and Regulatory Requirements as mentioned in the ESMP and described in the permit conditions	<p>Appoint an E&amp;S Focal person to oversee permit conditions and ensure operations of the incinerator comply with the conditions.</p> <p>Ensure monitoring data on daily burn, continuous emissions data and air monitoring data are adequately maintained for auditing and reporting purposes</p> <p>Allow for maintenance, training, monitoring, and auditing in annual budgets</p>	MOHMS	During construction and operation of the Incinerators	Include allowance in Annual Budgets for breach of Permit Conditions	<p>Data maintained</p> <p>Environmental Health Officer appointed</p>

## Naboro Incinerator ESIA

Operation phase – Emergency Response	Inadequate or lack of Emergency Response Procedures	<p>Prepare an Emergency Response</p> <p>Keep a record of the emergency service phone numbers and other means of contacting relevant organizations</p> <p>Train staff on emergency response</p>	MOHMS	During construction and operation of the incinerator	Any ERP Incident costs to be included in MOHMS budget	Emergency Response Procedure
Operation phase	Flooding resulting in damage to the incinerator and/or release of hazardous materials into flood waters	<p>Prepare detailed design to inform the height the site should be raised, and the type of drainage needed around the site.</p> <p>Detailed design completed and recommendations implemented in the construction.</p>	<p>Contractor who will undertake detailed design and build.</p> <p>MOHMS to supervise and ensure compliance.</p>	During detailed design, and construction phase.		<p>Detailed design completed.</p> <p>Site raised and drainage in place.</p>

### 9.3 Responsibilities for Implementation of the ESMP

The main organizations involved in the implementation of this ESMP are MOHMS; construction contractors and their subcontractors, and the various health facilities that will dispose of healthcare waste through the Project. The roles of each of these organization are:

**The Ministry of Health and Medical Services.** The MOHMS has overall responsibility for the implementation of the ESMP. MOHMS will (with support from Ministry of Infrastructure where required during the construction phase):

- Manage the tendering process for the Project.
- Review and endorse contractor-specific plans (e.g., OHS Plan, CESMPs, etc) and Incinerator Operations Manual.
- Manage construction contractors and incinerator supplier.
- Manage the operation of the Project (through hiring of staff, contractors and/or subcontractors to operate the facility).
- Oversee compliance monitoring during the construction and operational phases of the project
- Develop and implement an inspection tool/ checklist based on the ESMP and inspection program.
- Coordinate regular site meetings with construction contractor and any applicable key stakeholders.
- Provide monthly reports to WB on the progress of the project as well as any incidents and/or grievance reports.

**Construction Contractors and their Subcontractors.** The construction contractor and their subcontractors are expected to integrate environmental and social focus in their Project Management Plan to ensure effective implementation of the projects impacts and mitigation measures, therefore, the contractor will mobilize an in-house Environment and Social Expert with the following responsibilities:

- Prepare a CESMP (and OHS Plan for larger scopes of work) that identifies environmental and social risks related to the task the contractor has been employed for and specify the mitigation measures, monitoring and reporting etc. Importantly, as a condition of engagement for this project, all contractors will ensure that there are clear statements as to compliance with all aspects of WB requirements (e.g., labour management procedures, grievance mechanisms etc). Key requirements will include:
  - Identification of potential impacts and development and implementation of strategies to avoid them being realised or mitigated
  - Incident monitoring, review and reporting
  - Development of an emergency response plan to manage incidents
  - Regular reporting through MOHMS on any incidents.
- Procure necessary equipment for implementing mitigation measures.
- Monthly reporting throughout the project period to the MOHMS who will submit these reports to WB.
- Ensure all subcontractors meet project requirements.

**Incinerator Supplier.** The vendor supplying the incinerator to provide oversight with the installation and commissioning of the incinerator, prepare the Incinerator Operations Manual and provide training to the incinerator operators on implementation of the manual.

**Health Facilities.** The health facilities that will dispose of healthcare waste through the Project will:

- Ensure applicable staff and contractors receive regular training in the IPC & HCW Manual.
- Supply the necessary PPE, materials and equipment to enable their staff and contractors to effectively implement the IPC & HCWM Manual.

#### 9.4 Capacity building

MOHMS will be applying guidance, training and oversight. Contract/tender documents will specify either details of how the tenderer will comply with Project plans/procedures or for others the development of the required Plans/Procedures along with details of implementation. It will also be a requirement that such implementation processes and/or Plans/Procedures be submitted to the PMU and MOHMS for approval (or advice on requirements for amending if required).

In addition, the PMU in conjunction with the MOHMS will review each submitted Plans/Procedure to ensure that the required detail has been included as well as monitoring each for correct implementation. PMU will also undertake monitoring of compliance. To assist with this monitoring, all contractors as part of the enforceable contract will be required to provide the PMU monthly reports on compliance and/or any incidents with adverse impacts, grievance log etc and actions undertaken throughout the project period. MOHMS will also review any interim and progress reports to ensure that environmental and social mitigation measures are in place and functioning correctly.

#### 9.5 Training

The training requirements for the Project are described throughout this document. A summary of the training requirements is provided in Table 13.

**Table 13: Training requirements**

Topic	Scope	Training provided to	Responsibility
IPC & HCWM Manual	Implementation of the IPC & HCWM Manual	All personnel involved in healthcare waste management at each of the hospitals	MOHMS and hospitals
Incinerator Operations Manual	Operation of the incinerator, including PPE requirements, emergency response, trouble shooting, record keeping, ash disposal, maintenance requirements, monitoring requirements	Incinerators operators	MOHMS and incinerator vendor

Construction OHS and environment management	<p>OHS and environmental management requirements relevant to contractor scope and as per Contractor OHS Plan and CESMP, including:</p> <ul style="list-style-type: none"> <li>• Waste management</li> <li>• Handling of hazardous substances / waste</li> <li>• Use of PPE</li> <li>• Safe operation of equipment</li> <li>• Lifting and materials handling techniques</li> <li>• Awareness on COVID-19</li> <li>• Fall prevention and arrest systems</li> </ul>	Contractors and subcontractors	Contractors
ESMP Implementation	Requirements of the ESMP	Contractors	MOHMS
Worker GRM	How the worker mechanism works and how to lodge a grievance	Contractors and subcontractors	Contractors
GRM	How the Project GRM works	Nearby communities	MOHMS

## 9.6 Verification and Monitoring

The Project proposes to undertake the following.

### 9.6.1 Verification

The Project will undertake verification of the implementation of the mitigation measures in Table 11 and Table 12. This will be undertaken through inspections and audits carried out by the contractors (during construction) and MOHMS. These will include:

- Regular site inspections carried out by the contractor as per their CESMP (typically this would be daily or weekly).
- Regular site inspections carried out by MOHMS throughout constructions and operations.
- Annual auditing carried out by MOHMS (and DOE at their discretion) during operations. Funding for this for this has allowed for in the annual budgets.

### 9.6.2 Monitoring

Air quality monitoring is proposed during the operations phase to confirm the incinerators (and air emission control unit) are operating as expected. The incinerator has continuous emissions monitoring and therefore monitoring is proposed at nearby receptors, rather than from the stack. The nearby receptors where monitoring will be carried out are the prison, farming community and nearby settlement and the location of these are shown on Figure 16. The parameters to be monitored are those in the Fijian National Air Quality

Standards (Part A – Ambient Air Quality Standards).<sup>16</sup> A detailed monitoring plan will be developed, which will include monitoring locations, frequency (indicatively quarterly), parameters to test for, operation of the monitoring equipment (including calibration and servicing), record keeping, etc. Results of the monitoring will be communicated to stakeholders during engagement sessions.

The Project will also undertake any additional monitoring if specified in the permit issued by DOE. Ad hoc monitoring may also be undertaken in response to a grievance; outcome of an inspection or audit; or in response to an incident.

## **9.7 Reporting Requirements**

### **9.7.1 General**

Reporting will include progress with the implementation of mitigation measures, planned activities, results of inspections/audits, results of monitoring, stakeholder engagement undertaken, non-conformances (and how they have/will be addressed), status of grievances, etc. The following reporting is proposed:

- MOHMS to provide reports to DOE as per the permit conditions.
- MOHMS to provide monthly reports to the WB.
- Contractors to provide monthly reports to MOHMS (who will provide these to the WB).

### **9.7.2 Incident**

Despite efforts to manage environmental and social risks, there is potential for incidents to occur. An incident is defined as an accident or negative event resulting from failure to comply with the WB E&S requirements, or conditions that occur because of unexpected or unforeseen events during project implementation.

The Project will adopt the incident classifications contained in the “Environmental and Social Incident Response Toolkit for World Bank Staff”. These classifications are as follows:

- Indicative incident:
  - Relatively minor and small-scale localized incident that negatively impacts a small geographical areas or small number of people
  - Does not result in significant or irreparable harm
  - Failure to implement agreed E&S measures with limited immediate impacts
- Serious incident:
  - An incident that caused or may potentially cause significant harm to the environment, workers, communities, or natural or cultural resources
  - Failure to implement E&S measures with significant impacts or repeated non-compliance with E&S policies incidents
  - Failure to remedy Indicative non-compliance that may potentially cause significant impacts
  - Is complex and/or costly to reverse
  - May result in some level of lasting damage or injury
  - Requires an urgent response
  - Could pose a significant reputational risk for the Bank

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<sup>16</sup> Part B of Schedule 5 of the Environment Management (Waste Disposal and Recycling) Regulations 2007

- Severe incident:
  - Any fatality
  - Incidents that caused or may cause great harm to the environment, workers, communities, or natural or cultural resources
  - Failure to remedy serious non-compliance that may potentially cause significant impacts that cannot be reversed
  - Failure to remedy serious non-compliance that may potentially cause severe or complex impacts and/or be costly to reverse
  - May result in high levels of lasting damage or injury
  - Requires an urgent and immediate response
  - Poses a significant reputational risk to the WB

All incidents are to be reported to the WB as soon as practicable, with all Serious and Severe incidents being reported within 24 hours of their occurrence. The PMU and/or contractor involved in the incident are responsible for also reporting the incident to the relevant regulatory authority if required.

Upon request of the WB, the PMU (with support of the contractor involved, if applicable) shall prepare a report detailing the incident. The report should include the following information:

- Classification of the incident
- What was the incident? What happened? To what or to whom?
- Where and when did the incident occur?
- When and how did the PMU find out about it?
- Are the basic facts of the incident clear and uncontested, or are there conflicting versions? What are those versions?
- What were the conditions or circumstances under which the incident occurred (if known at this stage)?
- Is the incident still ongoing or is it contained?
- Is loss of life or severe harm involved?
- What has been the response to date?
- What remedial action, if any, is required?
- What measures have been or are being implemented to prevent reoccurrence?

The carrying out of any remedial action or implementation of preventive measures to prevent recurrence should be tracked to closure and progress included in the regular progress reports to the WB.



## Appendix 1: Terms of Reference for the ESIA prepared for the Fijian Department of Environment

### DEPARTMENT OF ENVIRONMENT

#### TERMS OF REFERENCE FOR THE PROPOSED NEW MEDICAL INCINERATOR IN NABORO

##### **BACKGROUND**

This Terms of Reference is prepared for the Ministry of Health and Medical Services proposed new medical incinerator in Naboro, Suva. The new incinerator is a single storey structure made of concrete and masonry construction with a steel framed roof.

##### **PURPOSE OF THE TERMS OF REFERENCE**

- a) Assess the environmental baseline condition at the site
- b) Assess the environmental and social impacts of the proposed development
- c) Identify mitigative measures to minimize any negative environment impacts

##### **THE COMPONENTS OF THE ENVIRONMENT IMPACT ASSESSMENT (EIA) SHOULD INCLUDE:**

- a) Background and need for the project (site description and project description)
- b) Baseline information
- c) Details of the mitigative measures
- d) An Environmental Management Plan (EMP)
- e) Monitoring Plan and Reporting Requirements

##### **RESPONSIBILITY**

The EIA report should be signed and dated by the developer. The signatory will assume full responsibility for the contents of the EIA report and implementation of recommendations if approved.

The EIA must be prepared by an accredited consultant (who has the specific area of expertise in relation to the proposed development and has a valid registration certificate issued by the Department of Environment) at the proponent's cost as required under section 28 of the Environment Management Act.

An EIA report that is not submitted within 12 months of the TOR being approved will be invalid and a new application for EIA processing of the proposal will need to be made, unless the proponent has obtained a written extension of time from the processing authority.

#### **1.0 EXECUTIVE SUMMARY**

The EIA report must provide a concise summary of the EIA findings, potential impacts and recommendations.

#### **2.0 INTRODUCTION**

- State the objectives of the proposed development activity
- Outline the timetable for the development
- Provide background information on a list of all consents required or consents sought
- Identification of people/parties consulted in the preparation of the EIA
- Tabulation of personnel involved in the preparation of the EIA, their expertise and their roles
- Tabulate the location of requirements of the TOR in the EIA report

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DEPARTMENT OF ENVIRONMENT

**TERMS OF REFERENCE FOR THE PROPOSED NEW MEDICAL INCINERATOR IN NABORO**

**3.0 PROJECT DESCRIPTION**

The Consultant must describe the proposed new development activity to be undertaken for the proposed construction and operation of the new incinerator. It should specifically include:

- Key components of the development through the use of text, figures and designs;
- Provide details on the incinerator plant design, specifications, operating procedures and other details;
- Provide a site layout plan for the incinerator facility for the proposed sites (site I and site D);
- Land use description (existing scheme plan, area proposed to be utilized, zoning, legal land description and land tenure;
- Land modification and construction activities;
- Details of fuel requirement for incineration;
- Details of air emissions and control technologies;
- Details on residue/ash generation and management;
- Details on source of water and power for the facility;
- Details of the existing access road(s)/walkways to the propose sites (site I and site D);
- Description of the labor and staffing to be utilized during construction and operation phases. Details of the proposed overall safety and health protection measures;
- Method of sewerage treatment, waste disposal and water supply for the site; and
- Infrastructure and utilities to be applied onsite.

**4.0 DESCRIPTION OF EXISTING ENVIRONMENT**

This section of the EIA report is to provide a thorough account of the physical and biological characteristics of the development site, and document its social environment. It must specifically include:

**4.1 Physical Environment**

- A description of the geology, soils, meteorology and topography in relation to the different aspects of the development.
- An assessment of surface water quality of nearby water bodies.
- Baseline noise assessment.
- An assessment of the ambient air quality standards of the project area. The following parameters must be tested: carbon monoxide, nitrogen dioxide, carbon dioxide, sulfur dioxide, dioxins, furans and PM<sub>2.5</sub>.

**4.2 Socio-cultural Environment**

- Description of sensitive receptors within 500 meters of the proposed incinerator site(s).
- A description of site uses that the project area has (if any) for local communities.
- Description of archaeological, cultural or historical sites recorded within project area (if any).
- Human Health Risk Assessment of the proposed medical incinerator.

**5.0 POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS**

The EIA report must assess all the environment impacts which are likely to be significant. The impacts are to be assessed as follows:

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**TERMS OF REFERENCE FOR THE PROPOSED NEW MEDICAL INCINERATOR IN NABORO**

**5.1 Design and engineering**

- Compatibility of the scheme plan, concept design and engineering plans with existing site conditions.
- Proposed access route and land location for the project site.
- Compatibility of proposed excavation, filling and construction methodologies.
- Installation of infrastructure inclusive of electricity, telecommunication, access, drainage, water and sewerage.
- Confirmation of suitability of fill for foundation for construction purposes.
- Engineering plan must outline how the design of the proposed development will address natural hazards such as flooding and cyclones.

**5.2 Construction**

- Proposed clearing and site preparation works.
- Filling and disposal of surplus materials.
- Waste Management (solid, liquid including waste water, fuel and oil).
- Proposed storm water drainage plan for construction phase.
- Proposed buffer between the project site and neighboring properties/infrastructures.

**5.3 Operation**

- Medical waste collection, management and disposal of the incinerator residuals.
- Anticipated solid, liquid, biological and hazardous waste (as relevant).
- Wastewater treatment and disposal.
- Visual and aesthetic impacts.
- Effects of the project on ambient noise levels.
- Storm water drainage and discharge plan for operation of new incinerator.

**5.4 Vulnerability of the project to natural disasters**

Description of the vulnerability of the project to natural disasters and details of the emergency preparedness plan and onsite & off site disaster management plan.

**6.0 SOCIAL IMPACT ASSESSMENT**

The EIA report must encompass an area of 1km around the border of the proposed development site. The impact of the proposed incinerator on nearby residents, properties and businesses should be considered and assessed. Consultations also need to take place with communities nearby and must adequately address gender risks and impacts.

Central to the purpose of the social study is to identify issues or problems that the nearby communities in or around the study area may have concerning the proposal. The proponent must hold public consultations at times and locations convenient to those who might want to participate. Notice of the public meeting must be given by the proponent at least 7 days before the meeting on English, iTaukei and Hindustani radio stations that broadcast in the project area and in newspapers that circulate in the area of the site.

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DEPARTMENT OF ENVIRONMENT

**TERMS OF REFERENCE FOR THE PROPOSED NEW MEDICAL INCINERATOR IN NABORO**

**7.0 COST BENEFIT ANALYSIS**

The Consultant must include a cost benefit analysis of the proposed development to weigh the pros and cons in order to determine its feasibility.

**8.0 MITIGATION AND ABATEMENT MEASURES**

The EIA report must examine and recommend suitable mitigating and abatement measures for the adverse impacts identified. The effectiveness of the measures proposed should be stated and significant impacts clearly identified. Measures recommended should be practical to the local conditions and readily implemented. This should include a description of the measures envisaged to prevent, minimize and where possible offset any significant adverse effects on the environment of the project. The major issues and/or concerns raised should be addressed well in the mitigation measures.

**9.0 CONTINGENCY**

The EIA report must provide procedures for emergency situations (if elsewhere cross reference). These can be a series of steps (including preparation) and should address the following situations:

- Cyclone
- Fire
- Flooding
- Incinerator malfunction

**10.0 ENVIRONMENT MANAGEMENT/MONITORING PLAN (EMMP)**

The EIA Report must include an environmental management plan. It must -

- (a) describe in respect of the proposal the environmental protection measures that will be put in place by the proponent if approval is given for the proposal;
- (b) include an environmental monitoring and surveillance program of action;
- (c) details on pollution control technologies and monitoring of incineration facility;
- (d) details on monitoring of pollutants at source – performance of the incinerator;
- (e) details of monitoring stack and fugitive emissions (if any);
- (f) provide for an environmental monitoring committee to be appointed by the proponent to verify that the environmental protection plan is being fulfilled and adverse impacts of the proposal documented.

**11.0 ENVIRONMENTAL BOND**

The Consultant must determine the amount of Environmental bond as per regulations 32 of the Environment Management (EIA Process) Regulations 2007. The EIA Report must include the bond calculation formula and the bond must be based on the worst-case scenario.

**12.0 SUMMARY & CONCLUSION**

Appropriate conclusions should be drawn. It is useful to summarize the environmental impacts of the proposal and the steps that will be taken to mitigate adverse impacts.

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## Appendix 2: Air Quality Baseline

An air quality assessment was carried out at the site using an aeroqual series 500 air quality device to gauge and ascertain air quality levels within the project site. Tests were carried out between 9am – 5pm during normal working hours. The table below shows what perimeters were tested and their levels around the project site. Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ).

### Results

Perimeter	Description	Site Reading	EPA Standards <sup>17</sup>	Fijian National Air Quality Standards (Part A – Ambient Air Quality Standards)
PM <sub>2.5</sub> ( $\text{mg}/\text{m}^3$ )	Fine Particulate Matter  Are inhalable pollutant particles with a diameter less than 2.5 micrometers that can enter the lungs and bloodstream, resulting in serious health issues. The most severe impacts are on the lungs and heart. Exposure can result in coughing or difficulty breathing, aggravated asthma, and the development of chronic respiratory disease	0.003	35 $\mu\text{g}/\text{m}^3$  (or 0.035 $\text{mg}/\text{m}^3$ )  Primary & Secondary standards	No value provided
PM <sub>10</sub> ( $\text{mg}/\text{m}^3$ )	Particulate Matter  Are inhalable pollutant particles with a diameter less than 10 micrometers. Particles that are larger than 2.5 micrometers can be deposited in airways, resulting in health issues. Exposure can result in eye and throat irritation, coughing or difficulty breathing, and aggravated asthma. More frequent and excessive exposure can result in more serious health effects	0.005	150 $\mu\text{g}/\text{m}^3$  (or 0.15 $\text{mg}/\text{m}^3$ )  Primary & Secondary standards	50 $\mu\text{g}/\text{m}^3$  (or 0.05 $\text{mg}/\text{m}^3$ )
CO	Carbon Monoxide  Is a colorless, highly poisonous, odorless, tasteless, flammable gas that is slightly less dense than air. Carbon monoxide consists of one carbon atom and one oxygen atom connected by a triple bond.	0 $\text{mg}$	9.0ppm (8hrs) 35.0ppm (1hr)  Primary standards	10 $\text{mg}/\text{m}^3$
CO <sub>2</sub>	Carbon Dioxide	1761 $\text{mg}/\text{m}^3$	300-400 ppm.	No value provided

<sup>17</sup> USA Environmental Protection Agency

# Naboro Incinerator ESIA

	<b>Carbon dioxide</b> is a gas consisting of one-part carbon and two parts oxygen.		(= 539.99 - 719.99 mg/m <sup>3</sup> )	
NO <sub>2</sub>	Breathing in high levels of <b>Nitrogen Dioxide</b> increases the risk of respiratory problems. Coughing and difficulty breathing are common and more serious health issues such as respiratory infections can occur with longer exposure.	0.088mg/m <sup>3</sup> or (0.04677ppm)  Note:1ppb=1mg/m <sup>3</sup>	100.0ppb  (1hr daily maximum concentrations averaged over 3yrs)  Primary standards	No value provided
			53ppb  (Annual Mean)  Primary & Secondary standards	No value provided
			No value provided	10 mg/m <sup>3</sup>  (9 hours in a 12-month period expressed as a 1-hour mean)
SO <sub>2</sub>	<b>Sulfur Dioxide</b> - At room temperature, sulfur dioxide is a nonflammable, colorless gas with a very strong, pungent odor. Most people can smell sulfur dioxide at levels of 0.3 to 1 ppm. Sulfur dioxide is a severe skin irritant causing stinging pain, redness, and blisters, especially on mucous membranes	0.0mg/m <sup>3</sup> or (0ppm)	0.5ppm  (3hrs-Not to be exceeded more than once per a year)  Secondary standards	No value provided
			75.0ppb  (1hr daily maximum concentration average over 3yrs)  Primary standards	No value provided
			No value provided	350 mg/m <sup>3</sup>  (9 hours in a 12-month period expressed as a 1-hour mean)
			No value provided	570 mg/m <sup>3</sup>  (Not to be exceeded at any time)

Dioxins (PCDDs)  Furans (PCDFs)	Most <b>dioxins</b> and <b>furans</b> a toxic chemical compound capable of causing cancer. Dioxins compound can be highly poisonous even in small doses	The team could not provide the readings on the concentration(s) of Dioxins and Furans at the site due to the absence of the reading equipment to assess this chemical compound.	TOTAL DAILY INTAKE (TDI) of <b>1-4 picograms</b> per kilogram of body weight per day <sup>18</sup> .	No value provided
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The study has adopted regulations and guidelines that are stipulated by Environmental Protection Agency-United States on OHS and Health Administrations given below:

PM2.5: Particulate matter is one of the most dangerous forms of pollution as the size of the particles is so small that they can get into the lungs causing numerous adverse effects. PM2.5, in particular, are particles which are 2.5 µm or less in diameter. Their threshold limit value is 25 µg/m<sup>3</sup>, based on 24-hour data.

CO: Being an odorless and colorless lethal gas, carbon monoxide (CO) is one of the most dangerous compounds in indoor environments. The American Conference of Governmental Industrial Hygienists (ACGIH) has given a threshold limit value of 25 ppm for an 8-hour workday, while the National Institute for Occupational Safety and Health (NIOSH) has estimated a recommended exposure limit of 35 ppm

CO<sub>2</sub>: CO<sub>2</sub> is a natural compound in the air, with an average outdoor concentration of 300-400 ppm. Note that indoor levels are higher due to the confinement of indoor spaces. Human health effects can be observed at levels over 7,000 ppm

NO<sub>2</sub>: Due to the adverse effects associated with nitrogen dioxide (NO<sub>2</sub>), the EPA strengthened its health guidelines and set a 1-hour standard at the level of 100 ppb

For Dioxin and Furan: more than 95% emissions derive from combustion processes. Waste disposal activities record the largest release of dioxin and furan. Inhalation of high levels of dioxin not only chokes the lungs but also enter into the blood stream.

WHO has specified a standard for TOTAL DAILY INTAKE (TDI) of **1-4 picograms** per kilogram of body weight per day. Considering average body weight of 60kg and air intake of 20m<sup>3</sup>/day (With 5% inhalation contribution). The allowable concentration levels were calculated to be 0.15-0.60pg TEQ/m<sup>3</sup> in ambient air.

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<sup>18</sup> WHO standards, the current readings were not available due to the absence of monitoring equipment in Fiji.



\*\*Total Dioxin Toxic Equivalent (TEQ) US Environmental Protection Agency (EPA) sets its threshold for safe dioxin exposure at a toxicity equivalence (TEQ) of **0.7pg** per kilogram of body weight per day

### Analysis and Discussion

The air quality tests results showed that baseline air quality at the site is fairly clear and within some of the global recognized standards. However high levels of carbon dioxide have been found at the project site. Carbon Dioxide can be traced to the nearby landfill waste dumpsite because it is one of the dominant gases that are emitted in large landfill site such as Naboro.

In general, "Landfill gas is composed of a mixture of hundreds of different gases. By volume, landfill gas typically contains 45% to 60% methane and 40% to 60% carbon dioxide. Landfill gas also includes small amounts of nitrogen, oxygen, ammonia, sulfides, hydrogen, carbon monoxide, and nonmethane organic compounds (NMOCs) such as trichloroethylene, benzene, and vinyl chloride"<sup>19</sup>

### Recommendations

During constructions there will be an increase in traffic especially with delivery trucks and the proponent needs to take appropriate measures to ensure that dust pollution does not become a threat especially with the surrounding communities. It is also recommended that planned trips are organized within the normal working hours and is not carried out into the night.

Pictures below taken during the air quality assessment




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12 <https://www.atsdr.cdc.gov/HAC/landfill/html/ch2.html>





## Appendix 3: Household survey template



**NABORO INCINERATOR-EIA [MIN OF HEALTH & MEDICAL SERVICES-MOHMS]**  
**QUESTIONNAIRE FOR STAKEHOLDERS WITHIN THE 1KM BOUNDARIES**

**MOHMD (Proponent)** is to construct an incineration plant at Naboro (see plate 1 below)

**Plate 1: Naboro Landfill Incinerator Plant-Naboro.**

Envi-Green Pacific Consultancy Ltd (GREENPAC) is carrying out the Environment Impact Assessment (EIA) to draw up guidelines for the developers as stipulated in the Environment Management Act (2005) to ensure minimal impacts are felt on the existing environments. Please kindly answer the following questions concerning the proposal for your response will be included as mitigation measures in the EIA report.

1. What is your land use near the proposed development?  
☐ Farming    ☐ School    ☐ Nearby resident    ☐ Squatter    ☐ Other
2. What is your main source of livelihood? \_\_\_\_\_
3. How long have you lived in the area? \_\_\_\_\_
4. How far do you live from the proposed site? \_\_\_\_\_
5. What is your method of solid waste disposal? \_\_\_\_\_  
☐ Bury    ☐ Burning    ☐ River    ☐ Others
6. What system of wastewater treatment does your residence/industry currently use?  
☐ Septic Tank    ☐ Sewer line    ☐ Pit Toilet
7. What is your main source of water to your residence/place?  
☐ Pipe (WAF)    ☐ Water tank    ☐ Rain Water    ☐ Creek/River
8. Have experience any shortage of water during your stay in the area?  
☐ Yes    ☐ No    ☐ Sometime
9. What is your main source of power in your residence?  
☐ FEA    ☐ Solar    ☐ Kerosene
10. Do you have access to telecommunications?  
☐ Yes    ☐ No  
 Specify? \_\_\_\_\_
11. What activities are you involved with on the mentioned land for development?  
 \_\_\_\_\_
12. What type of activities do you depend/carry out in existing waterways (river and creeks)?  
 \_\_\_\_\_
13. The proposed area for the project is previously used/known for (Please tick where appropriate)  
 \_\_\_\_\_



**NABORO INCINERATOR-EIA [MIN OF HEALTH & MEDICAL SERVICES-MOHMS]  
QUESTIONNAIRE FOR STAKEHOLDERS WITHIN THE 1KM BOUNDARIES**

- ☐ Fishing (Creek)  
☐ Collecting firewood  
☐ Collecting herbal medicine  
☐ Archeological significance

Others: \_\_\_\_\_

**14.** What type of disease is prevalent in your area of stay?  
\_\_\_\_\_

**15.** Do you think you will benefit from the intended proposed project?

- ☐ Yes      ☐ No      ☐ Not sure

**16.** Do you think Navua and Lami Town Council will benefit from the proposed development?

- ☐ Yes      ☐ No      ☐ Not sure

If Yes, how? \_\_\_\_\_

**17.** List some benefits of having a new development near to your area/place of business?

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**18.** List some important issues that will arise if the proposed project is approved.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**19.** What ways do you think the developers must ensure during operational phase of the project that minimal impact is felt by nearby residences, settlements and/or villages?  
\_\_\_\_\_  
\_\_\_\_\_

**20.** Do you think there will be any impact on the ecosystem? Any loss?  
\_\_\_\_\_  
\_\_\_\_\_

END

FULL NAME \_\_\_\_\_ AGE \_\_\_\_\_

Signature \_\_\_\_\_ (Optional)

Name of Place \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Contact: Email and Telephone number and/or mobile \_\_\_\_\_

## Appendix 4: Minutes of the Public Awareness

**Date:** 08 September 2022

**Time:** 2.30-4pm

**Venue:** Navakacoko Settlement-Hall, Naboro.

**In Attendance:** 15 Participants (See attached list)

**EIA Consultant:** Dr. Paulo Vanualailai

**Note Taker:** Alice Vanualailai

**Apologies:** Alivereti Tawakedrau, Epeli Nasome & Ilaitia Finau

### *1. Opening*

- Dr. Paulo opens meeting, welcomes all participants and asked the community headman to open the meeting with a prayer

### *2. Opening Remarks from World Bank*

Mr. Toutou:

- Introduced himself and world bank involvement in the proposed project
- Mentioned the area has been earmarked for the development of the incinerator
- Explained the purpose of the meeting: Look at possible impacts of the proposed project, as there will be potential impacts and encourage the community to feel free to ask questions should they require clarifications

### *3. Dr. Paulo Vanualailai introduced the proposal:*

- Project location and area space: close to the Naboro landfill and therefore the most impacted will be the Navakacoko settlement
- There were 3 locations initially proposed but the proposed site was recommended because of the easterly wind direction and also the buffer of the Naboro hills to the proposed site which will act as a wind blocker.
- The proposed incinerator model and specifications. Discussed the primary and secondary chamber, its burning rate and capacity. Ash from burning will be disposed at the landfill
- LPG Gas as fuel to operator the incinerator with a bunded fuel depot placed outside the facility
- A chimney stack of 3mm height will be fitted but recommended to increase 4m-6m
- The proposed incinerator has emission control technologies
- Discussed the type of medical waste that will be burned
- Raising awareness of possible impacts to the community
- Also briefly discussed results of the social survey and concerns that were raised during this.

*4. The floor was open to Comments(C) Questions(Q) and Answers (A)*

*(Community member) C:*

- Understands it's a Government Project and there is a need for this set up however hope proper mitigation measures to alleviate impacts on the community

*(World Bank) C:*

- The site formerly used an area for planting for the Naboro prisoners (rehabilitation program)
- He explained that the proposed incinerator model is new and intended to reduce impacts from operation
- One of the world bank prerequisites as funders of the project required no smoke emissions
- The new model is different from the old model as it is specifically designed to be environmentally friendly
- He mentioned Government has earmarked the area for this development however project commencement is subjected to the ESIA report

*(Community member) C:*

- Made reference to the landfill project and shared that during their Public awareness informed the community of things that they will do but this did not eventuate. He mentioned that the water they used to use is now polluted due to the rubbish from the dump site.

*(Community member) C:*

- Asked in efforts to mitigate will there be an alarm for instance to indicate high emissions before it spreads to the community

*(Consultant)A:*

- The incinerator primary chamber is designed for maximum air flow and circulation which improves efficiency and burn time.
- The new incinerator has emission reduction technology in the secondary chamber diagram presented in the power point presentation.

*(Community member) Q:*

- Asked If in the case the developer does not keep to their promises and spoken words who can they contact

*(Consultant)A:*

- Can always contact DOE to raise your concerns. Encourage the community to raise their concerns when activities affect them and mentioned that they have every right to. When authorities are aware of this, they can issue a stop work notice.

*(World Bank) C:*

- Mentioned that the incinerator will be in full operation once construction phase is completed

*(Consultant)C:*

- Mentioned that because Naboro will be fully functional and will accommodate CWM hospital needs when it arises. For example, during Covid19 where the hospital waste was

high the need to burn and get rid of waste is a priority. With an alternative incinerator CWM can better manage their waste.

(Community member) C:

- Mentioned when we make contact with DOE, they will ignore us

(Consultant)C:

- Stressed the importance of writing a formal letter to express your grievances

(World Bank) C:

- Explained some of the standard operating procedures and mitigation options:
  1. There will be a enclose rubbish bin at the incinerator facility to safeguard rubbishes being dragged by stray dogs
  2. A fence will also be placed around the site to prevent animals from entering. Fencing will be set up prior to operations
  3. If there is a spillage: a quick response to clean up spillage. Also ensure proper handling to prevent spillage.

(Community member) C:

- Understand the project need as it will cater for the people. The hospital looks after the general public and therefore there is a need to look after clinic waste. Happy to support the project as it will alleviate medical waste as we all use medical centers.

Vote of Thanks by Dr. Paulo (GREENPAC)

Official Close of Meeting with a prayer (Community leader)