



MINISTRY OF HEALTH

GUYANA COVID-19 EMERGENCY RESPONSE PROJECT

DRAFT

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR
SOLID/HAZARDOUS WASTE INCINERATORS

JULY 2023

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LIST OF ACRONYMS

AF – Additional Financing
AoI – Area of Influence
EA – Environmental Assessment
EHD – Environmental Health Department
EHO – Environmental Health Officer
EHS – Environmental, Health and Safety
EPA – Environmental Protection Agency
ES – Environmental and Social
ESIA – Environmental and Social Impact Assessment
ESMF – Environmental and Social Management Framework
ESMP – Environmental and Social Management Plan
ESS – Environmental and Social Safeguards
GOG – Government of Guyana
GC-ERP – Guyana Covid-19 Emergency Response Project
GBV/SHEA – Gender Based Violence / Sexual Harassment, Exploitation and Abuse
GECOM – Guyana Elections Commission
GFS – Guyana Fire Service
GNBS – Guyana National Bureau of Standards
GPHC – Georgetown Public Hospital Corporation
GRM – Grievance Redress Mechanism
GWI – Guyana Water Incorporated
HSDU – Health Sector Development Unit
ICWMP – Infection Control and Waste Management Plan
IPP – Indigenous People’s Plan
LMP – Labour Management Procedures
MCH – Maternal and Child Health
MLGRD – Ministry of Local Government and Regional Development
MOH – Ministry of Health
NDC – Neighborhood Democratic Council
OHS – Occupational, Health and Safety
PPE – Personal Protective Equipment
RDC – Regional Democratic Council
REDD + - Reducing Emissions from Deforestation and Forest Degradation
REHO – Regional Environmental Health Officer
RHA – Regional Health Authority
RHD – Regional Health Department
RHO – Regional Health Officer
SEP – Stakeholder Engagement Plan
SLA – Service Level Agreement
USEPA – United States Environmental Protection Agency
UNCED – United Nations Conference on Environment and Development
WBG – World Bank Group
WHO – World Health Organization

Executive Summary

Introduction

The Government of Guyana (GOG) through the Ministry of Health (MOH) received financing from the World Bank Group (WBG) towards the implementation of the Guyana Covid-19 Emergency Response Project (GC-ERP). GC-ERP is a multi-phased programmatic approach for strategic preparedness and response which aims to prevent, detect, and respond to the threat posed by Covid-19 and strengthen national systems for public health preparedness. The Project was approved in November 2020, in the amount of US\$7.5 million. In December 2020 the Project was signed and declared effective. In June 2021, an Additional Financing (AF) credit of US\$5 million was approved and declared effective in September 2021. The AF included a supplementary grant of US\$1 million from the Health Emergency Preparedness and Response Trust Fund. In total, the Project's overall funds amount to US\$13.5 million.

Project Objective

The objective of this Project is to prepare an Environmental and Social Impact Assessment (ESIA), inclusive of an Environmental and Social Management Plan (ESMP) to identify and mitigate the risks and impacts for the procurement, delivery, installation, and training of personnel for ten (10) medical waste incinerators in ten (10) strategic locations for the efficient management of healthcare waste. The main goal of this sub-project is to enhance healthcare waste management within strategic locations by providing the areas with reliable and sufficient capacity to incinerate healthcare waste. This project is considered a sub-project of the wider GC-ERP.

Proposed Incinerator

The proposed Addfield MP200 incinerator is a highly effective and fuel-efficient machine ideally suited to servicing the needs of a hospital with approximately 10-150 beds. These proposed incinerators to be procured are similar to two currently operating in Mahaica-Berbice (Region 5) on the coastland at the Mahaicony Cottage Hospital and the Fort Wellington District Hospitals. The MOH wishes to standardize this equipment given its sustainability and environmentally friendly safe operations. Machine specifications are outlined in Chapter 1.

The installation of the proposed incinerators will require construction of shelters to house them. The proposed incinerators are capable of destroying seven types of waste, including clinical waste, treated waste, anatomical waste, cytotoxic and cytostatic waste, hygiene waste, medicinal waste and domestic (municipal waste).

This incinerator produces between 70-75 Db of noise, which falls within the daytime national noise regulation for noise emission for residential, commercial and institutional of 75 Db.¹ The incinerator is fixed with dioxin and furans testers, which ensures that the gases that are produced by the incineration process are filtered and scrubbed so that no odor or visible gases are returned to the environment.

¹ Guyana National Bureau of Standards

To proceed with the implementation of this project without causing adverse impacts on the environment and social fabric, the MOH, with guidance from the World Bank (WB), was required to undertake this ESIA to ensure that the implementation of the project is in line with the WB's Environmental and Social Standards (ESS), as well as project specific ESS safeguard instruments, which includes the Environmental and Social Management Framework (ESMF), the Infection Control and Waste Management Plan (IWCMP), the Labour Management Procedures (LMP), and the Stakeholders Engagement Plan (SEP). The MOH appointed the project's Environmental and Social Specialist and the Principal Environmental Health Officer to carry out the ESIA of the proposed project in line with the WB's Environmental and Social Framework (ESF).

Policy, Legal and Institutional Framework

The administrative and legal framework relevant to the proposed project in terms of relevant and applicable policies, including local, regional, national, and international, have been contextualized and presented in this ESIA in Chapter 3.

Project Alternatives

Project alternatives considered in relation to implementation of the proposed project included relocating the proposed project to alternative sites, which was found not to be a viable option because the proposed installation of incinerators is meant to assist in the efficient management of healthcare waste from the operations of hospitals across Guyana. Another alternative considered was the No Project Alternative, meaning that the status quo should be maintained, that is, the continued use of De Montfort incinerators or burn boxes. Even though the current environmental and social set up is not disturbed, this alternative is the least preferred in the long run from public health, socio-economic and environmental perspectives due to the fact that not installing the incinerators will only lead to intensification of the already existing challenges in the treatment and disposal of healthcare waste where hospitals are currently utilizing inefficient waste incinerators, with their atmospheric pollution. Therefore, the best alternative would be to implement the proposed project taking into consideration all the recommended environmental and social mitigation measures.

Stakeholder Consultation

Stakeholder consultations were done throughout the entire ESIA process through various combinations of methods, including telephone conversations and hybrid meetings (in person and online). The consultations involved various departments of the Ministry of Health (MOH), including the Environmental Health Department (EHD), Primary Health Care Services, Maternal and Child Health (MCH) department, and the various Regional Health Departments in the respective regions. The consultations yielded positive feedback from the stakeholders and expressed full support for the proposed incinerator. Stakeholder consultations were also done through the wider CG-ERP. More details of the stakeholder outcomes are captured in Chapter 5.

Findings of the ESIA

The findings of the ESIA indicate that possible environmental and social impacts generated during construction, installation, and operation phases can be addressed effectively by each site's hospital administration through the mitigation measures outlined in Table 14 (ESMP) and the monitoring plan has been suggested in Tables 17 and 18.

The potential positive impacts associated with implementation and operations of the proposed project include employment opportunities, improved healthcare waste management, and capacity building for human resources.

Possible deleterious impacts during the construction phase of the proposed project include soil contamination from improper disposal of general solid wastes and hazardous wastes, and minimal compaction of soil from stockpiles and heavy vehicles, sedimentation of surface water bodies, increased noise and vibration, air/dust emission, possible encounters with physical cultural resources, occupational, health and safety (OHS) risks, which may result from truck movements in and out of the project sites and increased traffic in construction zones to both workers and patrons of the hospitals. There is a possibility of having cases of work and community related grievances.

Potential negative impacts during operation phase include improper healthcare waste management, which can have impacts on the surrounding environment, and OHS risks for healthcare workers due to the improper handling and transporting of waste.

This ESIA report outlines appropriate mitigation measures for the anticipated negative environmental and social impacts such as adhering to each area's waste management plan, restricting traffic movement of heavy-duty vehicles and equipment, keeping material stockpiles to a minimum, where possible, wetting of construction areas as and when necessary to reduce dust, and ensuring all workers are equipped with the necessary Personal and Protective Equipment (PPE). Detailed mitigation measures for all the potential impacts are summarized on Table 16 (ESMP) and the monitoring plan has been outlined in Tables 17 and 18.

Project Implementation and Monitoring Arrangements Key in the Implementation of the ESIA

The primary role of monitoring and supervision of project environmental and social compliance is the responsibility of the Government of Guyana, through the Ministry of Health. Key players in the monitoring of optimal compliance of the project implementation and operation process will include:

- i. Health Sector Development Unit (ES Specialist)
- ii. Environmental Health Department (Principal Environmental Health Officer)
- iii. Hospital Administration at each proposed site

Recommendations

- i. Although the anticipated negative environmental and social impacts of the project's activities are considered moderate, localized and can be easily mitigated, the ESMP needs to be operationalized to ensure sustainable delivery of the project.
- ii. Implementation of the monitoring plans will ensure the provisions in the ESMP are implemented, documented and any challenges resolved before they affect the project performance.
- iii. Continuous capacity building especially on aspects of safety and emergency preparedness.

Conclusion

To conclude the ESIA undertaken:

- i. The proposed project does not pose any serious environmental and social risks, other than those of a moderate scale that accompany similar projects;
- ii. The positive impacts associated with the implementation and operationalization of the proposed project far outweigh the probable negative ones, which will be adequately checked by following the prescribed environmental and social impact management and monitoring plans;
- iii. This project is highly needed to address the current gaps in healthcare waste management across Guyana;
- iv. Based on the above analysis on the aspects of both positive and negative environmental and social impacts of the project development and operations, this ESIA found **no significant negative impacts** that could pose adverse effects to the extent of barring the proposed project from being implemented assuming the project is designed, constructed, monitored, and operated in compliance with all applicable design and ESHS requirements.

Limitations

The following are a few limitations of the ESIA to be considered:

- i. The MOH does not have the capacity to test noise and air qualities in the physical environments of the proposed sites.
- ii. The MOH does not have the capacity to develop aerial views of appropriate scales for the proposed sites.

CHAPTER 1

INTRODUCTION

1.0. Description of Project

The Government of Guyana (GOG) through the Ministry of Health (MOH) received financing from the World Bank Group (WBG) towards the implementation of the Guyana Covid-19 Emergency Response Project (GC-ERP). GC-ERP is a multi-phased programmatic approach for strategic preparedness and response which aims to prevent, detect, and respond to the threat posed by Covid-19 and strengthen national systems for public health preparedness. The Project was approved in November 2020, in the amount of US\$7.5 million. In December 2020 the Project was signed and declared effective. In June 2021, an Additional Financing (AF) credit of US\$5 million was approved and declared effective in September 2021. The AF included a supplementary grant of US\$1 million from the Health Emergency Preparedness and Response Trust Fund. In total, the Project's overall funds amount to US\$13.5 million. The GC-ERP entails three components:

- **Component 1:** Emergency Covid-19 Response
- **Component 2:** Implementation Management and Monitoring and Evaluation
- **Component 3:** Supporting National and Sub-National Prevention and Preparedness, and Health System Resilience

1.1. Project Objective

The objective of this Project is to prepare an Environmental and Social Impact Assessment (ESIA), inclusive of an Environmental and Social Management Plan (ESMP) to identify and mitigate the risks and impacts for the procurement, delivery, installation, and training of personnel for ten (10) medical waste incinerators in ten (10) strategic locations for the efficient management of healthcare waste. The main goal of this sub-project is to enhance healthcare waste management within strategic locations by providing the areas with reliable and sufficient capacity to incinerate healthcare waste. This project is considered a sub-project of the wider GC-ERP.

1.2. Project Justification

Currently, Guyana's main methods of waste disposal are landfilling and burning. Legal dumping of waste is done by sanitary service companies which transport waste by truck to the Haags Bosch Landfill at Eccles, in region 4. The Haags Bosch Landfill is operated by a private contractor but is owned by the GOG.

Guyana has established regulatory mechanisms for guiding and enforcing proper biomedical waste management. There have been strong advances in waste disposal capacity. In general, all healthcare facilities practice waste minimization, segregation, labelling and storage. Biomedical wastes from public and private facilities in the more populated coastal areas are collected by

contracted, approved entities, and transported to the regional autoclaves or hydroclave for treatment and subsequent disposal at the designated sanitary landfill, along with other solid waste. In remote areas, facilities use on-site incinerators and local landfills.

Guyana now has one hydroclave at the Georgetown Public Hospital Corporation (GPHC) that sterilizes, pulverizes and compact waste for disposal. This facility is used for the sterilization and pulverization of sharps and infectious wastes from public and private health care facilities in Region 4 and 3 before final safe disposal in the sanitary landfill. Hazardous waste at all other medical facilities out of Region 4 is packed and sealed in the required containers, and then transported by plane or by boat to Region 4. Some medical facilities currently have on-site De Montfort incinerators with limited capacity for waste treatment. In other instances, medical waste is buried in accordance with safety guidelines. Non-infectious wastes are disposed at landfill sites in respective communities.

The hydroclave at the GPHC is overburdened and the cost of transporting waste from Hinterland regions is very high, leading to infrequent disposal that meet guidelines.

De Montfort incinerators are low cost and simple incinerators, and these are significant improvements over open-air burning. However, these are not considered environmentally friendly and energy efficient. The MOH's policy is to expand the utilization of hydroclave across Guyana but will also strategically locate environmentally friendly incinerators for disposing healthcare waste.

The MOH's intention is to finance procurement of the incinerators through the GC-ERP. This project will not finance any civil works, just strictly procurement of the incinerators. The MOH and the RDCs will finance the cost of construction and the operational costs of the incinerators through their annual budgets.

1.3. Project Activities

The activities undertaken at the planning and design phase of the proposed subproject will be purely preparatory with minimal physical engagement at the project sites. The specific activities during this phase will entail decisions on the size of shelters needed for the incinerators, approvals from the relevant agencies, collaborative engagements with key stakeholders, and undertaking the ESIA. This stage will also involve the procurement process of the incinerators.

Activities applicable during the construction of the shelters and subsequent installation of each incinerator will entail recruitment of contractors for the construction of shelters, transportation of building materials, storage of building materials, civil works, installation of the incinerator. It is approximated that 6 months will be required to construct the shelters, followed by the installation of the incinerators. The purchase of the incinerator comes with an extensive online training program that covers maintenance, handling and operating the machine. This will be utilized to ensure that MOH personnel are well equipped.

Upon commissioning of the incinerators, the MOH will utilize them to ensure proper treatment of healthcare waste generated from the hospital activities. The type of waste recommended to be

treated by the incinerators include clinical waste, treated waste, anatomical waste, cytotoxic and cytostatic waste, offensive/hygiene waste, medicinal waste, and domestic waste. Maintenance activities will include facility cleaning, routine checks for quality assurance and other necessary repairs following Standard Operating Procedures (SOPs). Operators of the incinerators will be trained in the operation and maintenance of the equipment.

1.4. Proposed Incinerator

The proposed incinerator, manufactured by Addfield, is a highly effective and fuel-efficient machine ideally suited to servicing the needs of a hospital with approximately 10-150 beds. These incinerators are two of those currently operating in Mahaica-Berbice (Region 5) on the coastland at the Mahaicony Cottage Hospital and the Fort Wellington District Hospitals. The MOH wishes to standardize this equipment given its sustainability and environmentally friendly safe operations. The proposed incinerators are capable of destroying seven types of waste, including clinical waste, treated waste, anatomical waste, cytotoxic and cytostatic waste, hygiene waste, medicinal waste and domestic (municipal waste).

The incinerator's primary and secondary chamber lining thickness is 180mm rated up to 1,100°C. According to the WHO, only incinerators operating between 850-1100 °C and fitted with special gas-cleaning equipment can comply with the international emission standards for dioxins and furans. Therefore, the incinerator falls well within the WHO compliance regulations. Unique hot hearth technology enables increased efficiency of incineration by providing additional heating below the chamber encouraging 360°C heat distribution. The incinerator contains multi-layered refractory lining using fire bricks and insulation bricks, improving thermal efficiency. Highly efficient in operation, this incinerator requires up to forty percent less fuel to operate due to its advanced construction and insulation, including a triple-layered brick-based refractory made up of a thick insulation board and brick, followed by an alumina infused outer layer of thermal bricks that reflect the heat back into the chamber, whilst maintaining heat throughout the process.

This type of incinerator consists of front-loading, allowing it to safely be reloaded through the incineration process to enable the disposal of higher amounts of clinical waste than a top-loading alternative. Designed to handle a wide variety of waste, it is specifically competent when dealing with category one, for example, general waste, category two, for example, infectious waste, category three, for example, biohazard waste, and category four, for example, cytotoxic or chemical waste less than 3,000K cal.

This incinerator produces around 70-75 Db of noise, which falls within the daytime national noise regulation for noise emission.² The incinerator is fixed with dioxin and furans testers, which ensures that the gases that are produced by the incineration process are filtered and scrubbed so that no odor or visible gases are returned to the environment. As such, the incinerator falls well within the WHO, USEPA and the EPA's ambient air quality and noise regulations. The machine specifications are outlined below in Table 1. See **Figure 1** for drawings of the proposed incinerator.

² Guyana National Bureau of Standards

Table 1: Machine Specification

Incinerator	Specifications
External L x W x H (mm)	2778 x 1150 x 1945/3540
Internal L x W x H (mm)	1200 x 675 x 700
Chamber Volume (m ³)	0.57
Weight (approx. tonnes)	3.7
Max Load Capacity (kg)	200
Nominal Burn Rate (kg/hr)	<50
Power Supply 50/60 hz	220-250v
Thermal Capacity (kW)	390
Door Aperture	675 x 500
Hot Hearth Principle	Double Pass
Fuel Types	Diesel, LPG, N-Gas
Control Panel	AIC or PLC
Insulation Board	25mm Superwool
Insulation Fire Brick	Grade E23
Fire Brick	42.5%

1.5. ESIA Scope

The scope of this sub-project entailed the development of an ESIA from planning, installation, and operation phases. The aim was to identify the potential environmental, social, health and safety impacts associated with the proposed sub-project and recommend appropriate environmental and social mitigation measures for integration in all the mentioned phases of the proposed sub-project.

As per the **Terms of Reference (TOR)** in **Annex 1**, the scope of works includes the following:

- Identify and assess potential positive and negative environmental and social impacts associated with the installation of the incinerators.
- Recommend appropriate environmental, social, health and safety mitigation measures for integration in all phases of the project.
- Review of Legislative and Regulatory literature.
- Undertake project alternative analyses.
- Prepare an ESMP that describes the mitigation measures to be carried out.
- Conduct public consultations.

1.6. Environmental Screening

To meet the requirements of the WB's ESSs, the wider CG-ERP was required to prepare and implement various ESS plans for managing Environmental and Social (E&S) risks and impacts, including the following:

- Environmental and Social Management Framework (ESMF)
- Infection Control and Waste Management Plan (ICWMP)
- Labour Management Procedure (LMP)
- Stakeholder Engagement Plan (SEP)
- Indigenous People's Plan (IPP)
- Grievance Redress Mechanism (GRM)
- Environmental and Social Commitment Plan (ESCP)

The ESCP was prepared to document the commitments that the MOH made in relation to the management of E&S risks and impacts. The GC-ERP's ESCP identified that this subproject would require an ESIA to meet the WB requirements. These documents can be accessed on the Ministry of Health's Website here: <https://www.health.gov.gy/index.php/document-center/world-news-3>

The ESMF was prepared to guide the MOH on the E&S screening processes and subsequent assessment during implementation, including activity-specific documentation, in accordance with the WB ESMF. This subproject was screened for all ten (10) locations using the E&S Processes as outlined in the ESMF. See **Annex 2**. The screening form completed for each location confirmed the need to prepare an ESIA.

1.7. Methodology of the ESIA

This ESIA was undertaken by the MOH, through the Health Sector Development Unit (HSDU) and the Environmental Health Department (EHD). The ESIA was based on site visits, literature review, E&S screening, discussions with the MOH and Hospital Management, including Regional Health Officers (RHOs), and Environmental Health Officers (EHOs).

For the purpose of the assessment and preparation of the ESIA report, the following approaches and methodologies were employed:

- Desktop studies, which involved the review and analysis of literature (project documents, design layout and specifications, legislative framework) for acquisition of secondary data.
- E&S screening was carried out as per the requirement of the wider CG-ERP's ESMF.
- E&S scoping that provided key environmental and social issues to be investigated in relation to the implementation of the proposed project.
- Inspection of sites and surrounding areas.
- Public Consultations as described in the SEP.
- Identification of potential impacts and preparation of an ESMP, and
- Reporting / confirmation and sharing of findings with the MOH.

1.7.1. Impact Assessment

This subproject, according to the WB's classification, is classified as **Moderate**, due to potential moderate, direct, indirect, and cumulative negative environmental and social impacts for activities during preconstruction, construction and operation phases of the project. The project is likely to cause mostly local and short-term negative environmental and associated social impacts for which effective mitigation measures are readily available. To the extent possible, the impact assessment is also informed by the findings from screening, site visits and feedback from stakeholder engagement as discussed in Chapter 5.

The impact assessment was done by identifying and rating potential impacts which could occur as a result of the proposed project activities. The analysis included two aspects. The first was having a clear understanding of the activities of the project and the Area of Influence (AoI) of the project. The primary AoI of the project is defined as the footprint of the hospitals, essentially the boundaries of the facilities, and a fifty (50) meter fringe in all directions around each hospital. The secondary AoI encompasses the area considered as the catchment of each facility, including the wider community around the hospitals and by extension the Administrative Regions within which each hospital is located. The second aspect was to predict potential impacts that might reasonably be expected to occur during the construction and operational phases and their significance. The impact assessment methodology is outlined below.

- **Stage 1: Impact Identification** – to determine the potential impacts associated with project activities. This was achieved through professional judgment, site visits to hospitals, desk-top analysis and review of relevant literature, and consultations with project stakeholders.

- **Stage 2: Impact Assessment** – to identify the importance of issues identified by rating their significance and likelihood to occur.
- **Stage 3: Mitigation and Management** – to recommend appropriate mitigation measures and management or monitoring controls to address potential significant negative impacts.

1.7.2. Stage 1 – Impact Identification

The potential impacts of the project are those that can change the existing environmental and social conditions within the AoI in a negative or positive way. Identifying potential impacts attributable to the project requires an understanding of the baseline environmental, social and safety conditions in which the targeted hospitals are located. This understanding was achieved by visiting hospitals, engagements with key personnel, and from the gathering and analyzing information on baseline conditions as described in Chapter 2. Further, an understanding of the project related activities was required, as is outlined in Chapter 1. Potential impacts are considered as positive, negative, direct, or indirect, short-term, or long-term, localized or local, regional and cumulative. Table 8 provides definitions for each type of impact considered.

Table 2: Definitions of Types of Impacts

Impact Type	Definition
Positive	An impact that results in a positive effect on the receiving environment or resource from activities performed at or by the project.
Negative	An impact that results in a negative effect on the receiving environment or resource from activities performed at or by the project.
Direct	An impact created as a direct result of project.
Indirect	An impact which may be caused by the project but will occur in the future or outside the project’s AoI.
Short-term	An impact or activity that is expected to dissipate shortly after the cause ceases.
Long-term	An impact or activity that is expected to continue for a significant time after the cause ceases.
Cumulative	The total impact to a particular resource is anticipated to occur as a result of a combination of effects produced together with neighboring projects.
Localized	Impact which is limited to the project’s AoI.
Local	Impact which extends outside the project’s immediate AoI but is contained within the general vicinity of the project.
Regional	Impact which has extended beyond the vicinity of the project’s AoI.

1.7.3. Stage 2 – Impact Assessment

The approach to assessing impacts can be either qualitative or quantitative, depending on available information and historical site-specific information. Both are important in normal impact analysis. However, considering that the project is not complex, and will involve mainly procurement and minimal construction activities, the impact assessment adopted more of a qualitative approach.

The importance of an impact has been assessed by combining two impact elements:

- The **significance** of the impact on the resources should the impact occur, and
- The **likelihood** of that impact occurring.

In determining **the significance level**, consideration was given to the types of impacts from each project activity relative to the exiting baseline environmental and social conditions. This is described in Table 9 below.

Table 3: Impact Significance Level Descriptors

Significance Level to Potentially Impacted Environmental or Social Resources				
Negligible	Minor	Moderate	Major	Extreme
Minimal impact in a localized are of little or no consequence.	Low impact in a localized or regional area with a functional recovery within one year.	Medium impact in a localized or regional area with a functional recovery of 1 to 5 years.	High impact in a localized or regional area with a functional recovery within 5 to 10 years.	Very high impact in a broad regional area or area of national significance with functional recovery in greater than 10 years, if at all.

In determining the **likelihood levels**, consideration was given to the probability of an identified environmental or social resource to be impacted by the project. The anticipated likelihood of occurrence of an impact was identified to range from **Rare** to **Certain** (Table 10).

Table 4: Impact Livelihood Levels

Likelihood of Impact to Environmental or Social Resources				
Rare	Unlikely	Likely	Almost Certain	Certain
Highly unlikely to occur but theoretically possible.	May occur within the life of the project or activity.	Likely to occur more than once of the project or activity.	Very likely to occur during the life of the project or activity.	Expected to occur as a result of the project or activity.

Utilizing the outcomes of both the impact significance ranking and the identified likelihood of impact, the effect of each impact casing action on the receiving environment is evaluated. The risk level (or importance) is assessed by combining the significance column and the probability row in the following Risk Assessment Matrix (Table 5).

Table 5: Risk Assessment Matrix

		Significance				
		Negligible	Minor	Moderate	Major	Extreme
Likelihood	Rare	Low	Low	Low	Medium	Medium
	Unlikely	Low	Low	Medium	Medium	High
	Likely	Low	Medium	Medium	High	High
	Almost Certain	Low	Medium	High	High	Critical
	Certain	Low	Medium	High	Critical	Critical

Note: Where the significance of an impact is indicated to be positive, the importance will also be positive.

CHAPTER 2

DESCRIPTION OF ENVIRONMENT

2.0. Project Environment

The hospitals selected to benefit from the project interventions are located across five (5) out of ten (10) Administrative Regions in Guyana. These include ten (10) incinerators for the Hinterland Regions 1, 7, 8 and 9, and the Coastland, in Region 2. Table 6 below shows the project sites by Region and classification. The incinerators are to be placed within the existing hospitals identified below.

Table 6: Proposed Sites for Incinerators

No.	Health Facility	Location	Classification
1.	Kumaka District Hospital	Region 1: Barima Waini	Hinterland
2.	Port Kaituma District Hospital		Hinterland
3.	Mabaruma Regional Hospital		Hinterland
4.	Suddie Public Hospital	Region 2: Pomeroun Supenaam	Coastal
5.	Kamarang District Hospital	Region 7: Cyuni-Mazaruni	Hinterland
6.	Madhia District Hospital	Region 8: Potaro Siparuni	Hinterland
7.	Kato Cottage Hospital		Hinterland
8.	Lethem Regional Hospital	Region 9: Upper Takutu-Upper Essequibo	Hinterland
9.	Aishalton District Hospital		Hinterland
10.	Annai Cottage Hospital		Hinterland

This chapter presents a description of the environment within which each of the hospitals are located, the physical, biological and socioeconomic environment of each site, and the current waste management situation at each site.

2.1. Kumaka District Hospital

The Kumaka District Hospital is located within the community of Kumaka in the village of Santa Rosa within the Moruca Sub-district. Moruca is one of three sub-regions in the North-West of Barima Waini. Moruca is made up of eleven (11) communities, namely Santa Rosa, Assakata, Kwebanna, Warapoka, Chinese Landing, Waramuri, Santa Cruz, Kabucalli, Manawarin, Haimarakabra, and Kariako.

Moruca can be accessed by boat from Charity in Region 2 to Santa Rosa in Region 1, taking approximately 1.5 to 2 hours long. Alternatively, it can be accessed by a 1-hour flight from Ogle Airport in Georgetown, Region 4 to the Bemichi Airstrip in Moruca. However, these flights are only by charter.

The Moruca sub-region is administered by a Village Council, which is headed by a Toshao, with the assistance of the Deputy Regional Executive Officer. The satellite communities are managed by Councilors.

The Santa Rosa village is considered the largest Indigenous Village in Guyana and is home to many other groups after its establishment. Historically, Santa Rosa is a Lokono settlement.³ Region 1 has a significant indigenous population which comprises of 65% of the Region's population, amounting to 27,643 people.⁴

The main employment for villagers is mining, which is conducted outside of the village, followed by subsistence farming and fishing. Persons are also employed in the public sector as nurses, teachers, and other public service positions. The village is also home to several small businesses such as grocery stores, dry goods stores, market vendors, and transportation services.

Kumaka is the main port into Santa Rosa and sees a lot of exports and imports conducted right at the waterfront. Facilities such as schools, the Kumaka Hospital, supermarkets, and regional and administrative offices are located in Kumaka.

The Moruca Power Company supplies electricity for 16-hours each day to Santa Rosa and the remaining 8 hours are substituted by generators or solar power. Water is supplied daily by Guyana Water Incorporation (GWI) but is not treated prior to distribution. The other communities rely on the rivers and creeks for bathing, washing, cooking, and drinking. Currently, GWI is installing wells and a water treatment facility, which will see an increase in water distribution to the other communities.

The residents in the Moruca sub-district currently utilize a dump site for disposal of garbage. Currently, there is a designated site to be developed as a landfill that is currently undergoing the approval process. Burning and burying methods are also used to manage and dispose of waste.

Guyana is a country that is considered endowed with relatively rich biodiversity and endemism. However, within the Kumaka District Hospital compound, there is limited biodiversity due to human interactions and development activities over the last few decades. The site where the hospital is located, and adjacent areas are mostly cleared of vegetation. In the areas surrounding the hospital, most vegetation was cleared to facilitate development to include housing and road networks. There are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.

³ One of the Nine Amerindian Groups residing in Guyana

⁴ Bureau of Statistics – Population Composition, 2016

Kumaka District Hospital is located 200 meters off the main access road, which is moderately trafficked and is surrounded by residents with the closet home approximately 100 meters nearby. The hospital sits within one main compound consisting of two entrances, one main vehicular entrance and one small entrance. The compound is perched on a hill and is not at risk of flooding.

The hospital currently has a non-functional incinerator. Medical waste such as sharps, body parts, and placenta are transported to the Amerindian Hostel for incineration using the incinerator that is located there. Expired pharmaceuticals are also transported to the hostel for incineration after clearance from the Food and Drug Administration. Liquid medical waste such as blood and other fluids are disposed of by a sluice sink, with bleach added to the drainage system as a method of decontaminating the body fluids before they enter the main drainage system. For sewage waste, each building has an individual septic tank that is connected to soak ways. Domestic liquid waste from the kitchen and bathrooms are disposed of via soak ways. Domestic solid waste generated by the hospital is usually burnt and buried in a pit located at the back of the hospital within the compound.



Figure 2: Existing Non-functional Incinerator at Kumaka District Hospital



Figure 3: Existing Burn Pit at Kumaka District Hospital

2.2. Port Kaituma District Hospital

The Port Kaituma District Hospital is located in the Oronoque Community in the Matarkai Sub-district of Region 1. The hospital is in proximity to the population and is along the main access way to Matthew's Ridge. Port Kaituma serves as the gateway to the nearby jungle where the now predominant industry of small-scale mining takes place. The main commercial area is located approximately 900 meters from the Hospital, at the waterfront, which is the main port for access to Port Kaituma. The waterfront comprises of businesses, including supermarkets, pharmacies, snackettes, and barbershops.

The Port Kaituma District Hospital provides services for a total population of 6,941 persons⁵ throughout the Matarkai sub-district, and serves fourteen villages, including Five Star, Eyelash, Tassawini, Big Creek, Falls Top, 3 Miles, 2 Miles, 1 Mile, Oronoque, Citrus A Grove, Central Port Kaituma, Canal Bank and Sebai.

This hospital is perched on a hill and is not at risk of flooding, although external drainage may result in minor floodings surrounding the compound. The hospital is along the main access road which is moderately trafficked. However, this road runs along the eastern border of the compound and the main entrance to the hospital is at the northern border. Entering or leaving the hospital is unaffected.

The hospital's main source of power is supplied by the national grid which caters for 23 hours per day. The other hour is supplied 375kVa standby generator that powers the entire compound. Blackouts, although very rare, are rectified by the standby generator.

⁵ Regional Health Department 1 – Guyana

Water supply is provided by the community wells. In addition, rainwater is harvested and stored into two reservoirs in the compound. Water from the GWI well is pumped daily.

Waste is segregated into infectious and non-infectious. Non-infectious waste disposed of in a pit at the local dumpsite. All infectious waste is separated and then properly disposed of using color coding techniques. This waste is then transported to Mabaruma for disposal through the incinerator since the hospital does not have one. Body parts are buried at the local cemetery in designated areas selected by the Environmental Health Officer (EHO). Expired pharmaceuticals are also transported to Mabaruma for disposal after clearance from the Food and Drug Department.

Wastewater is drained into a soak away for absorption, while sewage is disposed of into septic tanks within the compound.

There are no known sites of cultural or historic importance identified within the hospital compound. Additionally, there are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.



Figure 4: Existing Non-Functional Incinerator at Port Kaituma District Hospital

2.3. Mabaruma Regional Hospital

The Mabaruma Regional Hospital is located in the regional capital of Region 1, Mabaruma. It is located close to the Aruka River on a narrow plateau above the surrounding rainforest at an elevation of 13 meters. The Mabaruma sub-district includes six (6) communities including Barabina, Hosororo, Wauna, Kumaka, White Water and Kamwatta.

Mabaruma is home to many Indigenous peoples including Arawaks, Caribs and Waraos. Economic activities in Mabaruma include logging, farming, and fishing.

The Mabaruma Regional Hospital is situated in the heart of the North-West District along the Philibert Pierre Avenue within the Mabaruma Compound. The hospital is situated ten minutes from the Broomes airstrip and ten minutes from the Kumaka Market Centre wharf and main market areas. The hospital sits in front of the Mabaruma Police Station, the Regional Democratic Council (RDC) compound, Lands and Surveys and the Guyana Elections Commission (GECOM).

The Mabaruma sub-region is administered by a Village Council, which is headed by a Toshao, with the assistance of the Deputy Regional Executive Officer. The satellite communities are managed by Councilors.

The hospital receives electricity from the Mabaruma Power and Light Company and is supported by solar backups and PV systems. The hospital also has a generator with an automatic turnover switch.

The Mabaruma hospital is supplied with water by the GWI three days a week for two hours. The hospital relies on its reservoirs to store rainwater. There is no wastewater filtration system in place. All drinking water for the hospital goes through a C2 tank which enables proper filtration. All other sources of water are tested using Del Agua kites through the EHD.

The hospital sits in one main compound between two major roadways. The main roadway sits at the front of the hospital and the poster roadway sits where surrounding residents live. The hospital sits on top of a plateau in Mabaruma and is not at risk of flooding. The surrounding roadways see moderate traffic.

There are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.

The hospital currently has two incinerators, including a non-functional De Montfort incinerator for infectious waste and a general waste burn box. However, these waste disposal methods saw multiple complaints about smoke from residents surrounding the hospital. The RDC made the decision to utilize the Mabaruma Dump Site for solid waste and the incinerator located at White Water for all infectious pathogens. All waste is separated as per recommended standards and guidelines.



Figure 5: Existing Non-functional Incinerator at Mabaruma Regional Hospital

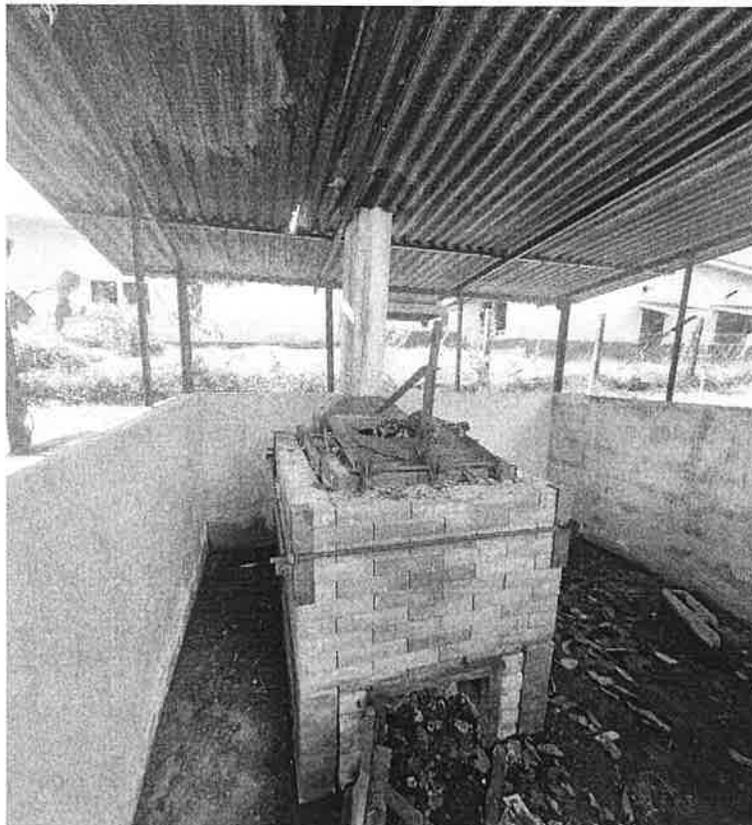


Figure 6: Existing Burn Box at Mabaruma Regional Hospital

2.4. Suddie Public Hospital

The Suddie Public Hospital is located in Suddie, on the Essequibo Coast, in Region 2, Pomerom-Supenaam. This hospital overlooks the Essequibo River and is the main referral hospital in the Region serving twenty-seven communities including, Abrams Creek, Abrams Zuil, Affiance, Akwaini, Anna Regina, Aurora, Bethany, Capoey, Charity, Dartmouth, Dredge Creek, Friendship, Hackney, Huis T'Dieren, Kabacaburi, Karawab, Lima Sand, Mainstay, Mashabo, Mora, Queenstown, Siriki, St. Denny, St. Monica, Supenaam, Wakapoa and Windsor Castle.

The hospital's immediate surroundings include the Suddie Police Station, located 160 meters northwest; the Ministry of Youth Culture & Sport Government Office, located 1,000 meters southwest; a supermarket, located 130 meters northeast; the Suddie Market and Housing Scheme, located 130 meters west; and various religious institutions, such as Churches, located 1,500 meters north.

The Suddie Hospital is connected to the main grid and has access to power 24/7. In addition, the hospital has backup generators for power in case of blackouts.

Water is supplied to the hospital through GWI. In addition, the rainwater is harvested in sixteen storage tanks for additional supply. Potable water is purchased through local businesses.

Waste is separated into infectious and non-infectious using color coding techniques. The hospital currently has two incinerators. However, none are functioning at this time. Currently, waste is uplifted by a private contractor and disposed of at the dumpsite in Anna Regina. Non-infectious waste is burned in a pit at the dumpsite, and then covered to create a new pit. Domestic and non-infectious waste is also dumped at the dumpsite. Body parts are buried. ✓

All sewage is disposed of into septic tanks located within the compound. Wastewater is not treated.

There are no known sites of cultural or historic importance identified within the hospital compound. Additionally, there are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.



Figure 7: Existing Non-Functional Incinerator at Suddie Hospital

2.5. Kamarang District Hospital

The Kamarang District Hospital is located in Kamarang compound along the airstrip in Kamarang in the Upper Mazaruni sub-district of Region 7. The hospital serves thirteen communities in the Upper Mazaruni district, including Waramdong, Jawalla, Quebanna, Kako, Phillipai and Paruima. This hospital is the only secondary health facility located in the Upper Mazaruni area and serves a total population of 12,000, including miners working in the wider area. Given its proximity to the Venezuelan border, the hospital has been receiving an increasing number of persons from Venezuela seeking medical services.

This sub-district is administered by a Village Council, which is headed by a Toshao, with the assistance of the Deputy Regional Executive Officer. The satellite communities are managed by Councilors.

The hospital is located within a fenced compound and is surrounded by several buildings that are used as medical wings, as well as auxiliary services and living quarters. The complex is located along the Kamarang Airstrip, while the Kamarang river passes at the rear of the compound. The Kamarang Police Station and the Hydrometeorological Services office are neighbours of the hospital complex. The surrounding area is the main commercial and administrative area and transportation hub of Kamarang.

The hospital's main source of power is solar energy. The current capacity is 3,000 watts and is deemed inadequate to meet the needs of the hospital. Power is also supplied to the Kamarang compound by the Regional Administrator's generator. However, this is done on a limited basis and is not often reliable. The hospital has a generator which also provides power but is connected to only one building.

The hospital's main source of water is from a GWI well that is powered by a solar pump. However, when the pump is not functioning due to the weather, the well is unable to supply the hospital with water. The hospital also pumps water directly from the Kamarang River through a diesel pump into storage tanks. Water used in the hospital is filtered but not treated. Drinking water sourced from the river is chlorinated. Additionally, rainwater is harvested to supplement the water supply and storage of the hospital.

The hospital generates biohazard waste such as blood and body parts, and domestic waste such as wrappers, food items and sanitary landfills. Infectious waste consisting of sharps and biomedical waste are managed separately. Sharps such as needles, blades and other medical instruments are collected in specialized sharp containers and burned in the incinerator. Other biohazard wastes are collected in red bags and are also incinerated. Incineration is only done when the hospital is not busy since the emission stack is not in place, resulting in fumes spreading through the facility. The remains of the incineration process are placed in the hospital waste pit. Expired pharmaceuticals are also burned in the incinerator with permission from the Regional Environmental Health Officer (REHO). Biomedical waste such as body parts are buried. Non-infectious waste, such as domestic waste, is collected in garbage bins around the hospital, consolidated, and disposed of in the hospital dump pit where it is burned.

Wastewater is separated into blackwater and greywater. Blackwater, including water from toilets and treating rooms, is disposed of through the hospital's sewage system, which consists mainly of three septic tanks, two of which are functional. Greywater from sinks, bathtubs and showers flows freely out of drainpipes onto the hospital compound and eventually into the Kamarang River.

There are no known sites of cultural or historic importance identified within the hospital compound. Additionally, there are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.



Figure 8: Existing Incinerator at Kamarang District Hospital



Figure 9: Existing Burn Pit at Kamarang District Hospital

2.6. Mahdia District Hospital

Mahdia is a community located in Region 8 known as Potaro Siparuni. This hinterland community consists of a vast majority of the migrant residents from the other regions of Guyana.

The area is dominated by commercial activities in the areas of gold and diamond mining, which contributed to a population boom in the community to obtain wealth. The population in this town is approximately 11,000.⁶

The town of Mahdia is home to the Patamonas, an indigenous tribe, who are involved in farming, hunting and mining. The town is also home to residents from the coastlands of Guyana, who migrated to seek employment mainly in mining. The town also sees immigrants from the Caribbean, particularly, St. Lucia and Dominica, whose main economic activities include farming and burning charcoals.

Mahdia District Hospital's surrounding infrastructures include the Mahdia Airstrip, located 690 meters south; GuyOil Petrol Station, located 120 meters southeast; a hotel, located 140 meters northeast, and the Regional Executive Office, located 170 meters southeast; Mahdia Police Station, located 80 meters southwest, and the Mahdia Post Office, located 170 meters west.

Power is supplied by the Madhia Power and Light Company through the national grid on a 24/7-hour basis. The hospital also has backup generators in the event of power outages.

Water is supplied through the GWI wells in the community on a 24-hour basis. In addition, the hospital harvests rainwater for storage in fifteen tanks situated in the hospital compound.

Waste is segregated into non-infectious and infectious using colour coded techniques. Non-infectious waste is disposed of through the town council twice weekly. Infectious waste is burnt in the De Montfort incinerator at the hospital and then disposed of at the dumpsite.

There are no known sites of cultural or historic importance identified within the hospital compound. Additionally, there are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.

⁶ Bureau of Statistics – Population Composition, 2016



Figure 10: Existing Burn Box at Madhia District Hospital

2.7. Kato Cottage Hospital

This hospital is located in Kato Village, in Region 8. The hospital is in close proximity to the Kato Airstrip, including the administrative and commercial hub of the village. This hospital currently serves as the primary health care facility within the North Pakaraima sub-district of the Region. The hospital serves a population of approximately 8,000 persons, including villages such as Chiung Mouth, Arasawa, Kurukubaru, Itabac, and Kanapang, which borders Brazil. The hospital also serves Kato Secondary School, with an excess of 600 students.

Kato Village is administered by a Village Council, which is headed by a Toshao, with the assistance of the Regional Executive Officer. The satellite communities are managed by Councilors.

The hospital is located on a mountainous terrain and does not generally experience any flooding from heavy rainfall since the area has proper drainage.

This hospital is powered by solar energy, with its own system installed. The system supplies power for general hospital use, but this is inadequate. The hospital does not have a generator as a secondary source of power. The vaccination fridge is operated on its own solar power source exclusively. Currently, a hydropower facility is being built within the community and is expected to provide power to the hospital once operational.

Kato Hospital's main source of water is from wells and additional water is harvested from rainfall. There are currently two wells which are connected to three standpipes outside of the

hospital building. There is water storage consisting of seven storage tanks, five of which collect and store rainwater. Water used in the hospital is not filtered or treated and is also used for drinking.

Domestic waste at the hospital is collected in the bins located around the facility and compound. Waste is then disposed of in a pit created outside the fenced compound. The waste is burned in the pit, and once the pit is filled, it is covered, and a new pit created. The hospital has a working incinerator where biohazard waste, including sharps, is burned. Placenta is buried outside the hospital compound or taken by the mother for burial. Expired pharmaceuticals are collected and transported to the Madhia Hospital for disposal.

Wastewater is separated into blackwater and greywater. Blackwater, including water from bathrooms and toilets and treating rooms, is disposed of through the hospital's sewage system, which consists mainly of a septic tank. Greywater from sinks, bathrooms and showers flows freely out of drainpipes into the hospital compound.

There are no rare, threatened, or endangered species at this project site and no special habitat or protected area that are in proximity.



Figure 11: Existing Incinerator at Kato Cottage Hospital



Figure 12: Existing Burn Pit at Kato Cottage Hospital

2.8. Lethem Regional Hospital

The Lethem Regional Hospital is located in the Upper Takutu Upper Essequibo Region (Region 9), in the town of Lethem, which is the main commercial and administrative district. This hospital's catchment area includes thirteen villages, including St. Ignatius, Quarrie, Moco Moco, Kumu, Hiowa, Nappi, Parishara, Kaicumbay, Fly Hill, Quatata, Yupukari, Katoka and Semoni. The catchment population is approximately 20,000 people. More so, the Lethem Hospital provides health care services to patients coming from neighboring villages in Brazil, such as Bonfim, as well as migrants from Venezuela.

The hospital compound is bordered by four streets (Windmill Road, Church Street, School Street and Park View Avenue). The surroundings are generally busy since it is located close to the main commercial and administrative area of Lethem. The hospital is located in close proximity to the airstrip. The access roads leading to the hospital are paved. A few private residents reside in close proximity of the hospital.

The hospital complex is located on an elevated area and does not generally experience flooding from heavy precipitation. Historically there are floods in Lethem resulting from excessive rainfalls spiraling a backup and constant rise of the Rio Bronco in Brazil, which backs up the Takutu River along the border. Despite this, no floods were observed in the Lethem Hospital compound.

Power to the hospital is supplied by the Lethem Power Company and is substituted by an 85 kVa generator and a 35 kVa photovoltaic system as backup systems. Power supplied by the power company is fairly reliable during the hospital's hours of operations.

There are two water supply systems consisting of an old system and a new system. The hospital's main source of water is from its own well. Rainwater is also harvested for use. There are two water trestles with water storage tanks. In addition, this hospital has two reservoirs that have the capacity to hold water supply for emergency use. Water distributed to the hospital is treated, and untreated water is distributed to the other facilities. Potable water is sourced from a local provider.

[Medical waste such as sharps, needles and infectious waste are separated at the collection point but eventually mixed with domestic waste in skip bins and are then transported to the community dumpsite for open air burning and subsequent burial.] Garbage is also disposed of in this manner. The waste is taken to the dumpsite by the Lethem Town Council three times per week. Expired [pharmaceuticals are written off and transported to the dumpsite for burning and then burial.]

Two incinerators were used to dispose of the waste types aforementioned in the past, of which one is located within the hospital compound. However, none of the incinerators are functional.

Liquid medical waste such as blood, effluent from the mortuary, and other fluids are disposed of by a sluice sink and into a soak away untreated. For sewage, each building has an individual septic tank that is connected to the building, and which discharges it to the soak away. Domestic liquid waste from the kitchen and bathrooms are disposed of via soak ways.

There are no known sites of cultural or historic importance identified within the hospital compound. Additionally, there are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.

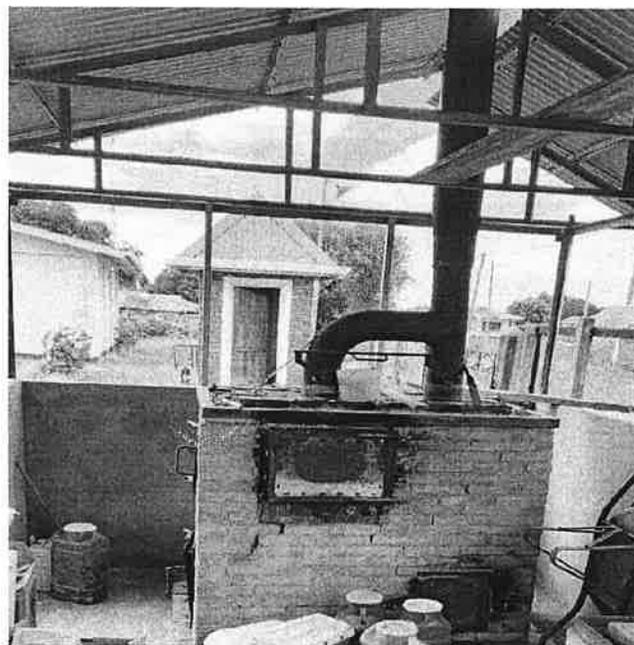


Figure 13: Existing Incinerator at Lethem Regional Hospital

2.9. Aishalton District Hospital

Aishalton is an Amerindian village that is situated in the Rupununi savannah of southern Guyana, in the Upper Takutu-Upper Essequibo Region (Region 9). Aishalton is the administrative centre for the southern sub-district of Region 9. The official census in 2012 recorded a population of 1,069⁷ in Aishalton, making it the third most populated village in Region 9, after St. Ignatius and Lethem. The population in this town is predominantly Wapishanas.⁸

The main transport route between Aishalton and the Guyana coastlands is the unpaved Linden-Lethem Road. From Lethem, Aishalton is accessed by vehicles on a dirt trail up to five hours in good, dry weather. Unfavorable weather conditions tend to add more hours to the trip from Lethem to Aishalton. Additionally, only chartered flights are available from Ogle in Georgetown to Aishalton Airstrip.

The Aishalton District Hospital is the only hospital in the southern sub-section of Region 9. It serves over seven villages, including: Chruikidnau, Shea, Maruranau, Awarewarnau, Karaudarnau, Achiwib, Baishidrun, Parabara and Gunns.

Surrounding neighbours of the hospital include the Aishalton Secondary School and Dormitory, located 170 meters south of the hospital; the Burning Hills restaurant, located 330 meters northeast of the hospital; the Burning Hills apartment building, located 710 meters east of the hospital; the Aishalton Primary School and the Aishalton Education Compound, located 1,250 meters southeast, and the Catholic Church, located 16,000 meters southwest of the hospital.

The hospital is not at risk of flooding from heavy precipitation as it is elevated at an altitude of 187 meters. However, there are issues with external drainage surrounding the hospital. The hospital does not see a large congestion of traffic.

The hospital supplies power using a generator for four hours in the morning and four hours in the afternoons. The hospital also relies on solar power that powers the hospital for 24 hours during the dry seasons. During the wet seasons, this power is limited.

Water is supplied by the wells that were installed by GWI. The hospital does not have any reservoirs to store water. Additionally, rainwater is harvested.

Medical waste such as sharps, needles and infectious waste are segregated. Sharps are stored and then sent to the Lethem Hospital for disposal. Infectious waste, parts are burned in a hole in the hospital compound and once the pit is filled, it is covered, and a new pit created. Waste is then disposed of at a landfill site 3,000 meters away from the hospital.

Wastewater is separated into blackwater and greywater. Blackwater, including water from bathrooms and toilets and treating rooms, is disposed of through the hospital's sewage system,

⁷ Bureau of Statistics – Population by Village, 2012

⁸ One of Nine Amerindian Groups residing in Guyana.

which consists mainly of a septic tank. Greywater from sinks, bathrooms and showers flows freely out of drainpipes into the hospital compound.

There are no known sites of cultural or historic importance identified within the hospital compound. Additionally, there are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.



Figure 14: Existing Burn Pit at Aishalton District Hospital

2.10. Annai Cottage Hospital

Annai is an Amerindian village in the Upper Takutu Upper Essequibo Region (Region 9) of Guyana. At the edge of the Rupununi savannah, Annai is nestled in the foothills of the Pakaraima Mountains, and is close to the Rupununi River. Much of the population of the area are members of the Macushi tribe⁹ and approximates to 500 persons. The economic activities in this village include mainly farming and cattle ranching.

⁹ One of Nine of the Amerindian Tribes residing in Guyana.

Transportation access to Annai includes the dirt paved Linden-Mabura Road and chartered flights from Ogle in Georgetown to the Annai airstrip.

The Annai Cottage Hospital, initially a level two facility (Health Centre), is currently undergoing construction for upgrade to a level three facility (District/Cottage Hospital). It serves a catchment population of approximately 6,296¹⁰ in ten villages, including Kwatamang, Crashwater, Rewa, Apoteri, Surama, Wowetta, Rupertee, Aranaputa, Yakarinta, Masarra, Toka, and Kwaimatta.

The hospital's immediate surroundings include the Annai District Government Guest House, located 120 meters southeast; the Annai District Education Office, located 140 meters southeast; the Annai District Police Station and Staff Quarters, located 180 meters southeast; and the Annai primary school, located 380 meters northeast.

The hospital is not at risk of flooding from heavy precipitation as it is elevated at an altitude of 95 meters. The hospital does not see a large congestion of traffic.

The hospital's main supply of power is through a generator that supplies power for 2 hours in the mornings and 2 hours in the afternoons. Solar power is utilized during the dry seasons for a full 24 hours. However, during the wet season, this power is limited. Water is supplied through the GWI wells. The hospital does not have a reservoir to store water, but usually harvest rainwater in storage tanks.

Waste is separated into infectious and non-infectious using color coded techniques. Infectious waste is burned in a pit in the hospital compound, and then filled to create a new pit. Sharps are stored and transported to Lethem for disposal. Body parts are buried right in the compound of the hospital. Wastewater is not treated and is disposed of through septic tanks within the compound.

There are no known sites of cultural or historic importance identified within the hospital compound. Additionally, there are no rare, threatened, or endangered species at this project site and no special habitat or protected area are in close proximity.

¹⁰ Regional Health Department 9 – Guyana



Figure 15: Existing Burn Box at Annai Cottage Hospital



Figure 16: Existing Burn Pit at Annai Cottage Hospital

CHAPTER 3

POLICY, LEGAL AND REGULATORY FRAMEWORK

3.0. Introduction

This project falls under the jurisdiction of the laws of the Cooperative Republic of Guyana. In addition, this project falls under the World Bank's Environmental and Social Policy for Investment Project Financing. The relevant legal requirements, national policies, guidelines, and regulatory bodies governing the implementation, operation and efficient management of the incinerators are outlined and explained in this Chapter.

3.1. Environmental Assessment, Review and Permitting

Environmental management in Guyana has been governed through the Environmental Protection Act 1996 and Environmental Protection Regulations 2000, the Health and Safety Act 1997, and the Pesticides and Toxic Chemicals Control Act and Regulations. Each of these is summarized below.

The Environmental Protection Act 1996, and the **Environmental Protection Amendment Act 2005**, establishes the basic institutional and regulatory framework within which all activities that may significantly impact on the natural, social, and cultural environments are assessed. The Act also provides that the Environmental Protection Agency (EPA) will be the central coordinating agency for environmental management in the relevant sectors in Guyana.

The EPA was created through the Environmental Protection Act 1996, and is mandated to oversee the effective management, conservation, protection, and improvement of the environment. It also requires that the Agency takes the necessary measures to ensure the prevention and control of pollution, assessment of the impact of economic development on the environment and the sustainable use of natural resources.

The EPA is responsible for evaluating project development in Guyana and classifying each project according to the potential environmental and social impact. The EPA is also responsible to undertake proper supervision and monitoring of the project environmental and social outcomes. The Environmental Protection Act 1996 is supported by several subsidiary Environmental Protection Acts, including:

- The Environmental Protection Authorizations Regulations (2000)
- The Environmental Protection Air Quality Regulations (2000)
- The Environmental Protection Water Quality Regulations (2000)
- The Environmental Protection Noise Management Regulations (2000)
- The Environmental Hazardous Wastes Management Regulations (2000)
- The Environmental Protection (Litter Enforcement) Regulations (2013)

3.1.1. The Environmental Protection Authorizations Regulations (2000)

These Regulations require development activities/facilities pertaining to industry (e.g., manufacturing, processing, handling, transport, storage, disposal) to be authorized by the EPA, with specified conditions to avoid, minimize, and mitigate environmental impacts. It also provides for EIAs where necessary (Section 3 of the Act). The EPA determines the types/categories of development that require environmental authorization. This project will require environmental authorization from the EPA. The application form is outlined in Annex One. The authorization process for both new and existing facilities including variances are outlined in these Regulations, Part 3, Sections 17 and 20.

3.1.2. The Environmental Protection Air Quality Regulations (2000)

In accordance with these Regulations, anyone who emits any air contaminant in the construction, installation, operation, modification, or extension of any facility related to industry, commerce, agriculture, or any sector, shall apply to the EPA for an environmental authorization at least ninety (90) days before the date on which emission is to commence. In accordance with the Regulations, the EPA shall establish the desirable air pollution limits. Currently, there are no nationally determined or established Air Quality standards. However, the Agency is guided by and utilizes the World Health Organization (WHO) and the United States Environmental Protection Agency (USEPA) allowable limits. Table 7 below shows the allowable limits for the two aforementioned agencies. The proposed incinerator falls well within the allowable limits.

Table 7: WHO and USEPA Allowable Limits for Air Quality

Pollutant	Averaging Time		Level		Form	
	WHO	USEPA	WHO	USEPA	WHO	USEPA
Carbon Dioxide (CO)	8 Hours	8 Hours	6 ppm	9 ppm	99 th percentile (3-4 exceedance days per year)	Not to be exceeded more than once per year.
Particle Pollution 2.5 (ppm 2.5)	1 year	1 year	5µg/m ³	15.0µg/m ³	99 th percentile (3-4 exceedance days per year)	Annual mean averaged over 3 years.
Particle Pollution 10 (ppm 10)	24 hours	24 hours	455µg/m ³	150µg/m ³	99 th percentile (3-4 exceedance days per year)	Not to be exceeded more than once per year
Sulfur Dioxide (SO ₂)	10 mins	1 hour	500µg/m ³	75 ppb ⁽⁴⁾	99 th percentile (3-4 exceedance days per year)	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years

Pollutant	Averaging Time		Level		Form	
	WHO	USEPA	WHO	USEPA	WHO	USEPA
Lead (Pb)	1 year	Rolling 3-month average	0.55 µg/m ³	0.15 µg/m ³	-	Not to be exceeded.
Nitrogen Dioxide (NO ₂)	1 hour	1 hour	200 µg/m ³	100 ppb	99 th percentile (3-4 exceedance days per year)	98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
Ozone (O ₃)	8 hours	8 hours	100 µg/m ³	0.070 ppm ⁽³⁾	99 th percentile (3-4) exceedance days per year.	Annual fourth-highest daily maximum 8-hour concentration averaged over 3 years.

3.1.3. The Environmental Protection Water Quality Regulations (2000)

These Regulations require an environmental authorization for construction, installation, operation, modification/extension of facilities that discharge effluents. Requirements and guidelines on the discharge of effluents and disposal of sludge are provided in these Regulations. The EPA and the Guyana National Bureau of Standards (GNBS) developed interim guidelines for Industrial Effluent Discharges into the Environment, and these are currently being used by the EPA. These set limits for key parameters for industrial effluent discharges and consider key water chemistry parameters such as temperature, pH, etc. The EPA also adopts the WHO and USEPA standards for surface and potable water when applicable. Draft Water Quality Guidelines have also been developed by the EPA but have not been finalized to date. The GNBS Effluent discharge parameter limits are indicated in Table 3 below.

Table 8: General Environmental Guideline Values for Effluent Discharge

Categories	GNBS Limits
pH	5.0 – 9.0
Temperature	< 40
BOD for 5 days	< 50 mg/L
COD	< 250 mg/L
DO	--
TSS	< 50 as TSS
N as NH ₃	< 10 mg/L
Total N	--
Phosphorous (P)	< 2 mg/L
CN Total (Cyanide)	< 1 free: 0.1
Phosphate (PO ₄ ⁻)	--

Categories	GNBS Limits
Chlorine (Cl)	< CL: 0.2
Surfactant	--
Phenols	< 0.5 mg/L
Coliforms	< 400 MPN per 100 mls
Oil and Grease (O&G)	< 10 mg/L

Source: GNBS (2002)

3.1.4. The Environmental Protection Noise Management Regulations (2000)

Under these Regulations, operations that emit noise in the execution of various activities such as construction, transport, industry, commerce, and any institution are required to apply to the Agency for an environmental authorization. The EPA is responsible for the establishment of standards for permissible noise levels in industry, construction, and other areas. The EPA may grant authorization for noise emission unconditionally or subject to conditions and may require environmental audit procedures. The GNBS and the EPA, together with other relevant agencies, developed standards for noise emissions into the environment. The permissible noise levels are indicated in Table 4 below. The incinerator's noise levels fall well within the GNBS guideline values below.

Table 9: GNBS Guideline Values for Noise Emission

Categories	Daytime Limits in dB (06:00-18:00h)	Nighttime Limits in dB (18:00-6:00)	
Residential	75		60
Institutional	75		60
Educational	75		60
Industrial	100		80
Commercial	80		65
Construction	90		75
Transportation	100		80
Recreational	100	18:00 – 01:00hr	100
		01:00 – 08:00hr	70

Source: GNBS (2010)

3.1.5. The Environmental Protection Hazardous Wastes Management Regulations (2000)

These Regulations outline the rules and procedures for the transport, storage, treatment, and disposal of hazardous wastes and are intended to ensure, through the environmental authorization process, that all operations that generate, transport, treat, store, and dispose of hazardous wastes are managed in a manner that protects human health and the environment. The Regulations allow for the provision of information on the types of facilities and quantity of hazardous waste

generated, treatment standards and efforts to reduce the waste generated. An Emergency Preparedness Plan is required for anyone who operates a hazardous waste facility. The Regulation also stipulates and outlines the provisions for reporting; record keeping; emergency preparedness planning; and transportation of hazardous waste, while at the same time encouraging Developers to utilize appropriate disposal/treatment mechanisms of hazardous waste identified in the Regulations.

3.1.6. The Environmental Protection Litter Enforcement Regulations (2013)

These Regulations provide for the enforcement against litter offences. It is an offence under these Regulations to (a) place litter in a public place; (b) permit or cause another person to litter a public place; and (c) have litter on private premises that pose a health risk. The fine for an individual found littering in a public place is \$50,000GY, while for corporate bodies, it is \$100,000GY. A fixed penalty of \$15,000GY is offered to offenders who accept liability for the offence committed. Under the Litter Prevention Regulations, the Neighbourhood Democratic Councils (NDCs) and the Regional Democratic Councils (RDCs) are to provide receptacles in public places. Further, every Council shall make the appropriate provision for the prompt, efficient and regular emptying of the contents of the receptacles and for the removal and disposal of those contents.

3.2. Labour, Occupational Health and Safety

The Constitution of Guyana (1980) recognizes the right of Guyanese to employment. The Constitution contains some articles on labour and working conditions. Specifically, it guarantees protection for the following rights:

- **Article 22** – This Article of Guyana’s Constitution speaks to labour rights which reads that every citizen has a right to work, to choose work in accordance with social requirements and personal qualifications. Men and women have equal right to equal pay for equal work.
- **Article 29** – This Article states “women and men have equal rights and the same legal status in all spheres of political, economic, and social life. All forms of discrimination against women on the basis of their sex is illegal”. In addition, the Constitution lists a number of women’s rights, such as the access to academic, vocational and professional training, equal opportunities in employment, remuneration and promotion, paid leave for mothers and expectant mothers.
- **Article 140** – In accordance with this article, no person shall be held in slavery or servitude, nor be required to perform forced labour.
- **Article 149A** – The Right to Work. No person shall be hindered in the enjoyment of his/her right to work, that is to say, the right to free choice of employment.
- **Article 149C** – The Right to participate through co-operatives, trade unions, civic or socio-economic organizations.

3.3. Occupational Health and Safety Act 1995

The Occupational Health and Safety Act 1995 is the primary legislation that governs which workplace hazards and applies to every industrial establishment such as factories, shops and

offices. It provides for the registration and regulation of industrial establishments, for occupational health and safety of persons at work.

- **Part III**

Establishment of the Advisory Council on OHS or in the absence of this council, a Medical Inspector will conduct the required duties. The Medical Inspector has the powers to inspect the register of any establishment and to investigate any occurrence of death or injury caused by exposure to fumes or other noxious substances or due to any other special cause as specified by the Minister. Where a person is killed or critically injured on the job, the Health and Safety Representative shall visit the site, inspect and report on the incident.

Section 10 - The Advisory Council will advise the Minister on matters relating to Occupational Health and Safety (OHS) or arising out of the operation this Act which may be brought to its attention, or to be referred to it, including the formulation of a national policy on OHS. The Council shall also make recommendations on the implementation and enforcement of such policy.

Consultation on Hygiene

Section 25 – Consultation on hygiene testing. Employers shall consult with the Health and Safety Representative to propose testing strategies for investigating industrial hygiene at work.

Health and Safety of Workers on Construction Site

Section 22 (1) – At a construction site or workplace where no committee is required and where the number of workers regularly exceeds five (5), the employer shall cause the workers to select at least one Health and Safety Representative from among the workers at the workplace who do not exercise managerial functions.

The Act calls for workplaces to set up joint Health and Safety Committees to do the following:

- i. Identify situations that may be a source of danger or hazard to workers.
- ii. Make recommendations to the employer and the workers for the improvement of the health and welfare of workers; and
- iii. Obtain information with regards to the identification of potential or existing hazards and health and safety experiences and work practices and standards comparable to others.

- **Part IV**

Prohibition of Employment of Children

Section 41 – No child aged fourteen (14) and under shall be employed in any factory, outside the factory or in any business trade or process ancillary to the business of the factory.

Sanitary Conditions

Section 42 – Addresses sanitary and other conditions at workplaces such as workers access to potable drinking water. It also requires that workplaces be equipped with sufficient means of ventilation and adequate lighting.

- **Part V**

Protective Gear on Work Site and Safety Equipment

Section 45 – Speaks to conditions that are to be fulfilled on a construction site. These include the provision of safety equipment, clothing and other protective devices to be

used as prescribed. This section also governs environmental protection and pollution control in Guyana. It requires that work be carried out in workplaces without causing discharge or noxious, hazardous or polluting matter into air, water or soil so far as is practicable in keeping with the regulations of any licenses for the purpose granted.

Workplaces must ensure the establishment of a medical surveillance program at work and provide for safety related medical examinations and tests for workers as required.

Section 46 (1) – The employer shall ensure that the equipment, materials and protective devices and clothing as prescribed be provided and that these are in good condition.

Establishment of Medical Surveillance Programme

Section 46 (2) – Address the establishment of a medical surveillance programme for the benefit of workers as prescribed.

Section 46 (2) (i) – provides for safety related medical examination and testing for workers as prescribed.

Section 46 (2) (j) – where so prescribed, only a worker who is found physically fit to work after the prescribed test and medical examination is permitted to be in a workplace.

Section 46 (2) (k) – where so prescribed, provide a worker with written instructions as to the measures and procedures to be taken for the protection of the worker.

Section 46 (2) (m) – ensure that health surveillance is not used for discriminatory purposes or in any manner prejudicial to their interest.

Section 46 (4) – ensure that training is available to every worker on the safe and healthy manner of carrying out his/her work

Section 49 (1) – speaks to the responsibility of the worker to ensure the use of protective devices and clothing and not to contravene the regulation.

- **Part V**

Danger

Section 58 – provides workers' rights to refuse to do particular work if there is reasonable justification to believe that the physical condition in which he/she is to work presents an imminent danger to his/her life or health.

- **Part VI**

Hazardous Waste

Section 61 – mandates that an employer produce an inventory of all hazardous chemicals and all hazardous physical agents that are present in the workplace. This inventory must be prepared in consultation with the OHS representative or committee. This data must be made available in the workplace. Training and necessary instructions must also be provided to workers who work with these materials.

- **Part VII**

Accidents

Section 69 – address the issue of accidents arising out of and during the course of employment of any worker and causes loss of life or disability. In such cases, employers are required to provide written notification of the accident to the Medical Authority and the Health and Safety Representative immediately upon learning of such incident.

Section 70 – deals with occupational and other diseases and the procedure follows that of Section 69 where the Medical Authority and the Health and Safety Representative be notified in writing at time of such occurrence and immediately after being advised by a qualified Medical Practitioner.

- **Part VIII**

- **Risks in the Workplace**

- **Section 75 (2)** – deals with risks in the workplace due to condition of the establishment that could cause bodily injury or endanger the safety of persons employed.

There are several laws and regulations that make up labour laws. In 1921, the Trade Unions Act was enacted to provide for the regulation and registration of trade unions. In 1942, the Labour Act, which provides for the establishment of the Department of Labour, for the regulation of the relationship between employers and employees and for the settlement of differences between them, was enacted. Labour legislation relevant to the project includes, and is summarized below:

- **The Holidays with Pay Act** – an Act to repeal and re-enact the Holidays with Pay Act, to provide for the grant regulation of annual holidays with pay for all categories of workers, and provided for pay on public holidays.
- **The Wages Council Act 1956** – provides for the establishment of wage councils which shall regulate remuneration and the setting of minimum wages and encouraging collective bargaining.
- **Accidental Deaths and Workmen’s Injuries (Compensation) Act 1983** – makes various amendments to the Accidental Deaths and Workmen’s Injuries (Compensation) Act (cap 99:05) including inter alia the assessment of damages for widows, funeral expenses, and for the liability of the State in the case of personal injury to public employees.
- **The Public Utility Undertakings and Public Health Services Arbitration Act** – establishes an arbitration tribunal for the settlement of disputes in public utility undertakings. It also defines essential services and prohibits strikes or lockouts in these sectors.
- **Labour (Conditions of Employment of Certain Workers) Act** – this Act regulates the condition of certain categories of workers (cooks, cleaners, bar men, kitchen maids, etc.)
- **Employment of Young Persons and Children Act** – defines a “young person” as under 16. The Act prohibits the employment of children. It also prohibits the employment of under-18s in certain industrial enterprises and aboard ships, and the employment in night work.
- **The Termination of Employment and Severance Pay Act** – provides for the conditions governing termination of employment and grant of redundancy or severance payment to employees and for matters connected therewith.
- **The Prevention of Discrimination Act, No. 24 of 1997** – prohibits discrimination on the grounds of race, sex, religion, colour, ethnic origin, indigenous population, national extraction, social origin, economic status, political opinion, disability, family responsibilities, pregnancy, marital status and age in matters related to employment and prohibits sexual harassment. This Act also provides for equal remuneration for equal

work, discrimination on the part of partnerships, trade unions, and employment agencies, as well as discrimination with regards to goods and services.

The laws above set out minimum conditions of service. Individual contracts of employment and collective agreements can stipulate higher benefits.

3.4. Solid Waste Regulatory and Institutional Framework

Legislation and guidance relevant to solid waste management include:

- **Draft Solid Waste Management Bill (2014)** – this Legislation would establish a licensing and permit system for waste management facilities. Still in its draft form, the Ministry of Local Government and Regional Development (MLGRD) aims to establish a Solid Waste Management Authority (SWMA) which will function as a corporate body to provide better public health protection through regulating waste management approaches. It covers all types of solid waste, including health care waste from hospitals and health centres. It is a collaborative effort to deliver better public health protection through regulating waste management approaches. It involves the MLGRD, the EPA, RDCs, NCDs, and City Councils.
- **Municipal and District Councils Act** – on the local level, this Act empowers the Councils to establish, maintain and carry out sanitary services, but it does not include biomedical waste.
- **National Solid Waste Management Strategy for the Cooperative Republic of Guyana 2013 - 2024** – This strategy provides the roadmap by which Guyana can work to reduce and better manage solid waste for purposes of protecting the health of the Guyanese people and the natural beauty of Guyana. The strategic framework guides decision making by the government and serve as the foundation for establishing an integrated, financially self-sustaining, environmentally-sound, and socially acceptable waste and resource recovery system for Guyana. The National Solid Waste Management Strategy consists of three separate parts. Part I contains the sustainable waste reduction and management strategy that covers the spectrum of activities involved in solid waste management. This is the most strategic of the three documents and the actions contained herein must be incorporated into the annual corporate work plans of the various lead agencies, so as to become the core business of everyone involved. Part II is more operational and contains standards and procedures pertaining to the management of solid and hazardous wastes, including the generation, handling, storage, treatment, transport, and disposal of all types of waste. It also establishes requirements and procedures for the issuance, monitoring and enforcement of licenses to site, construct or operate solid waste management facilities or equipment. Part III contains background information and an analysis of the solid waste sector in Guyana, which forms the basis for the preparation of Parts I and II of the Strategy. This Strategy covers all types of solid waste, from residential, commercial, institutional, and industrial sources, and health care waste from hospitals and health centres. It also covers scrap metals, used oil, used lead acid batteries, and used electrical and electronic waste (e-waste). The Strategy does not address wastewater and sludge (such as domestic wastewaters, sewage, and septic tank sludge), waste from industrial processes, or industrial waste from the mining sector.

- The **Pesticides and Toxic Chemicals Control Act (2000)** resulted in the establishment of the Pesticides and Toxic Chemicals Control Board, which is intended to regulate the manufacture, importation, transportation, storage, sale, use and disposal of pesticides and other toxic chemicals. In this Act, toxic chemicals refer to “any disinfectant or other substance known to be poisonous, corrosive, irritating, and capable of causing a sensitive reaction or sensitive to man or animal that is used in agriculture, the arts, commerce or industry or for any domestic or other purposes”.

Several agencies share responsibility and oversight for solid waste management in Guyana. The Government of Guyana consists of three tiers: Central, Regional and Local. The third tier (Local Government) comprises the RDCs, Municipal Councils, and NDCs. The Ministry of Local Government and Regional Development is the government agency linking various local government authorities to central government. The MLGRD is the government agency linking various local government authorities to central government.

- The ten (10) RDCs provide services to citizens on behalf of central government and oversee the responsibility of the NDCs.
- The NDCs number over 60 and provide services to citizens. These administer smaller divisions within each region, and are responsible for waste management, street sweeping and drain clearing services within their boundaries.
- The Municipal Councils operate under the Municipal and District Councils Act Chapter 28:01. The provision allows for a Mayor, Deputy Mayor, Councilors, and a Town Clerk. The MLGRD oversees the waste collection process which is handled by the municipalities. Each city/town Councils such as the Georgetown City Council is responsible for solid waste collection and disposal, maintenance of infrastructure services (roads, bridges, etc.), market facilities and child welfare services.
- The MLGRD oversees the waste collection process which is directly handled by NDCs and Municipalities. The Ministry also manages dumpsites in Regions 4, 6, 7 and 9. It is responsible for formulating national solid waste management policies and providing waste management oversight of NDCs and City Councils. However, it does not have responsibility for management and disposal of medical waste.
- The EPA under the Environmental Protection Act, Chapter 20:05, Laws of Guyana, and the Environmental Protection (Hazardous Waste Management) Regulations 2000, is mandated oversee the management of hazardous waste. The EPA is also the lead Agency in coordinating national actions in Guyana towards meeting the country’s obligations under the Basel Convention. The Hazardous Waste Management Regulations require that anyone who operates or proposes to operate a facility that generates, transports, treats, stores, or disposes of hazardous wastes, is required to submit a Notification of Activity an application to the Agency for an Environmental Authorization. The EPA has responsibility for enforcing compliance for the safe handling, storage, and disposal of hazardous waste at medical facilities such as hospitals and health centres, pharmacies, mortuaries, funeral homes, and parlors. These facilities may require Environmental Authorization from the EPA since their activities may result in the generation, accumulation, storage and disposal of hazardous waste such as bodily fluids, body tissues, non-anatomical waste infected with communicable diseases, sharps, and effluents. The EPA is represented on the Central Board of Health and is engaged with several health facilities including the GPHC Infectious Waste Sterilization Facility.

3.5. Health Care Regulatory and Policy Framework

Guyana has several regulatory and policy frameworks that provide measures to improving health services. The MOH is responsible for managing Guyana's overall health care system. The most relevant legislation with respect to the health care system includes the following:

- **The Ministry of Health Act 2005** – This Act sets out the functions of the Minister of Health and the Ministry. Among the responsibilities conferred to the Ministry by the Act include oversight of health care services including mental health; provide advice to the Government of Guyana and establish policies on health; develop and ensure the implementation of the National Health Plan and other action plans and directives including human and all other resource requirements; enter into service agreement with the Regional Health Authorities (RHA) and review and approve their health plans and budgets; and facilitate the regulation of health care professionals and other health facilities in the public and private sectors including accreditation.
- **Regional Health Authority Act 2005** – This establishes RHA with responsibility for providing for the delivery of and administering health services and health programmes in specified geographic areas and for matters incidental thereto or connected therewith. Section 25 (I) of the Act sets out the jurisdiction and functions of the RHA.
- **Health Facilities Licensing Act 2007** – All health facilities require being licensed by the Minister of Health. The Act also provides for inspectors who are authorized to enter any facility and conduct inspections. Offenses are outlined with fines and imprisonment upon summary conviction. Importantly, the Act also provides for the Minister to make Regulations related to licenses, renewals, standards for health facilities, record keeping, prescribing, and governing the construction, establishment, location, equipment, maintenance, and repair of, additions and alterations to, and operations of health facilities.
- **Health Facilities Regulations 2008** – This Regulation, enacted under the Health Facilities Licensing Act, provide specific guidance on areas of compliance by health facilities. These Regulations apply to the health facilities which are prescribed as health facilities under Section 2 of the Act and are specifically identified in the regulations (including Health Centres, Hospitals and Medical Laboratories). Sections 15, 15, 19, 20, 32, and 33 refer to patient care arrangements, equipment and supplies, sanitation and safety, disposal of infectious and radioactive wastes, infection control, water and occupational health and safety.

The Laboratories responsible for medical testing are governed by the following standards. The Standards and Technical Services Department of MOH oversees the regulatory and monitoring functions over how laboratories operate. Under the Licensing of Health Facility Act 2007, laboratories are required to apply for an annual license to operate each year. Upon receipt of application, an inspection is carried out and the license is issued. In cases where the laboratory does not meet the standard for a license, a reason for not issuing such is given to the lab with recommendation of what is required to meet the standard and a follow up inspection is done 30 days later or by a time agreed by both parties.

- GYS:235, 2003 Standard – National Certification

- ISO:15190, 2019 Draft – International Accreditation is a new standard developed by the International Organization for Standardization to address the safety aspects of medical laboratories. It is directly linked to the ISO 15189:2003, the standard for quality and competence. It provides a framework for a safety program based upon the principles of quality management, including designation of responsibilities and authorities, regular audits, and continuous improvements.

In terms of institutional arrangements, the Environmental Health Department is responsible for carrying out routine inspection of the facilities to ensure compliance with the Public Health Ordinance and Nuisance Regulations. Facilities are monitored yearly by Standards and Technical Services Department as a Health Facility shall be so designed and equipped as to be able to carry out the operations that the facility is licensed for in a safe and effective manner. There are a number of general requirements including:

- The waiting areas and patient registration areas of every health facility shall be readily accessible to patients, including physically challenged persons.
- All the areas of a health facility shall be constructed and located to ensure patient privacy and confidentiality without comprising patient care.
- Where a health facility provides emergency medical care, wheelchairs, and other ambulating aids as necessary for patients in the emergency circumstances shall be readily available at the facility.
- Every health facility shall have an examination room that is properly equipped and commensurate with the type of services being offered at the facility.
- Every health facility shall have, at least one closed washroom and a sink with running water or a clean washbasin with a supply of potable water for handwashing.
- The sink or washbasin shall be available near to the location where a patient is required to give specimens for laboratory examination.
- Where a health facility contains a medical laboratory, the sink shall be in the form of a fixture that is constructed as to permit flushing of the eyes, the body, and clothes with large quantities of water to neutralize any hazardous or corrosive substances in the case of an accident.
- Every health facility shall have a sufficient number of flush toilets and washrooms or latrines to handle the number of patients and employees of the facility and such toilets and washrooms or latrines shall be conveniently located for the patients and employees.

Section 15 provides requirements for equipment and supplies:

- Biological and other supplies requiring refrigeration shall be stored in a refrigerated enclosure and the refrigeration system should have a continuous temperature monitoring system.
- Infectious materials shall be stored in clearly marked containers designed specifically for storage of infectious waste that meets the requirements specified by the GNBS.
- Every health facility shall install in its premises approved fire extinguishers in good working order in the number required by the Guyana Fire Service (GFS).

Section 9 lays out the requirements for sanitation and safety:

- The occupational health and safety of health persons at work in every health facility shall be the same as are required under the Occupational Health and Safety Act 1997.
- The premises of every health facility shall be kept in a clean and hygienic sanitary condition and free from nuisance in accordance with the Environmental Protection Act 1996.

3.6. World Bank Environmental and Social Standards

The World Bank’s ESSs will help the Bank to monitor the management of subproject risks and impacts and ensure the improvement of environmental and social performance, through a risk and outcomes-based approach. This will ensure that the proposed subproject is environmentally and socially sustainable, thus improving decision-making. The relevant ESSs to the project are outlined in Table 5 below.

Table 10: Relevance of World Bank’s ESSs to the Project

ESS	Relevance
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	<p>Environmental Assessments (EAs) are used in the WB to identify, avoid, and mitigate the potential and actual negative environmental impacts associated with Bank lending operations. E&S risks associated with the subproject is classified as “moderate”. The installation of waste incinerators as well as the handling and managing of healthcare waste during the operation phase of the incinerator may cause significant environment, social, health and safety issues due to the dangerous nature of the pathogen, especially COVID-19 contaminated wastes. Healthcare associated infections due to inadequate adherence to occupational health and safety standards can lead to illness and death among healthcare workers.</p> <p>Environmentally and socially sound healthcare waste management will require adequate provisions for minimization of occupational health and safety risks, proper management of hazardous waste and shares, use of appropriate disinfectants and appropriate chemical and infectious substance handling. The overall Guyana Covid-19 ERP has developed and is currently implementing the ESMF. This subproject will fall under the guidance of the ESMF.</p>
ESS2: Labour and Working Conditions	<p>Most activities supported by the project will be conducted by health workers, i.e., civil servants employed by the Government of Guyana as well as any contracted workers for the Contractor. All workers will have orientation on and sign a Code of Conduct (CoC) on expected behavior and safety standards including GBV/SEA/SH risks.</p>

	<p>In line with ESS2 as well as Guyana’s laws, the use of child labour and forced labour is prohibited in the overall project and subproject. The subproject will also ensure a basic, responsive GRM, already included in the overall project, to allow workers to quickly inform their immediate management of labour issues, such as health and safety risks, lack of PPE, and any other issues arising. The Ministry of Health recently launched its National Help Desk Hotline. Workers will also be able to lodge labour issues, whether directly or indirectly related to the subproject.</p> <p>OHS risks related to the medical waste management include sharps-inflicted injuries and disease infections are expected, the waste handlers and incinerator operators will be provided with adequate and appropriate PPE, guidance on operation and maintenance of equipment, training and capacity building on OHS measures, infection, prevention and control and medical waste management to healthcare workers, waste handlers and incinerator operators. As part of the wider Guyana Covid-19 ERP, this subproject will follow the guidance of the Labour Management Procedures (LMP) that is already in effect.</p>
ESS3: Resource Efficiency and Pollution Prevention and Management	<p>The project seeks to enhance healthcare waste management at 10 hospital sites by providing the locations with reliable and sufficient capacity to incinerate medical waste, as well as avoid, minimize and mitigate air emissions associated with existing incineration operations and burning practices. Each site is managed by a Health Care Waste Management Plan. This standard is not relevant.</p>
ESS4: Community Health and Safety	<p>In line with safety provisions in ESS2, it is equally important to ensure the safety of communities and healthcare workers from COVID-19 infection and other infectious diseases, especially the workers operating the incinerator. This subproject will rely on the wider Community Health and Safety Plan to ensure effective operations without aggravating potential conflicts between host communities and patients.</p>
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	<p>The standard is not currently relevant. The locations for the 10 incinerators are on the respective hospital grounds on by the Government of Guyana and will not involve the acquisition of lands or displacement of persons.</p>
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	<p>The standard does not appear to be relevant at this stage as there are no rare, threatened or endangered species and no special habitat or protected areas at the 10 locations.</p>
ESS7: Indigenous Peoples / Sub-Saharan African Historically Underserved Traditional Local	<p>This standard is relevant since the subproject locations include Indigenous locations. Indigenous Peoples, commonly referred as Amerindians in Guyana, reside primarily in the Hinterland regions (1, 7, 8 and 9). This subproject will be guided by the</p>

Communities	Indigenous Peoples Plan (IPP) developed and currently in implementation through the wider GC-ERP.
ESS8: Cultural Heritage	Although the project does not likely envisage any impacts on physical, cultural, and/or archaeological sites, the standard is considered relevant since some of the works may require excavation below ground. The project will rely on a chance finds procedure contained as a precaution in the project's ESMPs and as part of construction contracts to be awarded under the project.
ESS9: Financial Intermediaries	The standard is currently not relevant, as there are no FIs involved in the project.
ESS10: Stakeholder Engagement and Information Disclosure	The project is implemented by the MOH, which has established a structured approach for engagement with stakeholders. The wider Guyana Covid-19 ERP has already developed and is currently implementing a Stakeholder Engagement Plan (SEP) that is based upon meaningful consultation and disclosure of appropriate information, considering the specific challenges associated with Covid-19. In addition, it is required to disclose environmental and social related documents (ESIA and ESMP) and consult with relevant stakeholders.

3.7. World Bank General Environment Health and Safety (EHS) Guidelines

The WBG general EHS guidelines contain performance levels and measures for development of projects and are achievable in facilities at reasonable costs by existing technology. WBG EHS guidelines apply to specified sub-project components of GC-ERP regarding the procurement and installation of ten incinerators. Among the applicable guidelines, the following points provides a summary:

3.7.1. WB EHS Guidelines – Waste Management

These guidelines apply to both non-hazardous and hazardous waste. These guidelines advocate for waste management planning where waste should be characterized according to composition, source, types, and generation rates. This is essential for the hospitals in relation to the operation of the incinerators since there is a need to segregate the different categories of waste generated at the overall hospital level. These guidelines call for an implementation of a waste management hierarchy that comprises prevention, recycling/reuse, treatment and disposal. These guidelines require segregation of conventional waste from hazardous waste streams and if generation of hazardous waste cannot be avoided, its management should focus on prevention of harm to health, safety, and environment, according to the following principles:

- i. Understanding potential impacts and risk associated with management of any generated hazardous waste during its complete life-cycle;
- ii. Ensuring that people handling, treating and disposing of hazardous waste are reputable and legitimate enterprises, licensed by relevant regulatory agencies and following good international industry practice, and;

- iii. Ensuring compliance with applicable regulations.

The hospital generates various quantities of hazardous and non-hazardous waste, and the guidelines recommend monitoring activities to include:

- i. Regular visual inspection of all waste storage, collection and storage areas for evidence of accidental releases and to verify that wastes are properly labelled and stored;
- ii. Regular audits of waste segregation and collection practices;
- iii. Tracking of waste generation trends by type and amount of waste generated, preferably by facility departments; and
- iv. Keeping manifests or other records that document the amount of waste generated and its destination.

3.7.2. WB EHS Guidelines – Air Emissions and Ambient Air Quality

These guidelines are meant for all types of projects with “significant” emissions, sources of air emissions, and potential for significant impacts to ambient air quality to prevent or minimize impacts by ensuring that emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards. They require the application of national legislated standards, or in their absence, the current WHO Air Quality Guidelines, or other internationally recognized sources. Guyana currently has Environmental Regulations (Air Quality) as outlined in 3.1.2. that are applicable to this project. For this sub-project, there will be minor air emissions, which are expected during the construction phases of the project. The proposed incinerator is odourless and fumeless, and as such, there are no significant impacts expected during the operational phase of the project. These guidelines are useful as they give control and monitoring measures.

3.7.3. WB EHS Guidelines – Noise

This section addresses impacts of noise beyond the property boundary of the facilities. These guidelines are applicable during the construction phase whereby construction equipment and activities are expected to emit noise. Guyanese Noise Management Regulation (2000) as outlined in 3.1.4. give permissible levels during construction works. The MOH, therefore, has adequate guidance to ensure noise levels are maintained as low as reasonably practicable.

3.7.4. WB EHS Guidelines: Occupational Health and Safety

These guidelines guide employers and supervisors in fulfilling their obligation to implement all reasonable precautions to protect the health and safety of workers. The guidelines provide guidance and examples of reasonable precautions to implement in managing principal risks to occupation health and safety. Although the focus is placed on the operational phase of projects, much of the guidance also applies to construction and decommissioning activities. The guidelines also describe how facility operation workplace design should be undertaken to prevent occupational health and safety risks and hazards.

3.7.5. WB EHS Guidelines – Construction and Decommissioning

These provide additional and specific guidance on the prevention and control of community health and safety impacts that may occur during new project development, at the end of the project life cycle, or due to construction or modification of existing project facilities.

3.7.6. WB EHS Guidelines – Health Care Facilities

The EHS Guidelines for Health Care Facilities (HCF) include information relevant to the management of EHS issues associated with HCF. It provides guidelines for basic infrastructure elements of HCF to improve on health of patients, prevent transmission of infections among patients and staff and control impacts of environment health and safety including maintenance of sanitary conditions and use of appropriate disinfection techniques, potable water, clean air and nosocomial infection control.

3.7.7. WB Guidelines on Prevention of GBV/SEA

The WB Guidance Note on GBV/SEA in civil works describes GBV/SEA as an ‘umbrella’ term for any harmful act that is perpetrated against a person’s will and that is based on socially ascribed gender differences.¹¹ Consequently, it can occur in a variety of ways, including through the infliction of physical, mental and sexual harm or suffering threats of such acts, as well as coercion and other deprivations of liberty, such as early or forced marriage, economic abuse and denial of resources, services and opportunities, trafficking and abduction for exploitation, or Intimate Partner Violence (IPV) perpetrated by a former or current partner. Most importantly, the WB applies ‘GBC/SEA’ as an umbrella term that includes SEA.

The Bank defines SEA as an actual or attempted abuse of position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially, or politically from the sexual exploitation of another. In Bank financed operations/projects, sexual exploitation occurs when access to or benefit from a Bank financed goods, works, non-consulting services or consulting services is used to extract sexual gain. Sexual abuse is defined as the actual or threatened physical intrusion of a sexual nature, whether by force of under unequal or coercive conditions.

Sexual harassment (SH) is understood as unwelcome sexual advances, requests for sexual favors, and other unwanted verbal or physical conduct of a sexual nature. SH differs from SEA in that it occurs between personnel/staff working on the project, and not between staff and project beneficiaries or communities. The distinction between SEA and SH is important so that agency policies and staff training can include specific instructions on the procedures to report on both. Both women and men can experience SH.

The EHS Guidelines apply across the board during the construction and operation phases of the installation of the incinerators. The applicable requirements in the WB’s EHS requirements provide guidance to this ESIA.

3.8. Relevant Regional and International Agreements and Conventions

Guyana is a signatory to several regional and international conventions dealing with toxic and hazardous substances including:

¹¹ World Bank Group, Good Practice Note. Addressing Gender Based Violence in Investment Project Financing involving Major Civil Works, September 2018.

- The Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their disposal that the EPA has responsibilities for implementing (Hazardous Waste Regulations 2000)
- International Health Regulations
- Member of International Atomic Energy Agency – Radioactive Waste
- The United Nations Sustainable Developmental Goals
- Caribbean Planning for Adaptation to Climate Change and the Paris Agreement
- Agenda 21 adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992.
- Stockholm Convention on Persistent Organic Pollutants
- United Nations Framework Convention on Climate Change (Treatment of Medical Waste)
- United Nations Framework Convention on Climate Change (REDD+)
- Rotterdam Convention
- Minamata Convention on Mercury (Mercury used in equipment and medical supplies for dental purposes)
- Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region
- Kyoto Protocol
- Montreal Protocol
- Vienna Convention

3.9. Legislation Gaps

Where there are gaps in legislations, the WHO's guidelines and the WB's ESSs requirements will provide guidance for this ESIA and the overall project. Table 11 highlights the legislation gaps between Guyanese legislation and the WB's ESSs, and the measures to bridge those gaps.

Table 11: Gaps between Guyanese Legislation and World Bank ESSs

WB ESSs Provisions	Guyanese Legislation	Gaps Identified	Mitigation Measures
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	<ul style="list-style-type: none"> • The Environmental Protection Act (1996) • the Environmental Protection Amendment Act (2005) 	<p>The Environmental Protection Act 1996, and the Environmental Protection Amendment Act 2005 do not indicate the need to prepare ESMF for projects to guide the presentation of project specific ESIA's.</p>	Implementation of the ESMF for the GC-ERP
ESS 2: Labour and Working Conditions	<ul style="list-style-type: none"> • The Constitution of Guyana (1980) • Occupational Health and Safety Act (1995) • The Holidays with Pay Act • The Wage Councils Act 1956 • Accidental Deaths and Workmen's Injuries (Compensation) Act 1983 • The Public Utility Undertakings and Public Health Services Arbitration Act • Labour (Conditions of Employment of Certain Workers) Act • Employment of Young Persons and Children Act • The Termination of Employment and Severance Pay Act • The Prevention of Discrimination Act, (No. 24 of 1997) 	<p>The national legislation does not require LMPs to be developed.</p>	<p>The GC-ERP has followed the WB's ESS 2 and developed a project LMP with relevant provisions to bridge the gap.</p>
ESS 4: Community Health and Safety	<ul style="list-style-type: none"> • Occupational Health and Safety 	<p>This Act does not focus much on community health and</p>	<p>This gap has been addressed through the implementation of</p>

WB ESSs Provisions	Guyanese Legislation	Gaps Identified	Mitigation Measures
	Act (1995)	safety.	the wider GC-ERP which addresses potential risks and impact on communities that may be affected by project activities.
ESS 7: Indigenous Peoples / Sub-Saharan African Historically Underserved Traditional Local Communities	<ul style="list-style-type: none"> Amerindian Act (2006) 	This legislation does not require any IPPs to be prepared for projects of any kind to be undertaken in Hinterland communities where Indigenous People reside.	This gap has been addressed through the implementation of the wider GC-ERP, where an IPP was drafted and is currently in implementation.
ESS 10: Stakeholder Engagement and Information Disclosure	None	There are no laws in Guyana requiring stakeholder consultations for projects to be implemented or provisions for development of a GRM.	The wider CG-ERP has developed and is currently implementing a SEP, which includes a GRM.

CHAPTER 4

ANALYSIS OF PROJECT ALTERNATIVES

4.0. Introduction

This chapter analyzes the possible project alternatives from various facets applicable to the proposed project. The major aspects that will be considered for alternatives are project site, design and technology scale and healthcare waste management options, and zero or no project alternative.

4.1. The Alternatives

4.1.1. Relocation Options

Relocating the proposed projects to alternative sites is not a viable option. The proposed installation of these incinerators is meant to assist in the efficient management of healthcare waste from the operations at ten (10) hospitals across Guyana. These sites proposed for the incinerators are right within the hospital compounds and do not require additional land acquisition. Such a scenario would mean extensive time is spent in finding suitable lands and involve land preparation, and installation of utilities, such as electricity and water. With the proposed sites, minimal site preparation is required. Having the incinerators located away from the hospitals would mean that waste would still have to be transported back to the coast in Georgetown, making the process inconvenient, unsafe, and inefficient.

4.1.2. Zero or No Project Alternative

The No Project option in respect to the proposed project implies that the status quo is maintained. This option will be tantamount to ignoring the risks posed by poor healthcare waste management, not to mention the complaints of the surrounding communities due to continued air pollution from open pit burning. The No Project Option is the least preferred from the public health, socio-economic and environmental perspectives considering the environmental and public health risks associated with poor disposal of healthcare waste. From this analysis, it becomes apparent that the No Project alternative may not be an option to the MOH.

4.1.3. Repair of Existing De Montfort Burners / Burn Box

The proposed sites selected for interventions do not have environmentally friendly waste management systems in place. The sites currently utilize De Montfort incinerators or burn boxes. In some cases, sites have nonfunctional incinerators. In other cases, open air burning is done. While De Montfort incinerators are alternatively cheap, they require constant maintenance and hands-on ash removal. In addition, the temperature at which waste is burnt is not always

constant. It only has a lifespan of about five years. These incinerators are older than its current lifespan. This type of incinerator also poses environmental threats since fumes and smoke produced are not filtered or scrubbed and may affect nearby residents or the hospital environment.

Burn boxes are not environmentally friendly since the fumes given off are not contained and is harmful to the environment. In addition, these do not have the capacity to handle large volumes of waste. The ash and burnt material are then removed by hand and in some instances, the materials are not properly destroyed and require further incineration.

4.1.4. Hydroclave vs. Autoclave

Hydroclave is another alternative system that is currently being utilized at the GPHC. This is a treatment sterilizing equipment utilizing steam in the process. Steam is injected into a double jacketed vessel into which waste is placed. The vessel is equipped with robust paddles which shred the waste into small pieces thereby allowing the steam to permeate the waste and sterilize it in the process. All microbiological activity is destroyed, and the sterilized waste can safely be disposed of in a landfill as normal domestic type waste. All infectious waste and sharps from healthcare facilities in Georgetown, New Amsterdam, West Demerara, and Linden, are being transported to this facility for treatment. With a procurement price tag of \$100,000US and 1 ton per day generation of infectious waste and sharps, the hydroclave conventional treatment technology is best suited for GPHC. However, this type of technology is not suited for remote areas of Guyana, as the power it takes to operate and the constant need for maintenance renders it difficult to operate in these far-off regions in Guyana.

Regarding the autoclave, these types of equipment are used for the sole purpose of only sterilizing the healthcare waste and not completely disposing of it. Some of the proposed sites already have small table-top autoclaves for the sole purpose of sterilizing waste before disposal. However, waste disposal still remains a challenge since there is no proper way to break down the waste for complete disposal.

4.1.5. Proposed Incinerator (Preferred Alternative)

The MP200 is a front-loading mixed medical waste incinerator, which can be reloaded several times easily throughout the incineration cycle. Regularly chosen by international agencies and government bodies for installation at small hospitals, clinics, research centres, private surgeries, vaccination centres and other clinical waste facilities. The Addfield medical incinerators are designed to help maintain biosecurity by providing an onsite solution to disposing of medical and hospital waste safely and rapidly.

The MP200 benefits from a Hot Hearth system which directs the heat underneath the primary chamber delivering 360° heating, removing any cool spots, and enabling the destruction of high moisture organic waste safely. The incinerator benefits from a 0.57m³ loading chamber capable of incinerating up to 300kg of waste in an eight-hour cycle. Highly efficient in operation, the MP200 medical incinerator requires up to 40% less fuel to operate due to its advanced construction and insulation, including a triple-layered brick-based refractory made up of a thick

insulation board, insulation brick followed by an Alumina infused outer layer of thermal bricks that reflect the heat back into the chamber whilst maintaining the heat throughout the process.

The MP200 includes its secondary chamber to clean all the gases created through the process of incineration within its thick steel outer shell. Developed to have a two-second retention time at 1100°C as per WHO guidelines to suit the requirements of the waste being disposed of and ensuring a smoke and odour-free operation removing hazardous particulates from re-entering the local environment.

The MP200 can be fueled by Diesel, Gas, HVO biofuel, kerosene, and a wide range of alternative fuels to ensure clean, efficient, and economical disposal of medical waste. It can reduce the volume of waste by as much as 97% leaving any glass or metals sterilized and ready to be disposed of or recycled accordingly.

The proposed incinerators are ideally chosen as they are an improvement to the existing home-built incinerators that we have currently. Maintenance is not likely to be expensive as the company has a step-by-step online program that allows for in-house maintenance at \$1,000US for the training course. If required, additional materials can and will be purchased from the company. Observations or lessons learnt from the existing incinerators are slight modifications to improve the design such as having the incinerator placed on pallets or a constructed lift to have it elevated off the ground. Additionally, practicing waste segregation when burning is an observation that is needed to be instilled by Hospital Administration.

4.2. Conclusion and Summary

The major aspects that were considered as project alternatives include, project site, technology scale, and zero alternative. The proposed sites are located within the hospital compounds allowing for controlled access. No project option could maintain the status quo, and even by repairing faulty incinerators, they do not have the capacity to treat all healthcare waste generated from the hospital during its optimal operation and may lead to continued emission raising other community health and safety threats.

Therefore, the procurement and installation of the proposed incinerators is most appropriate considering that it meets the requisite air quality and noise standards and safe for medical waste disposal.

CHAPTER 5

STAKEHOLDER CONSULTATIONS AND PARTICIPATION

5.0. Introduction

Relevant and adequate project information was provided to key stakeholders to enable them to understand project risks, impacts and opportunities. This is critical and plays an integral role in the ESIA process, which is a legal requirement and an important tool for the collection of the data and especially the baseline/background information.

5.1. Objectives of Consultation

The consultations with stakeholders were carried out to specifically achieve the following objectives:

- i. To provide information about the project and to tap stakeholder information on key environmental and social baseline information in the project area;
- ii. To provide opportunities to stakeholders and communities to discuss their opinions and concerns respectively and get a full appreciation of their expectations;
- iii. To solicit the stakeholders' views on the project and discuss their involvement in the various project activities;
- iv. To inform the process of developing appropriate mitigation measures as well as institutional arrangements for effective implementation of the project.

5.2. Methodology of Consultations

Consultations were done periodically and throughout the preparation of this ESIA. Due to time limitations and availability of stakeholders, consultations were done through the following methods:

- i. Telephone conversations
- ii. Recurring meetings (both online and in-person, hybrid)

5.3. Stakeholder Participation

Table 6 below highlights the stakeholders who participated throughout the ESIA preparation:

Table 12: List of Stakeholders

Name	Designation	Organization
Dr. Leslie Ramsammy	Advisor to the Minister of Health	MOH
Dr. Veronica Griffith	Deputy Director of Regional Health Services	MOH
Dr. Ertenisa Hamilton	Director of Primary Health Care Services	MOH

Name	Designation	Organization
Dr. Oneka Scott	Head, Maternal and Child Health Department	MOH
Dr. Steven Cheefoon	Regional Health Officer	Regional Health Department 1
Dr. Ranjeev Singh	Regional Health Officer	Regional Health Department 2
Dr. Edward Sagala	Regional Health Officer	Regional Health Department 7
Dr. Johnathan Dudnath	Regional Health Officer	Regional Health Department 8
Dr. Cerdel McWatt	Regional Health Officer	Regional Health Department 9
Andrea Bazilio	Regional Environmental Officer	Regional Health Department 1
Delon Pyle	Regional Environmental Officer	Regional Health Department 7
Bonita McDonald	Environmental Officer	EHD, MOH
Kim Jacobs	Regional Environmental Officer	Regional Health Department 8
Juanita Williams	Regional Environmental Officer	Regional Health Department 9
Ignatius Merai	Regional Environmental Officer	Regional Health Department 5

5.4. Summary of Consultations

For this particular ESIA, consultation was achieved through an internal consultation within the MOH and the respective Regional Health Departments. Table 7 below captures the engagement with stakeholders.

Table 13: Engagement with Stakeholders

Stakeholder	Issue Raised	Response Given
EHD	What type of waste can the incinerator dispose of?	The incinerator can dispose of clinical, treated, anatomical, cytotoxic and cytostatic waste, hygiene waste, medicinal and domestic waste.
Regional Health Department 9	What kind of provisions need to be in place to cater for the power of the incinerator?	The incinerator runs completely on fuel (either diesel or gas) and burns 40% less fuel compared to other types of incinerators. The incinerator relies on itself for power.
Regional Health Department 9	Are there local contractors available for the maintenance and servicing of the	Yes, there are local contractors who are currently capable of servicing and

Stakeholder	Issue Raised	Response Given
	incinerators proposed?	maintaining the proposed incinerators. The incinerators proposed are incinerators that are currently being utilized in Region 5.
Regional Health Department 2	One of the main concerns with our current incinerators is the fumes they give off during operations, which affect nearby residents. Will the proposed incinerator have this as well?	No. The proposed incinerators and environmentally friendly. No fumes or odor are produced by the incineration process. In addition, the incinerator produces around 76 Db of noise, which falls within the daytime national noise regulations for noise emission.
Regional Health Department 9	This project is welcomed and aligned with the Region's Infrastructural Upgrade projects, and so the proposed sites will cater for housing of the incinerators.	
Regional Health Department 1	Since the incinerators are environmentally friendly are will not give off fumes, surrounding communities will have no issue with the operations.	

5.5. Stakeholder Engagement Framework of the Wider GC-ERP

The SEP for the parent project was prepared and updated during project implementation since the project's effectiveness and to reflect the AF. In line with ESS10, a GRM has been implemented for the wider GC-ERP to receive and facilitate the resolution of concerns and grievances of project-affected parties related to the E&S performance of the project in a timely manner. The GRM from the wider GC-ERP will be used in this sub-project for the same purpose.

The SEP was then revised and submitted to the WB in April 2022 and was approved and disclosed on the MOH's and WB's websites. In addition, the project's other E&S instruments were also updated and disclosed to allow stakeholders to understand the risks and impacts of the project, and potential opportunities.

5.5.1. Summary of Stakeholder Engagement Activities Conducted under the Wider GC-ERP

Several stakeholder engagement activities were conducted under the wider GC-ERP. Stakeholder consultation meetings took place as part of the preparation of the project and included preliminary meetings with different stakeholders during the screening/scoping, individual meetings and round-table meetings with different stakeholders including, Indigenous Peoples (IPs), RDCs, National Tshao Council, Amerindian People Association, and the Ministry of Amerindian Affairs during the preparation phase in October 2020. These reports can be found attached in the SEP disclosed on the MOH's website: https://www.health.gov.gy/images/documents/COVID-19-ERP-PY175268/Stakeholder_Engagement_Plan_.pdf

In 2022, the Project Implementation Unit (PIU) conducted additional stakeholder consultations during the period May-July. These stakeholder consultations took place through various methods, including, telephone calls, virtual meetings, and in-person meetings. The first set of consultations during this period included IPs through telephone calls in May 2022 and at the National Tshao Conference in July 2022. IPs were consulted on the project's objectives, components, risks and mitigation measures and the project's E&S instruments. The engagement activity has given the chance for project beneficiaries to interact and provide their feedback and concerns. In July 2022, Honourable Minister of Health Dr. Frank Anthony engaged in meaningful discussions with over 200 stakeholders, including IPs, His Excellency Dr. Mohammed Irfaan Ali, and members of his Cabinet. The reports of these consultations are outlined in Annex **Four**.

Also in July 2022, the PIU also conducted additional stakeholder consultations with vulnerable groups, such as LGBTQ organizations and civil society organizations. Stakeholders were engaged on the overall project, including the objectives, components, activities, and the supporting E&S instruments supporting the project. These reports are also included in **Annex Four**.

To date, no significant feedback or concerns have been given about the project and its activities.

5.6. Conclusion and Summary

The stakeholders present reaffirmed their support for the proposed project owing to its value in addressing the current healthcare waste management challenges across Guyana. There was therefore a consensus among the stakeholders to proceed with the procurement of the incinerators. Stakeholders also reaffirmed their support for the type of incinerators proposed due to their environmentally friendly nature and easy source of local maintenance. Stakeholders consider this project to be a major upgrade to current waste management practices being utilized.

CHAPTER 6

POTENTIAL ENVIRONMENT AND SOCIAL IMPACTS AND MITIGATION MEASURES

6.0. Introduction

This chapter identifies and predicts the potential positive and negative impacts on different environmental and social aspects arising from planning and design phase/preconstruction, construction, and operation phase of the proposed project. It is estimated that the positive and negative impacts are to be the same for each site. Similarly, it is expected that the mitigation measures to be taken will be the same for each site. These impacts and measures are elaborated in the sub-sections below.

6.1. Potential Positive Impacts During Planning and Design Phase

6.1.1. Training and Capacity Building for MOH Personnel

With the planning and design phase of the proposed project, this ESIA is being undertaken by the MOH to enhance technical capacity of the HSDU and the EHD. In addition, EHOs and public health staff will benefit from training in operating new waste management equipment and waste management techniques. Potential positive impacts of training and capacity building for MOH personnel are **positive, direct, short- to long-term** and **localized** and of **major significance** but are **Almost Certain** to occur if appropriate management measures are implemented.

6.1.2. Creation of Awareness

During the planning and design phase of the proposed project, awareness done through consultations on different aspects of the project strengthened project acceptance. Awareness creation improves project acceptance in its planning, implementation and operations phases as well as promote project sustainability. Potential positive impacts of awareness for MOH personnel are **positive, direct, short- to long-term** and **localized** and of **major significance** but are **Almost Certain** to occur if appropriate management measures are implemented.

6.2. Potential Negative Impacts During Planning and Design Phase

It is envisaged that there will not be any significant negative impacts during the planning and design stage of the project. All 10 locations are considered “brownfield”, and have no rare,

threatened or endangered species, and will not require acquisition of land, displace communities/individuals or affect cultural historic sites,

Proposed Mitigation Measures

While the project is envisaged to have minimal to no negative impacts during the planning and design stage, the MOH shall take the necessary measures to mitigate risks through:

- i. Liaising with the relevant technical departments within the MOH in development of designs;
- ii. Proper siting of the incinerator to ensure harmony with the hospital layout and planning;
- iii. Ensure all designs are approved by the MOH and other relevant authorities;
- iv. Ensure that the design requirements are adhered to satisfy incinerator manufacturer's specifications and requirements.

6.3. Potential Positive Impacts during the Construction Phase

6.3.1. Creation of Market for Construction Materials

The project will require building and construction materials such as sand, cement, wood, among others. Such materials should be sourced locally so as to assist in providing a ready market for suppliers of such materials within and outside the project areas.

6.3.2. Source of Short-Term Employment Opportunities

The construction works will require services from both the need for machine operators as well as other skilled and unskilled labourers. It is recommended that such people be sourced from the local community as much as possible. The construction work will require several human resources from machine operators to other skilled and unskilled labourers. Several workers including casual labourers, plumbers, electricians and engineers, and health and safety experts are expected to work on the site for a period of time. Potential positive impacts of creation of employment are **positive, direct, short-term** and **localized** and of **major significance**, but are **Almost Certain** to occur.

6.4. Potential Negative Impacts during Project Construction Phase

The following negative impacts are associated with the construction of the shelters for the incinerators as well as its installation.

6.4.1. Soil Contamination

Soils may be accidentally or intentionally contaminated by the dumping of wastes during project construction. Wastes generated by construction activities will comprise primarily of general solid wastes including food wastes, empty packaging from construction materials, plastics, paper, cardboards and construction waste. To a limited extent, soils may be contaminated by small quantities of hazardous materials and waste such as fuels used for construction machinery such as cement mixers, bob cats, etc., as well as waste oils from planned or unplanned maintenance of construction machinery. Construction work may also contribute to increases in sewage generated

on-site by construction workers. Potential impacts of soil pollution are **negative, direct, short-term** and **localized** and of **minor significance** but are **unlikely** to occur if appropriate management measures are implemented. As such, this is a **Low-Risk** impact estimated from project activities.

Proposed Mitigation Measures

- i. Each site's hospital administration shall ensure the contractor adhere to ESMP, as well as each site's waste management plan to be implemented at the site. The contractor shall be responsible for storage of waste, provision of bins, site clean-up, bin clean-out schedule for their construction work;
- ii. Contractor shall be responsible for handling and disposal of all construction and related waste, including hazardous materials and fuel/oils in accordance with EPA's requirements;
- iii. Encourage efficient use of materials to as much as possible to avoid and minimize waste production;
- iv. Ensure waste are recycled / reused before opting to dispose of at an EPA approved disposal site;
- v. Designate temporal waste / garbage holding areas at site;
- vi. Use of waste receptacles that encourage segregation to hold waste on site before its collection;

6.4.2. Soil Compaction

The nature of the soil in the vicinity of each project area may make them susceptible to compaction and subsidence beyond the permeable limits of the soil. Potential risks of compaction are likely to be the greatest in material stockpile areas. Soil compaction may contribute to ponding of water on the surface of soils which may contribute to soil subsidence and erosion at the surface. However, project construction activities are expected to have limited use of heavy machinery and vehicles. In addition, material stockpiles will be established temporarily and as a result, the anticipated footprint of compaction is a relatively small area. Further, soils within each hospital's compounds were most likely previously compacted. Potential impacts of compaction are **negative, direct, short-term** and **localized**, of **negligible significance** and are **likely** to occur in some situations. As such, this is a **Low-Risk** impact resulting from construction-related activities.

Proposed Mitigation Measures

- i. Traffic and movement of heavy-duty equipment over open areas should be restricted and controlled, and damage to these areas should be repaired as soon as possible;
- ii. Soils that have been compacted by heavy-duty equipment during transport of materials and also during site works should be scarified;
- iii. Appropriate heavy-duty equipment should be utilized for all works;
- iv. Designated routes for heavy-duty vehicles should be established and used to limit soil compaction.
- v. Material stockpiles (marl, sand and gravel, etc.) should be covered and banded to prevent fugitive dust formation and pollution of surface water run-off.

6.4.3. Pollution of Water Bodies

The project is not expected to impact groundwater resources. Surface water resources may be accidentally or intentionally contaminated by the discharge of fuels and waste oils or other hazardous wastes during the construction phase of the project. However, project construction activities are expected to have limited use of heavy machinery and vehicles. There will also be the risk of pollution of water ways from improper dumping of general sild waste. Potential impacts of changes in physical parameters of surface water bodies and ground resources are **negative, direct, short-term and localized, of negligible significance** and are **unlikely** to occur if appropriate management measures are implemented. As such, this is a **Low-Risk** impact from project activities.

Proposed Mitigation Measures

- i. Contractor to avoid seepage of wastewater, fuel, oil and oily water into the surface water body through proper storage of fuel/oils and treatment/containment of wastewater;
- ii. Minimize onsite storage of potentially contaminated materials;
- iii. Adequate management and proper handling and storage of construction materials, oils and fuel to avoid spillages;
- iv. During the course of construction works, all material stockpiles to be properly stored to avoid surface run-off and temporary drainage channels should be constructed to encourage dispersal of excess water;
- v. Contractor will provide portable sanitation units are available for workers at each location;
- vi. Contractor to immediately report to hospital management and Project PIU of any spills or accidental releases and proposed measures for containment and remediation;

6.4.4. Noise and Vibration Generation

The construction activities of the proposed project will most likely result in noise emissions and vibrations as a result of the machines that will be used, e.g., excavation equipment and construction vehicles delivering materials to site. Noise could also be generated by construction workers. The potential impacts associated with environmental and occupational exposure to noise are **negative, direct, short-term and localized, of moderate significance** and are **likely** to occur at some of the areas to be intervened. As such, this is a **Medium-Risk** impact from project activities.

Proposed Mitigation Measures

Each site's hospital administration, through the contractor, shall put in place several measures that will mitigate noise pollution during the construction phase to include the following:

- i. Contractors to coordinate with each site's hospital administration on acceptable days (Monday to Friday) and construction times to be limited (8 am to 5 pm), and in particular, in relation to any specific works that may cause more significant noise and/or extended periods within a day;
- ii. Noise suppression measures must be applied to all construction equipment, such as installing portable barriers to shield compressors and other small stationary equipment,

- cover engine of generators where necessary and ensure all the equipment used on site are well maintained and in good working condition;
- iii. Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible.
 - iv. Provision of appropriate PPE (hearing protection – earmuffs/plugs) to the workers and any other person visiting the construction and renovation site especially in work areas with heightened noise levels;
 - v. Consider manual labour-based construction methodologies; and
 - vi. Construction workers should be made aware of the sensitive nature of the hospital and advised to limit verbal and other forms of noise.

6.4.5. Air Pollution through Dust and Emissions

Dust could most likely be emitted during excavation activities and from construction material stockpiles and related earthworks which could potentially lead to air-borne particulate matter pollution. Gaseous emissions are also expected from construction vehicles and machinery. Sensitive receptors to increased emissions of particulate matter and gases from fuel combustion include hospital staff, patients and visitors, construction workers and community receptors.

Particulate matter and gases from fuel combustion are likely to disperse rapidly given the open areas in which construction works will be located and community receptors are not expected to be adversely impacted.

Given that the works will be conducted within the existing compound of the hospitals or close to buildings being used to provide health care services, the impact of dust generation will be a concern. Poor air quality could affect health facility workers, patients and visitors and can result in either minor or severe health impact depending on the level and duration of exposure. The potential impacts of environmental and occupational exposure to high dust levels and gases from fuel combustion are **negative, direct, short-term and localized, of moderate significance** and will **likely** occur. As such, these impacts are estimated to be **Medium-Risk** resulting from project activities.

Proposed Mitigation Measures

- i. Minimize the number of vehicles on use and limit vehicle speeds to a maximum of 10km/hr around and within the project site;
- ii. Contractor to ensure that all equipment and machinery are periodically serviced to ensure good working conditions to minimize emissions;
- iii. Wet all active construction areas as and when necessary to reduce dust;
- iv. Contractors to provide appropriate PPE (dust mask) to workers and enforce on use. Hospital administration to provide PPE (dust masks) for hospital staff, patients, and visitors.
- v. Contractors to ensure all material stockpiles and earthworks are covered and wetted to prevent fugitive dust formation.

6.4.6 Traffic

All ten (10) project sites are located in rural areas / hinterland communities where there is a minimal flow of traffic. However, for the construction phase, construction materials, equipment and personnel will have to be transported to work sites resulting in minor increases in traffic. This can lead to minor traffic congestion, especially around the hospital sites. However, if the transport of materials is done outside of peak traffic around the hospital sites, then this impact can be significantly reduced. As such, potential impacts of traffic congestion during the construction phases are **negative, direct, short-term, localized, of moderate significance** and will **likely** occur during the construction phase. As such, this impact is estimated to be of **Medium-Risk** during the construction phase.

Proposed Mitigation Measures

- i. Contractors to work with each hospital administration to determine optimal hours (8am to 5 pm) of delivering construction materials;
- ii. Hospital administration to monitor incoming traffic during construction phases;
- iii. Make use of predetermined routes when bringing in construction material or in transportation of solid waste generated;
- iv. Contractor and Hospital Administration to install signage to inform the public and hospital workers of construction activities.
- v. Erect traffic signals and signs during construction phase and leave appropriate ones for the operational phase.

6.4.7. Biological Resources

The project will not impact biological resources. Interventions at all ten (10) hospitals will occur within the existing hospitals' compounds. These lands are all cleared of primary vegetation and, therefore, hold no ecological value. There are no species of importance (rare, endangered, and endemic) inhabiting these locations, and there is no area which can be considered a critical habitat. The hospitals are not located in close proximity to any protected or sensitive areas.

Proposed Mitigation Measures

- i. If protected or sensitive species are discovered or suspected, then work will be ceased, and the EPA will be informed. The principal contractor will seek expert advice and/or consult the PIU and MOH in order to develop and agree on an appropriate management strategy;

6.4.8. Archaeological Resources

Even though the hospital sites are not associated with any known archaeological findings there is still the possibility of finds that may be of historical value to Guyana. Therefore, if present within the areas, artifacts can become damaged or lost as a result of certain activities, especially land clearing. Potential impacts of loss or damage to archaeological resources during the construction phase are **negative, direct, long-term, regional, of moderate significance**, but may rarely occur given the small footprint of the project and that no other archaeological resources are known to

have been found in the area even though it is disturbed. As such, this impact is estimated to be of **Low Risk**.

Proposed Mitigation Measures

- i. Immediately stop construction activities in the area of discovery;
- ii. Secure the site to prevent any damage or loss of removable objects;
- iii. Immediately notify the PIU and hospital administration, who will then inform the EPA and MOH;

6.4.9. Occupational Health and Safety Impacts of Workers

Construction works unavoidably expose workers to OHS risks such as accidents and injuries from accidental falls from heights, slips due to wet surfaces, burns from welding, electrocution and use of faulty hand tools and construction equipment. Potential impacts to the occupational health and safety of workers are **negative, direct, short-term** and **localized**. These potential impacts are of **major significance**, but can largely be avoided if appropriate mitigation measures are put in place, and therefore, are **unlikely** to occur. As such, these impacts are **Medium-Risk**.

Proposed Mitigation Measures

- i. The Contractor is expected to comply with Guyan's OHS rules and regulations as stipulated in the Occupational Health and Safety Act 2005.
- ii. All construction workers should be sensitized on the health and safety requirements while at the project sites and risks associated with construction work;
- iii. Workers should be provided with suitable PPE such as safety helmets, safety shoes, gloves, masks and overalls;
- iv. Provision of clean and accessible sanitary facilities and drinking water to be provided to workers by the Contractor;
- v. Trenches over 0.5m deep or wherever soil conditions dictate should be secured against accidental falls by workers and the public;
- vi. Install information and safety signage along the work areas;
- vii. GRM, already in place, through the wider CG-ERP LMP, to be communicated to workers for raising safety issues and proposing improvements of project sites;
- viii. Contractor's Code of Conduct and Workers Code of Conduct under the wider GC-ERP to be communicated to contractors and workers prior to construction works;

6.4.10. Health, Safety and Security of Hospital Staff, Patients and Visitors

The works under the project will be done within the existing hospitals setting. Therefore, there are potential impacts to the health, safety and security of staff, patients, and visitors. These potential impacts include noise and dust nuisance, traffic-related accidents from vehicles transporting materials, unsafe work conditions in material stockpile areas and construction zones, including sexual harassment by construction workers. Potential impacts to the health, safety and security of staff, patients, and visitors are **negative, direct, short-term** and **localized**. However, given the management measures in place by the MOH and the regional health authorities, these potential impacts are of **major significance** and are **unlikely** to occur. As such, these impacts are **Medium-Risk**.

Proposed Mitigation Measures

- i. Hospital administration should, to the extent possible, relocate services which are within or close by to the construction zone prior to the commencement of construction in those areas;
- ii. Fencing or cordoning off of the construction zone, installing dust screens and noise barriers;
- iii. Install information and safety signage along the work areas;
- iv. Contractor and hospital management to determine alternative access to compound for construction workers;
- v. Vehicles speeds should not exceed 10km/hr within and around the project sites;
- vi. Hospital health and safety personnel to monitor and ensure contractors comply with the health and safety requirements;
- vii. GRM, already in place, through the wider CG-ERP SEP, to be communicated to the public for raising public health safety issues and proposing improvements of project sites;

6.5. Positive Impacts during Operation Phase

6.5.1 Improved Waste Management Facilities

The project is expected to decentralize and improve regional hazardous waste management across Guyana. Many hospitals across Guyana are still using outdated methods of managing hazardous waste, such as open pit burning. In addition, this project is expected to reduce transportation costs in transporting waste from the hinterland regions to the coastal region for treatment and disposal. The project will also improve environmental, social, health and safety practices at each hospital, through the training of EHOs on maintenance and operational procedures of the incinerators to be placed within the Regions. These impacts are **positive, direct, long-term** and **localized**, of **major significance** and are **almost certain** to occur at all of the project sites. Therefore, these impacts have a **High Likelihood** of producing a beneficial impact.

6.6. Negative Impacts during Operation Phase

6.6.1. Improper Healthcare Waste Management

During its operation, the incinerator will be handling medical waste generated from several clinical activities including sample collection from COVID-19 suspected patients, laboratory practices and procedures (handling of specimen and chemicals) from activities in isolation area, vaccine waste from Covid-19 vaccination and other types of vaccines for men, women, and children, which needs to be treated in an appropriate manner before final disposal. Improper handling storage and disposal of waste and can result in infections and other health risks to hospital staff, patients, and visitors. Potential impacts of improper waste management are **negative, direct, long-term** and **localized**. However, given the waste management procedures already in place by the MOH and the regional health authorities, these potential impacts are of **major significance** and are **unlikely** to occur. As such, these impacts are **Medium-Risk**.

Proposed Mitigation Measures

- i. Each hospital will be in compliant with the ICWMP prepared under the wider GC-ERP and maintain their respective waste management plans as outlined in the Regional Waste Management Plan prepared under the MOH;
- ii. Waste will continue to be identified and segregated at the point of segregation. Non-hazardous waste, such as paper and cardboard, glass, aluminum, and plastic, should be collected separately and recycled. Food waste should be segregated and composted. Infectious and/or hazardous wastes should be identified and segregated according to its category using the colour-coded system at their place of production.
- iii. Seal and replace waste bags and containers when they are approximately three quarters full. Full bags and containers should be replaced immediately;
- iv. Identify and label waste bags and containers properly prior to removal;
- v. Transport waste to storage areas on designated trolleys/carts, should be cleaned and disinfected regularly;
- vi. Ensure the health and safety of healthcare waste handlers through the provision of appropriate PPEs and periodic maintenance of the incinerator;
- vii. Periodic training for healthcare waste handlers and hospital staff on the use of appropriate / full PPEs, hand hygiene practices, waste segregation strategies and cleanup procedures, onsite handling, collection, transport and storage, and fire safety measures;
- viii. Training of incinerator operators on the operation manual for the incinerator equipment (which is yet to be identified);
- ix. Routine monitoring of shredded waste for quality assurance of the de-contamination process;

6.6.2. Air Pollution (Incinerator Emissions)

The proposed incinerator ensures a smoke and odour-free operation removing hazardous particulates from re-entering the local environment. Therefore, this incinerator is in compliance with the WB EHS Guidelines and Health Care Facilities.

Proposed Mitigation Measures

- i. The MP200 includes its secondary chamber to clean all the gasses created through the process of incineration within its thick steel outer shell. Developed to have a two-second retention time at 1100°C as per WHO Guidelines. Since the incinerator is smoke- and odour-free, it is compliant with the WB EHS Guidelines and Health Care Facilities Guidelines.

6.6.3. Fire Risk

Without provisions for fire safety, there is a risk of fire outbreak at the hospital and at the building to those the incinerator with disastrous and financial impact. Fires can start from the high voltage electricity, chemical spills, ignitable materials within the hospital, accidents/elevated emissions associated with the existing incinerator, cigarette smoking in non-designated places or old electrical connections. Potential impacts resulting from fire risks are

negative, direct, long-term and localized. However, given fire safety measures in place by the MOH and the regional health authorities, these potential impacts are of **major significance** and are **unlikely** to occur. As such, these impacts are **Medium-Risk**.

Proposed Mitigation Measures

- i. Provide sand buckets, fire extinguishers at strategic positions within the incinerator and ensure periodic servicing;
- ii. Incinerator operators shall have basic training in fire control;
- iii. Fire emergency telephone numbers should be well displayed at the area where the incinerator is located;
- iv. Undertake regular fire drills targeting the incinerator operators to gauge the levels of preparedness and test on emergency response and use the results to improve on the response mechanism;

6.6.4. Fuel Storage (Diesel, LPG and Natural Gas)

The type of fuel that will be utilized by the incinerator is gasoline. Gasoline is injected directly into the machine via the fuel tank. This eliminates the need to manually pour fuel into the machine. However, because fuel will have to be stored in storage within the hospital compound, there is potential impacts resulting from fire risks which are **negative, direct, long-term and localized.** However, given fire safety measures in place by the MOH and the regional health authorities, these potential impacts are of **major significance** and are **unlikely** to occur. As such, these impacts are **Medium-Risk**.

Proposed Mitigation Measures

- i. Fire Extinguishers to be placed at every site in case of emergencies;
- ii. Handlers will be trained to handle fuel spills.
- iii. Utilize fuel tank that is provided in the incinerator package which stores 1,000 litres of fuel. This incinerator uses 40% less fuel in its burning phase as compared to other incinerators.

6.6.5. Occupational Health and Safety Risks for Healthcare Workers

OHS hazards associated with handling and transport of waste include needle-stick injuries due to other sharps such as broken glass; ergonomic issues especially related to lifting; blood splatter during waste handling; aerosolized pathogens (disease-causing microorganisms released as aerosols or tiny droplets suspended in air) during loading, compaction, or break up of untreated waste; breakage and spills of infectious waste bags; chemical exposure. The hospital environment is a potential source of infectious waste and these could pose unsafe conditions for healthcare staff. Of particular concern are health workers handling infectious waste (including sharps) without adequate protective gear and storage of sharps in containers that are not puncture-proof. aPotential impacts to the health and safety of healthcare workers are **negative, direct, long-term and localized.** However, given the OHS measures in place by the MOH and the regional health authorities, these potential impacts are of **major significance** and are **unlikely** to occur. As such, these impacts are **Medium-Risk**.

Proposed Mitigation Measures

- i. Ensure the implementation of standard precautions and transmission-based precautions are in line with national guidelines for Infection and Prevention Control (IPC) in healthcare facilities, MOH Regional Waste Management Plans, the wider CG-ERP IPCWM as outlined in the ESMP are adhered to.
- ii. Continuous training for healthcare waste management workers on the general functioning of the incinerator where appropriate, recognition of abnormal or unusual conditions, emergency response, in case of equipment failures and alarms, and surveillance of the final waste treated.
- iii. All employees working as incinerator operators and handling waste during hospital operations should be provided with appropriate PPE and trained on their proper use.
- iv. Limit access to the incinerator areas only to authorized persons;
- v. Warning and safety signage to be placed at the areas within the incinerator site;
- vi. Regular cleaning and disinfection at the waste treatment area;

Table 12 below shows the impact summary.

Table 14: Impact Summary Table

Project Phase	Potential Impact from Project Activities	Impact Assessment			Impact Risk
		Type	Significance	Likelihood	
Pre-Construction Phase					
Planning and design activities	Capacity building for MOH personnel.	Positive, Direct, Short-term, Localized	Major	Almost Certain	NA
Planning and design activities	Creation of awareness of the project for MOH personnel and key stakeholders	Positive, Direct, Short-term, Localized	Major	Almost Certain	NA
Construction Phase					
Project construction activities	Creation of employment for local persons	Positive, Direct, Short-term, Localized	Major	Almost Certain	NA
Project construction activities	Soil contamination from improper disposal of general solid wastes and hazardous wastes.	Negative, Direct, Short-term, Localized	Minor	Unlikely	Low
Project construction activities	Minimal compaction from material stockpiles and heavy vehicles.	Negative, Direct, Short-term, Localized	Negligible	Likely	Low
Project construction activities	Sedimentation of surface bodies	Negative, Direct,	Negligible	Unlikely	Low

Project Phase	Potential Impact from Project Activities	Impact Assessment			Impact Risk
		Type	Significance	Likelihood	
		Short-term, Localized			
Project construction activities	Noise nuisance to sensitive receptors	Negative, Direct, Short-term, Localized	Moderate	Likely	Medium
Project construction activities	Adverse impacts to ambient air quality affecting sensitive receptors.	Negative, Direct, Short-term, Localized	Minor	Likely	Medium
Project construction activities	No estimated impacts	None	Negligible	Unlikely	Low
Project construction activities	Traffic congestion during drop off of construction materials	Negative, Direct, Short-term, Localized	Moderate	Likely	Medium
Project construction activities	Damage to archaeological resources	Negative, Direct, Short-term, Localized	Moderate	Unlikely	Low
Project construction activities	Accidents at worksites resulting in injuries or fatalities	Negative, Direct, Short-term, Localized	Major	Unlikely	Medium
Project construction activities	Noise and dust nuisance, unsafe conditions around material stockpiles and construction zones, sexual harassment of staff, patients, and visitors.	Negative, Direct, Short-term, Localized	Minor	Likely	Medium
Operation Phase					
Project operation activities	Improved waste management in Hinterland Regions.	Positive, Direct, Long-term, Localized	Major	Almost Certain	NA
Project operation activities	OHS risks associated with handling and transporting waste.	Negative, Direct, Long-term, Localized	Major	Unlikely	Medium
Project operation activities	Improper management of healthcare waste	Negative, Direct, Long-term, Localized	Major	Unlikely	Medium
Project operation	Risk of fire	Negative,			

Project Phase	Potential Impact from Project Activities	Impact Assessment			Impact Risk
		Type	Significance	Likelihood	
activities		Direct, Long-term, Localized	Major	Unlikely	Medium

CHAPTER 7

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

7.0. Introduction

Under the ESMF, the MOH has developed the project ESMP to guide in the development of the recommended safeguard instruments based on the specific proposed project activities under the GC-ERP. The main objective of the project ESMP is to guide the PIU, MOH, contractor and stakeholders on the E&S Screening and subsequent sub-project E&S assessment, monitoring, and reporting, including the development of sub-project specific plans that have to be developed in accordance with the WB ESMF.

The project ESMF forms the basis of this ESIA prepared for the proposed procurement of ten (10) incinerators to be placed in the Hinterland Regions. The MOH acknowledges the fact that the proposed project activities will have some impact on the physical environment, health and safety of its employees, workers, the wider public, as well as local surrounding residents. Thus, the focus will be on minimizing/mitigating the negative impacts and enhancing the positive impacts associated with the project activities through a program of continuous improvements. The ESMP is outlined in Table 14.

7.1. Institutional Responsibilities

This ESMP will have roles and responsibilities at the level of the HSDU, EHD, Contractors and the hospital administration.

7.1.1. HSDU and EHD

The MOH will serve as the implementing agency for this project. The HSDU is a special projects unit within the Ministry and reports directly to the Advisor to the Minister of Health, and the Minister of Health. The HSDU is the managing body for projects in collaboration with its donor partners and is considered the PIU for the project. As it relates to E&S and OHS matters, the HSDU will work in collaboration with the EHD of the Ministry. The EHD is mandated to ensure that all risk factors which adversely affect human health and the environment are mitigated. The EHD oversees healthcare waste management across the ten (10) Administrative Regions and reports to the Director of Primary Health Care Services within the MOH. Overall, the MOH will have the responsibility of ensuring environmental, social, health and safety compliance, including compliance with the WB's ESSs.

7.1.2. Contractors

The contractors should employ suitable qualified and experienced personnel as an Environmental, Social, Health and Safety Officer, with the responsibility of ensuring compliance

with the environmental, social, health and safety requirements. The responsibilities of this individual should include, but not limited to the following:

- i. Adhere and comply to the project’s ESMF, ESMP and related safeguard instruments, including LMP, IPP, ICWMP, and SEP.
- ii. Ensure that workers are trained in health, safety and environmental requirements, including health and safety induction prior to commencement of work onsite;
- iii. Ensure compliance with the EPA’s Environmental Authorization;
- iv. Liaise with HSDU and EHD on compliance;
- v. Implement the ESMP;
- vi. Address any grievances to stakeholders;

7.1.3. Hospital Administration

The hospital administration will be responsible for overseeing and ensuring continuity of hospital services during project activities (construction) and ensuring that contractors comply with the environmental, social, health and safety requirements outlined in the ESMF and ESMP. As per requirement of the MOH’s Service Level Agreement (SLA) with the RHDs, the Hospital Administration is required to establish and maintain a functioning Occupational Health and Safety Committee. It is this committee that will monitor the functioning of the incinerator and the management of waste.

7.2. Roles and Responsibilities

To ensure the environmental, social, health and safety management measures are implemented, several players will have major roles to play. The recommended roles and responsibilities are outlined in Table 13 below.

Table 15: Summary of Environmental and Social Related Responsibilities

Institution	Roles and Responsibilities
Pre-Construction Phase	
PIU and MOH	Determine scope of project.
	Prepare ESIA and ESMP for the proposed project.
Contractors	Assign responsibilities for environmental, social, health and safety compliance to a competent team member or hire an ESHS personnel.
	Review ESMP and query any concerns.
	Conduct workers orientation and training on health and safety practices to be followed at the construction site.
PIU, MOH and Hospital Administration	Review ESMP and ensure there is a clear understanding of the environmental, social, health and safety compliance.
Construction Phase	
PIU and MOH	General oversight of the project’s environmental, social, health and safety compliance.
	General oversight of the contractors environmental, social, health and

	safety performance.
	Monitor project activities to ensure environmental, social, health and safety compliance.
	Identify non-conformances and recommend corrective actions.
	Address/respond to stakeholder grievances
Contractor	Implement the ESMP, and environmental, social, health and safety mitigation and management measures and corrective actions;
	Participate in the project's progress meetings to discuss environmental, social, health and safety compliance;
	Monitor for non-compliances and effectiveness of mitigation measures;
	Conduct regular refresher training for workers on environmental, social, health and safety requirements.
PIU, MOH and Hospital Administration	OHS Committee to ensure contractors adhere and implement the ESMP and environmental, social, health and safety compliance;
	OHS Committee to identify non-conformances and recommend corrective actions;
Operations Phase	
PIU, MOH and Hospital Administration	Continue to implement waste management plans;
	Continue to implement health and safety guidelines;
	Monitor operations to ensure compliance with environmental, social, health and safety measures.

Table 16: Environmental and Social Management Plan

Area of Impact	Potential Impacts	Proposed Mitigation Measures	Frequency	Institutional Responsibilities	
Soil	Contamination	a) Adhere to each site's waste management plan. Provide bins for storage and disposal of waste at EPA approved disposal sites;	Throughout construction	Contractor, Hospital Administration	
		b) Bin clean-out schedule;			
	Compaction	c) Recycle / reuse waste before opting to dispose		Throughout construction	Hospital Administration
		d) Designate temporal waste / garbage holding areas at site;			
Water	Pollution	a) Traffic and movement of heavy-duty equipment over open areas should be restricted and controlled;	Throughout construction	Hospital Administration; Contractor	
		b) Designated routes for heavy-duty vehicles should be established and used to limit soil compaction.			
		c) Material stockpiles to be kept to a minimum			
Noise	Noise emissions from machineries and vibration from construction activities	a) Avoid seepage of wastewater, fuel, oil, and oily water into surface water bodies;	Throughout construction	Contractor	
		b) Construct temporary drainage channels to encourage dispersal of surface run-off.			
Air	Dust and gaseous emissions are likely to be emitted during excavation and	a) Contractor to coordinate with Hospital administration on acceptable days (Monday to Friday) and times (8 am to 5 pm) for work, and in particular, related works that may cause more significant noise and/or for extended periods within a day;	Throughout construction	Hospital Administration, Contractor	
		b) Periodically service all the equipment and machinery and			

Area of Impact	Potential Impacts	Proposed Mitigation Measures	Frequency	Institutional Responsibilities
	construction activities	<p>ensure in good working condition to minimize emissions;</p> <p>c) Wet all active construction areas as and when necessary to reduce dust;</p> <p>d) Cover the stockpiled construction materials and spoil generated from the excavations;</p> <p>e) Provide PPE equipment (dust mask) for construction workers</p>	<p>construction</p> <p>Throughout construction</p> <p>Throughout construction</p> <p>Throughout construction</p>	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p>
Traffic	Minor increases in traffic	<p>a) Contractors to work with each hospital administration to determined optimal hours (8 am to 5 pm) of delivering construction materials</p> <p>b) Monitor incoming traffic during construction phases;</p> <p>c) Make use of predetermined routes when bringing in construction material or disposal of solid waste generated;</p>	<p>Throughout construction</p> <p>Throughout construction</p> <p>Throughout construction</p>	<p>Contractor, Hospital Administration</p> <p>Hospital Administration</p> <p>Contractor</p>
Archaeological Resources	Artifacts discovered during the construction phase can become damaged or lost.	<p>a) Immediately stop construction activities in the area of discovery;</p> <p>b) Secure the site to prevent any damage or loss of removable objects;</p> <p>c) Immediately notify hospital administration, who will then inform the PIU, EPA and the MOH;</p>	Throughout construction	Contractor, Hospital Administration, MOH, EPA.
OHS Risks	Construction workers are unavoidably exposed to OHS accidents and injuries from accidental falls, slips due to wet surfaces, burns from welding, etc.	<p>a) Contractor is expected to comply with Guyana's OHS rules and regulations as stipulated in the Occupational Health and Safety Act 2005.</p> <p>b) All construction workers should be sensitized on the health and safety requirements while at the project sites and risks associated with construction work.</p> <p>c) Workers should be provided with suitable PPE such as safety helmets, safety shoes, gloves, masks, and overalls;</p> <p>d) Provision of clean and accessible sanitary facilities and</p>	<p>Throughout construction</p> <p>Prior to construction works and throughout construction.</p> <p>Throughout construction</p> <p>Throughout</p>	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p>

Area of Impact	Potential Impacts	Proposed Mitigation Measures	Frequency	Institutional Responsibilities
		<p>drinking water to be provided to workers;</p> <p>e) Trenches over 0.5m deep or wherever soil conditions dictate should be secured against accidental falls by workers and the public;</p> <p>f) Install information and safety signage along the work areas;</p> <p>g) GRM to be in place for construction workers</p> <p>h) Contractor's Code of Conduct and Worker's Code of Conduct to be communicated to contractors and workers;</p>	<p>construction</p> <p>Throughout construction</p> <p>Throughout construction</p> <p>Throughout construction</p>	<p>Contractor</p> <p>Contractor</p> <p>Hospital Administration, HSDU, EHD</p> <p>HSDU, EHD</p>
Public Health and Safety	Noise and dust nuisances to staff, patients and visitors of hospitals	<p>a) To the extent where possible, relocate services which are within or close by to the construction zone prior to the commencement of construction in those areas;</p> <p>b) Fencing or cordoning off the construction zone, installing dust screens and noise barriers;</p> <p>c) Determine alternative access to compound for construction workers;</p> <p>d) Vehicles speeds should not exceed 10km/hr within and around the project sites;</p>	<p>Prior and throughout construction activities</p> <p>Prior construction activities</p> <p>Throughout construction</p> <p>Throughout construction</p> <p>Throughout construction</p>	<p>Hospital Administration</p> <p>Contractor</p> <p>Hospital Administration</p> <p>Contractor, Hospital Administration</p> <p>Hospital Administration</p>
Waste Management	Health and safety hazards and environmental pollution from poor management of wastes	<p>a) Adhere to ICWMP prepared under the wider CG-ERP and maintain the respective waste management plans as outlined in the Regional Waste Management plan prepared by the MOH;</p> <p>b) Identify and segregate infectious and non-infectious waste according to colour coded techniques</p>	<p>Throughout operations</p> <p>Throughout operations</p>	<p>Hospital Administration</p>

Area of Impact	Potential Impacts	Proposed Mitigation Measures	Frequency	Institutional Responsibilities
		<p>c) Training of incinerator operators on the operation manual for the incinerator equipment (to be identified)</p> <p>d) Routine monitoring of the collection, storage and disposal of shredded waste for quality assurance of the decontamination processes;</p>	<p>Throughout operations</p> <p>Throughout operations</p>	<p>Hospital Administration, EHD, HSDU</p> <p>EHD, HSDU</p>
General Health and Safety	Risk of Fire	a) Install adequate number of fire-fighting equipment and systems including portable fire extinguishers and sand buckets	Throughout operations	Hospital Administration
		b) Conduct regular drills on fire emergency response and evacuation;	Throughout operations	Hospital Administration
		c) Conduct regular inspection of fire-fighting equipment	Throughout operations	Hospital Administration
	Occupational and Public Health Hazards	a) Ensure provision of and appropriate use of PPE;	Throughout operations	Hospital Administration
		b) Erect warning signs on site	Throughout operations	Hospital Administration
		c) Ensure the implementation of standard precautions and transmission-based precautions are in line with national guidelines for IPC in healthcare facilities, MOH Regional Waste Management Plans, and the wider CG-ERP IPCWM as outlined in the ESMP, are adhered to.	Throughout operations	HSDU, EHD, Hospital Administration
		d) Continuous training for healthcare waste management workers on the general functioning of the incinerator, where appropriate, recognition of abnormal or unusual operations, emergency response, in case of equipment failures and alarms, and surveillance on the final waste treated;	Throughout operations	EHD, Hospital Administration

7.3. Environmental and Social Monitoring

Monitoring of project activities should be conducted to ensure that the recommended mitigation measures and management practices identified in this ESMP are implemented and effective. This should take place for the preconstruction, construction and operation phases of the project. The HSDU and the EHD should conduct periodic monitoring during the preconstruction, construction and operation phases of the project. This will require site visits to the project sites to conduct monitoring to determine compliance with the environmental, social, health and safety requirements. This is already catered for in the CG-ERP's E&S implementation budget. The contractors should also conduct monitoring onsite to ensure their compliance. Table 15 below identifies the recommended parameters to be monitored during the construction phase, as well as the frequency and location of monitoring activities.

Table 17: Environmental and Social Monitoring During Project Preconstruction and Construction

Parameters	Frequency	Locations
Air Quality <ul style="list-style-type: none"> • Evidence of dust accumulation and suspended particles through visible observation • Periodic checks with receptors 	Continuous	<ul style="list-style-type: none"> • Around active construction zones • Hospital buildings or facilities most proximate to active construction zones. • Hospital boundaries to immediately adjacent land uses.
Noise <ul style="list-style-type: none"> • Decibel levels • Construction times 	Periodically	<ul style="list-style-type: none"> • Around active construction zones. • Hospital buildings or facilities most proximate to active construction zones. • Hospital boundaries to immediately adjacent land uses.
Water Quality <ul style="list-style-type: none"> • Visual observation for sedimentation and oil and grease 	As needed	<ul style="list-style-type: none"> • Perimeter drains within the hospital compounds and drains near material stockpiles.
Waste Management <ul style="list-style-type: none"> • Compliance with ESMP and waste management practices • Littering and waste accumulation • Sanitation Facilities for Workers 	Weekly	<ul style="list-style-type: none"> • Waste receptacles, disposal sites and active construction sites.
Health and Safety <ul style="list-style-type: none"> • Use of protective gear by workers 	Weekly	<ul style="list-style-type: none"> • Active construction work areas.

Parameters	Frequency	Locations
<ul style="list-style-type: none"> • Adequate and appropriate signage • Demarcation of construction site • Health conditions of workers 		
Community Wellbeing/Concerns <ul style="list-style-type: none"> • Employment • Grievances which may arise • Any emerging issue 	Weekly	<ul style="list-style-type: none"> • Within and around the hospitals, staff, patients, visitors and neighbours.

Monitoring activities are expected to continue during the operation phase, mainly by the MOH and the hospital administrations. Table 16 below identifies the parameters recommended to be monitored as well as the frequency and location of monitoring activities.

Table 18: Environmental and Social Monitoring During Project Operations

Impact	Parameter	Frequency	Responsibility
Management of waste	<ul style="list-style-type: none"> • Compliance with and regulations and guidelines for healthcare facilities • Adequate storage and collection receptacles • Mechanism for the collection, storage and disposal of medical and other waste • Appropriate trained personnel • Compliance with waste management practices by staff • Appropriate PPE being utilized in handling of waste 	Monthly	<ul style="list-style-type: none"> • REHO/OHS/Hospital Administration Personnel at each hospital
Maintenance of health facilities	<ul style="list-style-type: none"> • Electrical, plumbing, air-conditioning, sanitation, sewage systems are fully functional • Maintenance programme in place and active. 		<ul style="list-style-type: none"> • REHO/OHS/Hospital Administration Personnel at each hospital
OHS Systems	<ul style="list-style-type: none"> • OHS personnel on staff • Reports on OHS, training, awareness, etc. • PPEs available and are utilized 	Monthly	<ul style="list-style-type: none"> • REHO/OHS/Hospital Administration Personnel at each hospital
Fire Safety and	<ul style="list-style-type: none"> • Firefighting equipment on site • Other emergency response equipment 	Quarterly	<ul style="list-style-type: none"> • REHO/OHS/Hospital Administration Personnel at each hospital

Impact	Parameter	Frequency	Responsibility
Emergency Response System	provided. <ul style="list-style-type: none"> • Record of maintenance of equipment • Record of fire drills conducted 		Administration Personnel at each hospital

7.4. Reporting

To ensure that the level of ESHS compliance is documented, a reporting mechanism is already in place through the wider GC-ERP. Environmental and Social Quarterly Reports are prepared by the Environmental and Social Specialist within the HSDU on implementation of the wider GC-ERP. E&S quarterly reports will also document the status of compliance, areas of non-compliance, corrective actions recommended, and other improvements required pertaining to this sub-project.

E&S reporting will be continued after even project closure to the MOH and the EPA during operations in future years through the MOH-EHD.

CHAPTER 8

CONCLUSION AND RECOMMENDATIONS

8.0. Summary

In accordance with the Environmental Protection Regulations of Guyana and the World Bank's ESS, the findings for this ESIA carried out for this project indicate that the possible environmental and social impacts generated during preconstruction, construction and operation phases can be addressed effectively by the MOH through the mitigation measures indicated in Table 14. and the monitoring plan suggested in Chapter 6. As per the above analysis on the aspects of both positive and negative environmental and social impacts of the project development and operations, this ESIA identified **significant, negative impacts** that could pose adverse effects, but they can be avoided, minimised and mitigated assuming the project is designed, constructed, monitored, and operated in compliance with all applicable design and ESHS requirements.

The potential positive impacts associated with implementation and operations of the proposed project include employment opportunities, improved healthcare waste management, and enhance technical capacity of PIU and MOH staff in administering environmental and social best practices.

Possible deleterious impacts during the construction phase of the proposed project include soil contamination from improper disposal of general solid wastes and hazardous wastes, and minimal compaction of soil from stockpiles and heavy vehicles, sedimentation of surface water bodies, increased noise and vibration, air/dust emission, possible encounters with physical cultural resources, occupational, health and safety (OHS) risks, which may result from truck movements in and out of the project sites and increased traffic in construction zones to both workers and patrons of the hospitals. There is a possibility of workers and the community registering related grievances.

Potential negative impacts during operation phase include improper healthcare waste management and controlling air emissions, which can have impacts on the surrounding environment, communities and OHS risks for healthcare workers due to the improper handling, transporting and disposal of waste.

This ESIA report outlines appropriate mitigation measures for the anticipated negative environmental and social impacts for the 10 incinerator locations, as well as, adhering to each area's waste management plan, restricting traffic movement of heavy-duty vehicles and equipment, keeping material stockpiles to a minimum, where possible, wetting of construction areas as and when necessary to reduce dust, and ensuring all workers are equipped with the necessary Personal and Protective Equipment (PPE). Detailed mitigation measures for all the potential impacts are summarized on Table 14 (ESMP) and the monitoring plan has been outlined in Tables 15 and 16.

8.1. Conclusion

The identified potential negative impacts of the proposed project could be mitigated with the suggested environmental and social mitigation measures provided. Having considered the data collected, analyzed and collated information that is available, this ESIA concludes the following:

- i. The project does not pose any serious environmental and social concerns, other than those of a moderate scale that accompany similar projects.
- ii. The positive impacts of the project outweigh the negative ones, which will be adequately contained by following the prescribed environmental and social management and monitoring plans.
- iii. The project is dire needed to address the gaps in healthcare waste handling that the current ~~incinerators~~ waste disposal methods are not appropriate, or in some cases, not fully operational.
- iv. The MOH has put appropriate measures for the management of medical waste in all facilities.

8.2. Recommendations

The following are recommended going forward with the project:

- i. Though the anticipated negative environmental impacts of the project are considered of moderate type, localized and can be easily mitigated, the ESMP needs to be operationalized to ensure sustainable delivery of the project;
- ii. Implementation of the monitoring plans will ensure the provisions in the ESMP are implemented, documented and any challenges resolved before they affect the project performance.
- iii. Continuous capacity building especially on aspects of incinerator operational procedures, safety and emergency preparedness.

8.3. Limitations

The following are a few limitations of the ESIA to be considered:

- iii. The MOH does not have the capacity to test noise and air qualities in the physical environments of the proposed sites.
- iv. The MOH does not have the capacity to develop aerial views of appropriate scales for the proposed sites.

REFERENCES

Bureau of Statistics. 2012. Population and Household Census 2012 Report

Constitution of the Cooperative Republic of Guyana Act. 1980. Retrieved from: <https://www.parliament.gov.gy/Constitution%20of%20the%20Cooperatiive%20Republic%20of%20Guyana.pdf>

Environmental Protection Act. 1996. Retrieved from: <https://mola.gov.gy/sites/default/files/Cap.%2020.05%20Environmental%20protection.pdf>

Environmental Protection Regulations. 2000. Retrieved from: <https://epaguyana.org/download/environmental-protection-regulations-2000/>

Environmental Protection Air Quality Regulations. 2000. Retrieved from: https://parliament.gov.gy/documents/regulations/17285-regulations_9_of_2000.pdf

The Environmental Protection Litter Enforcement Regulations. 2013. Retrieved from: [https://parliament.gov.gy/documents/acts/4139-the_environment_protection_\(litter_enforcement\)_regulation_no_7_of_2013.pdf](https://parliament.gov.gy/documents/acts/4139-the_environment_protection_(litter_enforcement)_regulation_no_7_of_2013.pdf)

Environmental Protection Noise Management Regulations. 2000. Retrieved from: https://parliament.gov.gy/documents/regulations/17284-8_of_2000.pdf

Environmental Protection Hazardous Wastes Management Regulations. 2000. Retrieved from: https://parliament.gov.gy/documents/regulations/17283-regulations_7_of_2000.pdf

Environmental Protection Water Quality Regulations. 2000. Retrieved from: <https://faolex.fao.org/docs/pdf/guv121165.pdf>

Georgetown Mayor & City Council. 2022. Retrieved from: <https://mccgt.com/solid-waste/>

Health Facilities Licensing Act. 2007. Retrieved from: <https://www.parliament.gov.gy/publications/acts-of-parliament/health-facilities-licensing-act-2007>

Health Facilities Regulations. 2008. Retrieved from: https://parliament.gov.gy/documents/regulations/17827-reg_7_of_2008.pdf

Ministry of Health Act. 2005. Retrieved from: https://parliament.gov.gy/documents/acts/4657-act_no_6_of_2005.pdf

Municipal and District Councils Act. Retrieved from: <https://mlgrd.gov.gy/wp-content/uploads/2014/05/cap2801.pdf>

National Solid Waste Management Strategy for the Cooperative Republic of Guyana 2013-2024. Retrieved from: <https://mlgrd.gov.gy/wp-content/uploads/2016/08/National-Solid-Waste-Management-Strategy.pdf>

Occupational Health and Safety Act. 1997. Retrieved from:
<https://mola.gov.gy/sites/default/files/Cap.%209906.pdf>

Pesticides and Toxic Chemicals Control Act. 2000. Retrieved from: <https://agriculture.gov.gy/wp-content/uploads/2016/02/cap6809-Pesticide-and-Toxic-Chemicals-Control-Board-Act.pdf>

Regional Health Authority Act. 20005. Retrieved from: https://parliament.gov.gy/documents/acts/4655-act_no.4_of_2005.pdf

Solid Waste Management Bill. 2014. Retrieved from: <https://mlgrd.gov.gy/wp-content/uploads/2016/08/Solid-Waste-Management-Bill-2014-July-15-2014-1.pdf>

United States Environmental Protection Agency. National Ambient Air Quality Standards. 1990. Retrieved from: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

World Bank Group. Environmental and Social Framework. 2016. Retrieved from:
<https://www.worldbank.org/en/projects-operations/environmental-and-social-framework>

World Bank, Environmental, Health, and Safety Guidelines for Health Care Facilities. Retrieved from:
<https://www.ifc.org/content/dam/ifc/doc/2000/2007-health-care-facilities-ehs-guidelines-en.pdf>

World Health Organization. World Health Organization Air Quality Guidelines and Estimated Reference Levels. 2021. Retrieved from: <https://www.eea.europa.eu/publications/status-of-air-quality-in-Europe-2022/europes-air-quality-status-2022/world-health-organization-who-air>

ANNEXES

Annex 1

Terms of Reference (TOR)

This document presents the terms of reference (TOR) for conducting an Environmental and Social Impact Assessment (ESIA). The ESIA will evaluate the incinerator installation project and the planned operations to identify potential risks and impacts within the context of the existing environmental and social conditions.

The ESIA will document the existing environmental and social conditions at the proposed site and its environs including physical, biological, and socio-economic aspects. The nature of expected emissions from the proposed incinerator type will be determined and the quantity and likely distribution of pollutants established.

Objective of the Assignment

The objective of the assignment is to prepare an Environmental and Social Impact Assessment (ESIA) (inclusive of Environmental and Social Management Plan) to identify and mitigate the risks and impacts for location(s), installation and commissioning of an incinerator. The ESIA will ensure that the environmental and social risks associated with the civil works and operational phases are identified and either avoided, minimized, reduced, or mitigated, while ensuring that the projects are environmentally and socially sound and sustainable.

Scope of Work

The scope of work includes assessing the current incinerator waste management system, proposed locations, operational procedures, stakeholders, and risks and impacts. Under the supervision of the Ministry of health, the Consultant will be required to perform the following tasks:

Task 1: Description of the Incinerator Project

Briefly describe the location of the project site and indicate the area around the site that will be considered as part of the study area for the ESIA. Identify the project's areas (analysis of alternatives) of influence and delineated on maps of appropriate scales, showing the site layout, contiguous areas (residents, schools, hospitals, environmentally sensitive areas), and highlighting areas likely to be directly impacted by noise, air emissions, proposed traffic routes used during the transportation of equipment and materials required for the installation and alternative temporary access roads/routes utilised because of project activities.

Provide examples of similar waste disposal practices (incineration) currently being used by the Ministry of Health. Characterize the nature of the solid waste to be incinerated including the type and volume of material. Describe the intended operational framework including general procedures, safety provisions, residue disposal, and schedule of operation. Indicate the project life span and plans

for providing utilities and support services.

Describe the type of incinerator plant to be installed including manufacturer's specifications, performance characteristics and drawings. Provide manufacturer's operational guidelines specifically outlining occupational health and safety and emission control procedures as well as recommended maintenance practices. Characterize the nature of emissions likely to be produced including the composition, volumes, expulsion height, ejection velocity and temperature.

Task 2: Description of the Environment

Collate, evaluate, and present baseline data on the study area, including the following:

- a) Physical environment: Summarize the physical setting of the incinerator site including geology, soil topography, and drainage characteristics. Assess existing air quality within the project area, identifying existing sources of pollution.
- b) Biological environment: Describe in general the terrestrial flora, and fauna within the project area, including identifying any unique ecosystems.
- c) Socio-economic environment: Describe in general the population, land use, settlement and community structures, employment, public health, historical, archaeological and cultural resources within or adjoining the project area.

Task 3: Legislative and Regulatory Considerations

Identify the relevant policies, regulations and legislative requirements of the Government of Guyana governing land use, noise, air quality, wastewater discharge, waste (hazardous) disposal and public health and safety, as well as World Bank Environmental and Social Standards and Environmental Health and Safety Guidelines¹².

Task 4: Analysis of Alternatives

The analysis of alternatives should compare feasible alternatives to the project design, focusing on technology selection, site locations, experience of existing incinerators (man staffing, operational procedures, and costs), as well as its impact on the environment and local communities. Indicate project alternatives (other types of incinerators and no action) including a comparison of the technologies and methods used to control the release of dioxins and furans and other air pollutants and the management of ash, potential environmental and social impacts, assuming proper implementation of environmental and social mitigation measures and monitoring.

Task 5: Identification of Potential Impacts

Identify the major issues of environmental concern and indicate their relative importance to the design of the project. Distinguish construction and post-construction phase impacts, significant positive and negative impacts, and direct and indirect impacts. Identify impacts that are cumulative, unavoidable or irreversible. Special attention should be paid to:

¹² https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/EHS-Guidelines/

5.1 *Site preparation and construction phase:*

- Clearance of site
- Construction phase impacts including sourcing, transport, and storage of earth materials, building construction methods, construction site management, noise, fugitive dust, solid waste disposal, traffic and employment, taking into consideration terminal construction activities currently underway.

5.2 *Operation phase:*

- Solid waste management during post-construction phase, with reference to waste collection, transport, sorting, loading, and disposal of incinerator ash.
- Characteristics of any hazardous materials resulting from or involved in the project, indicating appropriate management strategies (e.g., handling, storage, treatment, disposal). Based on the foregoing include any risk assessment and risk management of hazardous materials.
- Detailed air dispersion modelling to estimate the effect of the expected emissions from the proposed incinerator on ambient air quality within the airshed. The air dispersion modelling exercise will evaluate the extent and concentration of following pollutants which are typical constituents of solid waste combustion: sulphur dioxide, nitrogen oxides (as nitrogen dioxide), TSP, PM₁₀, dioxins, and furans. Potentially sensitive receptor sites will be evaluated.
- Occupational health and safety issues that could result directly from the operation of the proposed incinerator.
- Based on the model results and other available information, prepare an environmental monitoring and reporting plan for the proposed incinerator.
- Operational training plan for incinerator personnel

Reference should be made to the extent and quality of the available data and any information deficiencies, and uncertainties associated with the prediction of impacts should be clearly identified.

Task 6: Mitigation Measures

Develop required mitigation measures for adverse impacts identified for the proposed project activities outlined in Tasks 1, 2, 3, 4 and 5. These mitigation measures will be in-line with the World Bank's Mitigation Hierarchy", that is (a) anticipate and avoid risks and impacts, (b) minimize or reduce risks and impacts to acceptable levels and mitigate risks and impacts that have been minimized or reduced. The mitigation measures proposed should be realistic, feasible and suitable under local conditions to remedy significant adverse environmental and socio-economic impacts to acceptable levels.

Where avoidance or minimisation cannot be applied, mitigation measures and management strategies shall be formulated and discussed in alignment with the respective environmental and socio-economic baseline conditions and comparison with local environmental, health and safety and international standards/guidelines, which would later form the framework of the environment and social management plan.

The Consultant shall provide a matrix of all impacts organised into pre-construction, construction and operational phases for all key project components. The matrix shall include:

1. The potentially significant impacts
2. Proposed mitigation measure (s) should not disproportionately affect the disadvantaged or vulnerable.
3. Timeframe for mitigation measures when action is to be taken

4. Institutional, training, personnel, and monitoring requirements for incorporating the proposed mitigation measures into the Project during pre-construction, construction and operation phases.
5. Initial and recurrent associated costs for implementing these measures
6. Residual impacts that may result following the implementation of the proposed mitigation measures, an assessment of their acceptability, and plans to compensate for or offset them
7. Parameters/indicators to be monitored and their respective frequencies of measurement

Task 7: Development of a Monitoring Plan - Prepare a plan for monitoring the implementation of mitigating measures and the impacts of the project during pre-construction, construction and operation phases.

Task 8: Public Consultation - Prepare and deliver a presentation to stakeholders on the description of the project, significant impacts and proposed mitigation measures for pre-construction, construction, and operation phases.

Reporting

The individual Consultant will report directly to the Ministry of Health. The Consultant will prepare a Draft Environmental and Social Impact Assessment (ESIA) addressing tasks outlined in Section 3 Scope of Work. The environmental and social impact assessment (ESIA) report will be concise and limited to significant environmental and social issues. The main text will focus on findings, conclusions and recommended actions supported by summaries of the data collected. The ESIA report will be organized according to the outline below:

- Executive Summary
- Description of Proposed Project
- Description of the Environment
- Policy, Legal and Administrative Framework
- Analysis of Project Alternatives
- Significant Environmental Impacts
- Impact Mitigation Management Plan
- Environmental Monitoring Plan
- Public Consultation (Annex)

The Consultant is expected to submit electronic versions of each deliverable in Microsoft Word and PDF. All submissions must be completed in English. The Ministry of Health is responsible for approving all submissions.

Deliverables

The Consultant will deliver the following outputs/products:

- **Deliverable 1:** An Inception Report which outlines decisions made in the Inception Meeting regarding the work plan and methodology.
- **Deliverable 2:** Draft Environmental and Social Impact Assessment (ESIA) - Findings of the assessment of current situation, practices, risks and impacts.
- **Deliverable 3:** Public consultation for Draft Environmental and Social Impact Assessment

(ESIA) – Presentation of findings of the assessment of current situation, practices, risks and impacts.

- **Deliverable 4:** Final Environmental and Social Impact Assessment (ESIA) - Findings of the assessment of current situation, practices, risks and impacts, and inputs for public consultations.

SCHEDULE OF PAYMENT

The following percentages are contemplated for payments:

No.	Deliverable	% Contract value
1	Upon signature of contract by both parties and submission of an Inception Report which outlines decisions made in the Inception Meeting regarding the work plan and methodology	10%
2	Upon submission of Draft Environmental and Social Impact Assessment Report for Ministry of Health approval	35%
3	Public Consultation	15%
4	Upon submission of Final Environmental and Social Impact Assessment Report for Ministry of Health approval	40%

Logistics and timing

The consultancy is anticipated to last for a period of six (6) weeks as per the tentative schedule:

Deliverable	Duration (weeks)
#1 Inception Report	1
#2 Draft ESIA	4
#3 Public Consultation	5
#4 Final ESIA	6

The Consultant shall ensure that he/she is adequately supported and equipped in terms of personal technical equipment (transportation, laptop, software and field tools).

The Ministry of health will arrange and coordinate access, arrange requested interviews, provide report and respond promptly to data requests to facilitate the assignment. The Ministry of Health will provide comments to Draft deliverables within two (2) weeks of receipt.

Qualification and Experience

Eligible consultant must have the following minimum qualifications, experience, and competencies:

- The Consultant must have at least ten (10) years proven experience in environmental and social impact assessment, environmental compliance, environmental engineering, public health, health facilities planning and management, health care waste management (hazardous, biomedical, etc.), with direct and relevant project experience in Guyana and the Caribbean Region.
- Demonstrated previous success in preparing Environmental and Social Impact Assessment (ESIA) for waste management and health care waste management systems (hazardous, biomedical, etc.) in the Caribbean Region.
- Knowledge of and experience implementing international World Bank and World Health Organisation health facilities policies/standards.
- Knowledge of the policies, legislation and procedures associated with environmental management and relevant experience in developing environmental policies.
- Excellent written and oral communication and interpersonal skills

Annex 2

Environmental and Social Screening

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION AND TRAINING OF INCINERATOR
Subproject Location	MABARUMA REGIONAL HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF/SEP, ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP, ICWMP

Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF,SEP, ICWMP
Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/L MP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,L MP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a

Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a
Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ¹³ ?		no	n/a	n/a

Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)¹⁴. Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation and training for the Mabaruma Regional Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted.

Prepared by:

Ashley Barakat

Project E&S Specialist

¹³ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

¹⁴ Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	PORT KAITUMA DISTRICT HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF, SEP, ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP, ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF, SEP, ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ¹⁵ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)¹⁶. Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training for the Mabaruma Regional Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted undertaken.

Prepared by:

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Project E&S Specialist

¹⁵ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

¹⁶ Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	KUMAKA DISTRICT HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF/,SEP,ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP,ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF,SEP, ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ¹⁷ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)¹⁸. Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training of incinerator for the Kumaka District Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted undertaken.

Prepared by:

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Project E&S Specialist

¹⁷ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

¹⁸ Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	SUDDIE PUBLIC HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF/,SE P,ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP ,ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF,SEP, ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ¹⁹ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)²⁰. Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training of incinerator for the Suddie Public Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted.

Prepared by:

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¹⁹ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

²⁰ Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	KAMARANG DISTRICT HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF/,SE P,ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP ,ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF,SEP, ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ²¹ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)²². Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training of incinerator for the Kamarang District Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted.

Prepared by:

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²¹ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

²² Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	MADHIA DISTRICT HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF/,SE P,ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP ,ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF,SEP, ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ²³ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)²⁴. Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training of incinerator for the Madhia District Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted.

Prepared by:

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²³ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

²⁴ Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	KATO COTTAGE HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF, SEP, ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP, ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF, SEP, ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ²⁵ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)²⁶. Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training of incinerator for the Kato Cottage Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted.

Prepared by:

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²⁵ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

²⁶ Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	LETHEM REGIONAL HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF, SEP, ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP, ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF, SEP, ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ²⁷ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)²⁸. Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training of incinerator for the Lethem Regional Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted.

Prepared by:

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²⁷ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

²⁸ Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	AISHALTON DISTRICT HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF, SEP, ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP, ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF, SEP, ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ²⁹ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)³⁰. Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training of incinerator for the Aishalton District Hospital is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted.

Prepared by:

Ashley Barakat

Project E&S Specialist

²⁹ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

³⁰ Please contact the World Bank, if the risk rating identified as High or Substantial.

SCREENING FORM:

Subproject/Activity	SUPPLY, DELIVERY, INSTALLATION, AND TRAINING OF INCINERATOR
Subproject Location	ANNAI DISTRICT HOSPITAL
Subproject Proponent	MINISTRY OF HEALTH
Estimated Investment	
Start/Completion Date	

Questions	Answer		ESS relevance	Due diligence / Actions
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?	yes		ESS1	ESIA/ESMF, SEP
Does the subproject involve land acquisition and/or restrictions on land use?		no	n/a	n/a
Does the subproject involve acquisition of assets (i.e. crops, lands, access, etc.) for quarantine, isolation or medical treatment purposes?		no	n/a	n/a
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?	yes		ESS3	ESIA/ESMF/,SEP,ICWMP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?	yes		ESS1	ESIA/ESMF/SEP,ICWMP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?	yes		ESS3	ESIA/ESMF,SEP,ICWMP

Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?		no	n/a	n/a
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?	yes		ESS2	ESMF/ESMP/LMP
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?	yes		ESS2	ESMF/ESMP,LMP
Does the subproject involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?		no	n/a	n/a
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?		no	n/a	n/a
Is the subproject located within or in the vicinity of any ecologically sensitive areas?		no	n/a	n/a
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?	yes		ESS7	ESMF, SEP, IPP
Is the subproject located within or in the vicinity of any known cultural heritage sites? Is the project affecting any health practices?		no	n/a	n/a
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?		no	n/a	n/a
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?		no	n/a	n/a

Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways ³¹ ?		no	n/a	n/a
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Conclusions:

Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low)³². Provide Justifications.

The proposed environmental and social risk for the procurement, supply, delivery, installation, and training of incinerator for the Annai Health Centre is **Moderate**.

Proposed E&S Management Plans/ Instrument

The ESMF for this project contains the relevant mitigation measures that will be applied to mitigate any relevant environmental and social risks identified for project activities. Medical, solid and liquid wastes are treated as per accepted standards for which an Infection Control and Waste Management Plan (ICWMP) was prepared as part of the ESMF. The Labour Management Procedure (LMP) was also prepared as part of the ESMF to address occupational health and safety risks. Social risks are managed through the application of the Stakeholder Engagement Plan (SEP) and the Indigenous People’s Plan (IPP), which are also part of the ESMF. In addition, an Environmental and Social Impact Assessment (ESIA) will be conducted.

Prepared by:

Ashley Barakat

Project E&S Specialist

³¹ International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

³² Please contact the World Bank, if the risk rating identified as High or Substantial.

EPA Application Form for Operation Permit for Existing / Registered Operations



Environmental Protection Agency, Guyana

Application Form for Operation Permit for Existing / Registered Operations

This Application Form must be completed for consideration as to whether an Environmental Authorisation will be granted to an existing or registered operation. All questions must be answered and the requested information submitted before this Application can be processed. Please use additional sheets if necessary.

Notes to Applicant:

1. This Form must be completed in BLOCK LETTERS (preferably completed electronically) and submitted in TRIPLICATE along with any additional information requested to:
The Executive Director
Environmental Protection Agency
Ganges Street,
Sophia, Georgetown, Guyana
Telephone: (592) 225- 0506/5467-9/6044/6048/5472
Facsimile: (592) 225 5481
Email: epa@epaguyana.org Website: www.epaguyana.org
2. A non-refundable fee of US\$50.00 or its equivalent in Guyanese dollars is required for the processing of this Application. This fee should be in either US Currency or its equivalent according to the Citizens Bank Daily Exchange Rate and should be made payable to the **Environmental Protection Agency**.
3. The applicant should be the developer, or person in whose name the Permit should be granted to. **The applicant should provide a copy of some form of identification to the EPA, such as an ID card, Driver's Licence or Passport.**
4. Additional information required by the Agency for processing of the application is listed on the attached sheet. Further information may be requested if the EPA deems it necessary.
5. The EPA should be immediately notified in writing of any change(s) in the details provided in this Application Form that occur(s) after a decision has been made by the EPA. Failure to do so may result in an offence under the Environmental Protection Act, 1996.
6. All measurements/numerical data submitted to the EPA should be in metric units.

7. The validity of the Permit can range from one (1) year to five (5) years. Usually five (5) year Permits are issued, but if you require a Permit for a shorter period, please inform us early.
8. Please note that if an Environmental Authorisation is issued, it will be prepared in the name of the applicant who has signed this Form and has committed to the requirements by doing so. In the event that the Permit Holder should be someone else, kindly indicate this to the EPA in advance on this Application Form.
9. **A Fee for the Environmental Authorisation is required before the Permit would be issued, based on the potential environmental impacts and the scale of the project (small, medium, large, extra-large). Environmental Authorisation fees range from US\$100 to more than US\$ 3,100 per year, which is determined by EPA after screening.**

A. Contact Details of Applicant(s):

1. Name of Applicant(s):

2. Applicant Address:

3. Company/Business Name and Address:

4. Telephone:

5. Fax:

6. Email:

7. Website:

8. Project Address (If different from above):

9. Location(s) of other branches of operations, if any:

10. Type of Activity, e.g. rice mill, furniture workshop:

11. Do you have someone designated for Environmental Management? Yes No
If yes, state; name, designation and qualifications:

12. Name the Local Authority (e.g. NDC) under whose jurisdiction the project/development falls:

13. Indicate whether or not a Permit or Licence from any other Government entity is required or have been obtained, include name of relevant sector Agency (certified copies of the permission for your development from the relevant local authority, NDCs/RDCs/MCC, CHPA, GFC, GFS, GLSC, etc. must be submitted with this Form).

B. Operational Aspects:

14. Date of commencement of operations: _____

15. Number of Employees: _____

16. Remaining lifetime of Business: (years) _____

17. Future plans and date for modifications/expansion:

18. Do you have plans for relocating in the future: Yes No

If yes, when: _____

where: _____

why: _____

19. Give a brief description of the facility/operation

Use additional sheets if necessary

20

21. Types of products generated

22. Quantity of production per month/year

23. Types and quantity of by-products

C. Environmental Management

24. Indicate types and sources of pollutants/wastes/emissions generated:

- Effluents (waste water)

- Air emissions

- Odour

- Dust/Particulate matter

- Smoke

- Noise levels

- Hazardous wastes
- Chemicals
- Solid wastes
- Others please specify _____

25. State the source(s), composition, discharge rate (m³ per day) and the ultimate effluent points. Use additional paper if necessary.

26. If the operation utilizes hazardous (i.e. toxic, flammable, explosive, radioactive etc.) substances, provide a listing of the substances and the quantities to be stored.

27. If the facility generates air emissions, describe the types and sources and provide an estimated emission rate or loading.

28. Provide respective estimates for the rate of generation (m³ per day) of domestic wastewater and sewage.

29. State the respective treatment methods intended for domestic wastewater and sewage as well as their ultimate effluent points.

30. State the source and process water consumption rate (m³ per day).

31. State the source of electricity supply and consumption rate.

If a generator(s) will be used, state the capacity, specifications and frequency of use.

32. Does the facility store waste (solid or liquid) or input material on site? Yes No

If yes, give estimates of the quantities (kg of metric tonnes) for the storage of waste and input material.

33. Describe briefly the facilities allocated for the purpose of storage of waste.

34. Method of treatment and disposal:

35. State mitigation measures for adverse impacts during the operation of your facility.

36. Did you have any environmental incidents (e.g. air emissions, noise, dust, solid/liquid waste, water pollution, fuel/oil spill, fire, and severe floods) in the past? Yes
 No

If yes, what were these and what did you or other authorities do.

37. Has there ever been a complaint pertaining to environment or land-use for this operation.

38. Did you have any legal disputes in the past or currently have any, especially pertaining to property or the operation's activity. Yes No

If yes, please explain:

39. Please indicate below any environmental problems related to your facility/operation, which you think should be addressed and/or for which you may require assistance by the EPA or other authorities.

D. Economic and Financial Statement:

40. State the Annual Turnover of the Project:

41. What would you say is the scale of your operation compared to others of this nature?

small

medium

E. **Confidentiality:**

42. Do you consider any information provided here to be a trade secret or other confidential business information that such be omitted from the Register? Yes

No

If yes, give details

43. Please list any attachments included in the application

F. **Further comments by applicant(s):**

G. **Declaration:**

I hereby declare that the information provided in this form is true and accurate to the best of my knowledge.

Name (in script)

Designation

Signature

Date

Required Documentation

Please note that all requested documents **must be submitted** (see list below) before your application can be processed. A site visit will be conducted by EPA, usually within two (2) weeks of receipt of application, after which a decision on whether an Environmental Permit can be granted would be made.

If you require any assistance completing this form, please contact the Environmental Management Permitting Division, EPA (Telephone: (592) 225-0506/ 5467/ 5468/ 5469/ 5471/ 5472, Facsimile: (592) 225 5481, Email: epa@epaguyana.org).

- Identification of the Permit Applicant (National ID Card, Passport).

- Proof of Land Ownership (Transport, Lease or other Agreement with the land owner or occupier, or acknowledgement of Application for Lease of State Lands from the Guyana Lands & Surveys Commission).

- Land use suitability letter/Outline Planning Permission from the Central Planning & Housing Authority.

- Map showing surrounding land uses, identification of receiving water(s) and the location of any existing discharge structures and the location of any discharge.

- Site Plan showing the layout of the Operation.

- Project Description (summary).

- Business Registration/Certificate of Incorporation (if applicable).

- Any Permit or Licence from any other Government entity that have been obtained (GFC, GGMC, GEA, CH&PA, Maritime Administration, Sea Defence Board, etc.).

- Any other information which the Agency may require under the Environmental Protection Act, 1996 or the Environmental Protection (Authorisation) Regulations, 2000.

[Date]

PROJECT CLASSIFICATION

Category (please tick appropriate box):

- AGRICULTURE, FORESTRY AND FISHING
- MINING, QUARRYING AND OIL AND GAS EXTRACTION
- MANUFACTURING (or processing such as sawmilling, wood processing, etc.)
- ELECTRICITY, GAS, STREAM AND AIR CONDITIONING SUPPLY
- WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES
- CONSTRUCTION
- WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES (e.g. petroleum bulk storage and distribution, gas stations, spray painting operation, etc.)
- TRANSPORTATION AND STORAGE (of Hazardous waste, crude oil, natural gas)
- ACCOMODATION AND FOOD SERVICES
- HEALTH CARE AND SOCIAL ASSISTANCE
- OTHER SERVICES
- OTHER/NOT CLASSIFIED

Sector: _____

Activity: _____

Date of Review: _____

Were complaints received for this operation? Yes No

Were the matters resolved? Yes No

Scale of the current operation: select: small medium large extra large

Any other comments:

Signature of Officer(s) _____ Date: _____

Annex 4

Reports of Stakeholder Consultations

GUYANA COVID-19 EMERGENCY RESPONSE PROJECT REPORT ON STAKEHOLDER CONSULTATIONS FOURTH ROUND OF CONSULTATIONS

Date of Consultation: May 2022; July 2022

Venue: Telephone interviews; Arthur Chung Convention Centre (ACCC)

Introduction

On January 30, 2020, the World Health Organization (WHO) declared the novel Corona Virus Disease (COVID-19) outbreak a public health emergency of international concern, after it was first identified in the City of Wuhan in Hubei Province, Peoples Republic of China in December 2019. Globally, as of 7:12pm CEST, July 22, 2022, there have been 565,207,160 confirmed cases of COVID-19 including 6,373,739, reported to WHO. As of July 19, 2022, a total of 12,219,375,500 vaccine doses have been administered.³³

Guyana announced the first case of COVID-19 on March 11, 2020. On that same day, the WHO declared the outbreak of COVID-19 as a global pandemic following its rapid spread across the world. As of July 24, 2022, the number of confirmed cases in Guyana have been confirmed at 69,447, and the number of deaths confirmed at 1,270. Guyana is divided into ten (10) Administrative Regions, with Region 4 being the country's most populated Region, and the country's capital city. To date, Region 4 has recorded the highest number of Covid-19 cases at 49.7%; followed by Region 3 at 12.3% and Region 6 at 9.6%. Region 8 has the lowest number of Covid-19 cases recorded at 1.3%. Regions 1, 7, 8 and 9 are considered Hinterland Communities. These Regions host a high proportion of the Indigenous Population. Region 9 as an indigenously populated region has the highest record of Covid-19 cases, representing 6.2% of total cases; followed by Region 1 representing 3.8% of total cases; and Region 7 representing 3.7% of total cases. Region 10 accounts for 5.3% of total Covid-19 cases.

In terms of vaccination rates, as of July 22, 2022, 86.7% of the population 18 years and older have received a first dose, with 67.1% receiving a second dose. Total first dose administered to the population 12 to 17 years old is 48.4% and total second dose administered is 35.4%. In the population group 5-11 years old, total first dose administered is 5.6%, and total second dose administered is 1.0%.

Since March 2020, the Government of Guyana has enacted several mitigation measures as a response to the threat of Covid-19. The Government had implemented social distancing measures and travel restriction measures. Additionally, a curfew had initially been in place from 6:00pm to 6:00am. As the Covid-19 outbreak emerged further, other measures mandated that conductors and operators of public transportation be vaccinated against COVID-19, so that they can safely transport passengers along various routes on land and along the waterways. They were also mandated to ensure that passengers were masked during their journeys.

³³ WHO Coronavirus (COVID-19) Dashboard: <https://covid19.who.int/>

Other measures allowed casinos, betting shops, restaurants and cinemas to operate at 40% capacity, and to gain access to these businesses, patrons were required to have a COVID-19 Vaccination card in their possession, accompanied by official identification. Concerning in-person access to Government services at its ministries and agencies, members of the public were required to be vaccinated. Those unvaccinated were allowed to access Government services by appointment.

The new Government had started a long, gradual reopening of the economy shortly after it assumed office in August 2020, making sure vaccinated persons enjoyed more freedom of access and movement to boost inoculation rates. After nearly two years of restrictions on social, physical and economic activity to curb the spread of the novel COVID-19, the Guyana Government has lifted these 'lockdown' measures, much like the rest of the world, clearing the way for a near complete rebound of economic activity.

In an updated public health ordinance published on March 14, 2022, the Government revoked the previous regulations and listed a few guidelines for citizens to follow to stay safe. The guidelines stated that businesses and places of worship are only mandated to have handwashing stations and hand sanitizing equipment installed, and that persons are encouraged – not mandated – to wear face masks.

It is no longer a requirement by the Government that persons be fully vaccinated to enter public buildings, but where anyone requires proof of vaccination to enter premises, it can be in any form including digital once it is identifiable and includes the stamp of the applicable country. Additionally, Guyana has lifted the Covid-19 testing requirements for all international travelers arriving by aircraft, but proof of vaccination is still required, effective from June 18, 2022.

Project Background

The World Bank Guyana COVID-19 Emergency Response Project (P175268) is an emergency investment project of US\$7.5 million that was originally approved by the World Bank on November 25, 2020. The Project Development Objective (PDO) is to prevent, detect and respond to the threat posed by COVID-19 and strengthen national systems for public health preparedness in Guyana. The Project was prepared as part of the World Bank's emergency response under the COVID-19 Strategic Preparedness and Response Program (SPRP). The Project consists of two components: (i) Emergency Response to COVID-19 (Subcomponent 1.1: Case Detection, Confirmation, Contact Tracing, Recording, and Reporting; Subcomponent 1.2: Health System Strengthening; and (ii) Implementation Management, and Monitoring and Evaluation.

In response to the need for COVID-19 vaccines purchase and deployment, the Project was supplemented by an Additional Financing (AF) of US\$5 million and a grant from the Health Emergency Preparedness and Response Trust Fund of US\$1 million, which were approved on June 29, 2021. The PDO of the AF is aligned with the PDO of the original project. The AF extends the Project Closing Date to June 30, 2023, to accommodate implementation of the additional activities. The AF is in line with National Deployment Vaccination Plan (NDVP), which was developed by the Government of Guyana with the goals of procuring, storing, and deploying COVID-19 vaccines across the country.

Objective of the Consultation

As a requirement of the project, the objective of the consultations with Indigenous Peoples were to get feedback regarding the project and its various components, and to update stakeholders on how their suggestions and feedback from previous consultations were taken into consideration. Stakeholders were consulted on the Indigenous Peoples Plan (IPP), the Stakeholder Engagement Plan (SEP) and the Environmental and Social Management Framework (ESMF) of the project.

Majority of the stakeholders were already aware of the project, since there were two previous rounds of consultations. The project continued to receive a positive response on the IPP and the ESMF.

Methodology

IP consultations occurred through two methods – telephone calls and at the National Toshao’s Conference at the Arthur Chung Convention Center (ACCC). Telephone calls took place during the month of May, since many of the Toshaos were in the Hinterland regions and connectivity is lacking in these areas. These consultations were conducted by the Environmental and Social Specialist (ESS) of the project. Many responded that they would provide their feedback and comments at a subsequent time, but to date, no responses have been received.

After a two-year hiatus due to the COVID-19 pandemic, the National Toshao’s Conference (NTC) took place from the 11-15 July. The conference saw some 221 leaders converging at the ACCC to engage in meaningful discussions with H.E. President Dr. Irfaan Ali and members of his Cabinet, including the Minister of Health Hon. Minister Dr. Frank Anthony. Minister Anthony led the Covid-19 Emergency Response Project stakeholder consultations at the NTCC, supported by Director of Primary Health Care, Dr. Ertenisa Hamilton and Director of Disability and Rehabilitative Services, Dr. Ariane Mangar.

Stakeholders

Over 221 stakeholders participated from the following Organizations and Government Ministries:

- National Toshao Council
- Amerindian People’s Association
- Ministry of Amerindian Affairs
- Toshaos (Regions 1-10)
- Council Representatives (Regions 1-10)
- Ministry of Legal Affairs
- Ministry of Health
- Ministry of Natural Resources
- Office of the President
- Ministry of Home Affairs
- British High Commission
- Ministry of Finance
- Ministry of Tourism, Industry and Commerce
- Ministry of Public Works
- Ministry of Parliamentary Affairs

- Ministry of Housing and Water
- Ministry of Agriculture

Feedback Received During Consultations

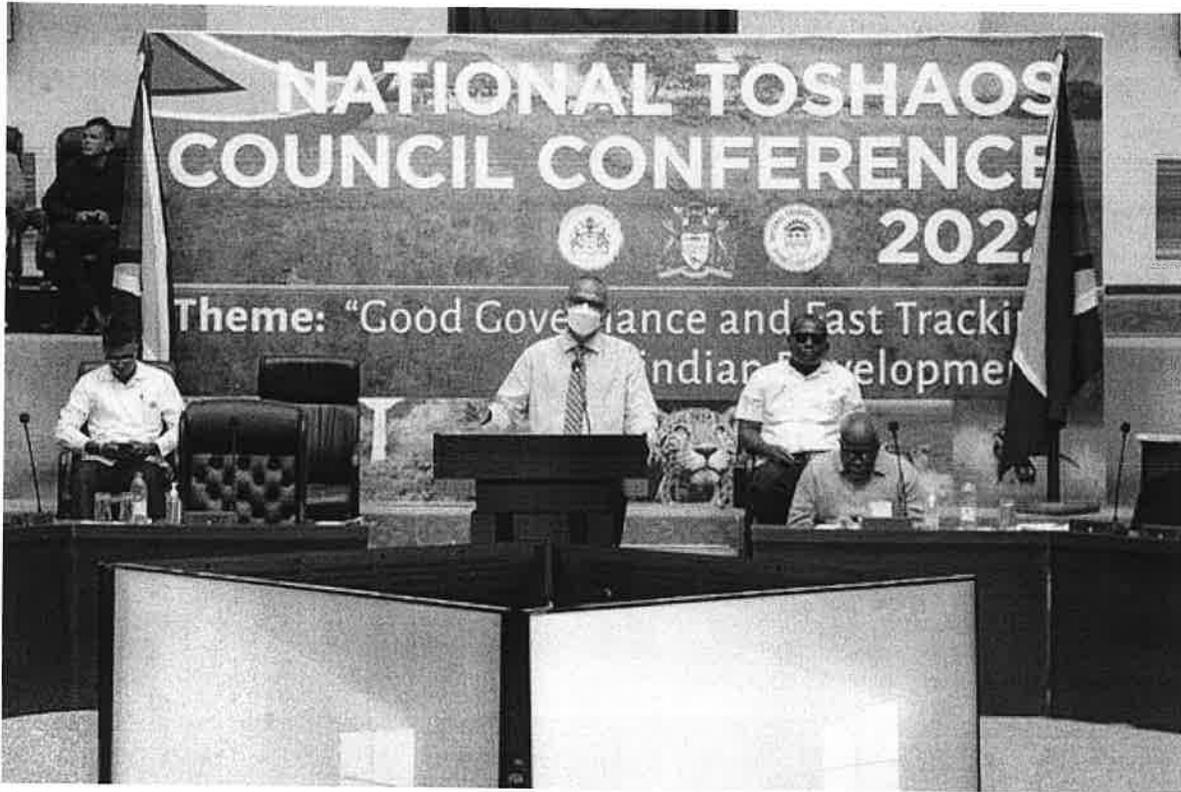
Organization	Feedback Received	Government of Guyana – Ministry of Health Response
National Toshao Council	Toshao indicated that there is high transportation costs to visit health facilities.	The MOH responded that through this project, monies have been spent on the purchase of ATVS, boats and ambulances, which will be utilized by health care workers for patients residing in far-flung areas.
Toshao	The Hinterland communities require more human resources in health would like to see more training for Community Health Workers for the numerous health posts and health centres. Additionally, they would like to see more technical staff to improve service delivery to the population.	<p>The MOH responded that the Ministry is currently training nursing assistants in Region 9, and will extend this program to all other Hinterland regions. Additionally, training will be done for pharmacy assistants and laboratory technicians.</p> <p>Regarding the training of Community Health Workers, the MOH indicated that training for health workers are currently being done across the 10 Regions, and the Ministry has developed partnerships with various Universities for training of health professionals.</p>
Toshao	Toshao indicated that Hinterland referrals to GPHC, Suddie Hospital and West Demerara Hospital cause confusion for patients attending these hospitals since they are not clear or have any proper guidance on where they are required to go.	The MOH indicated that a special office for Hinterland patients will be established at these Regional Hospitals to assist patients from these areas.
Toshao	Toshao indicated that they would like to see more diagnostic testing capacity in the Region.	The MOH responded that through the Covid-19 Emergency Response Project, laboratory equipment and diagnostic equipment such as X-rays are being procured. Additionally, through other projects and grants, the MOH is currently developing diagnostic capacities to allow for CT, Ultrasound and other various diagnostic testing in the Hinterland

		regions.
Toshao	Toshao indicated that they would like to see more dental and ophthalmology services in the Hinterland areas.	MOH responded that this is currently being done by increasing dental and ophthalmology outreaches to these regions. This is also supplemented by the Government of Guyana developing these services through telemedicine.

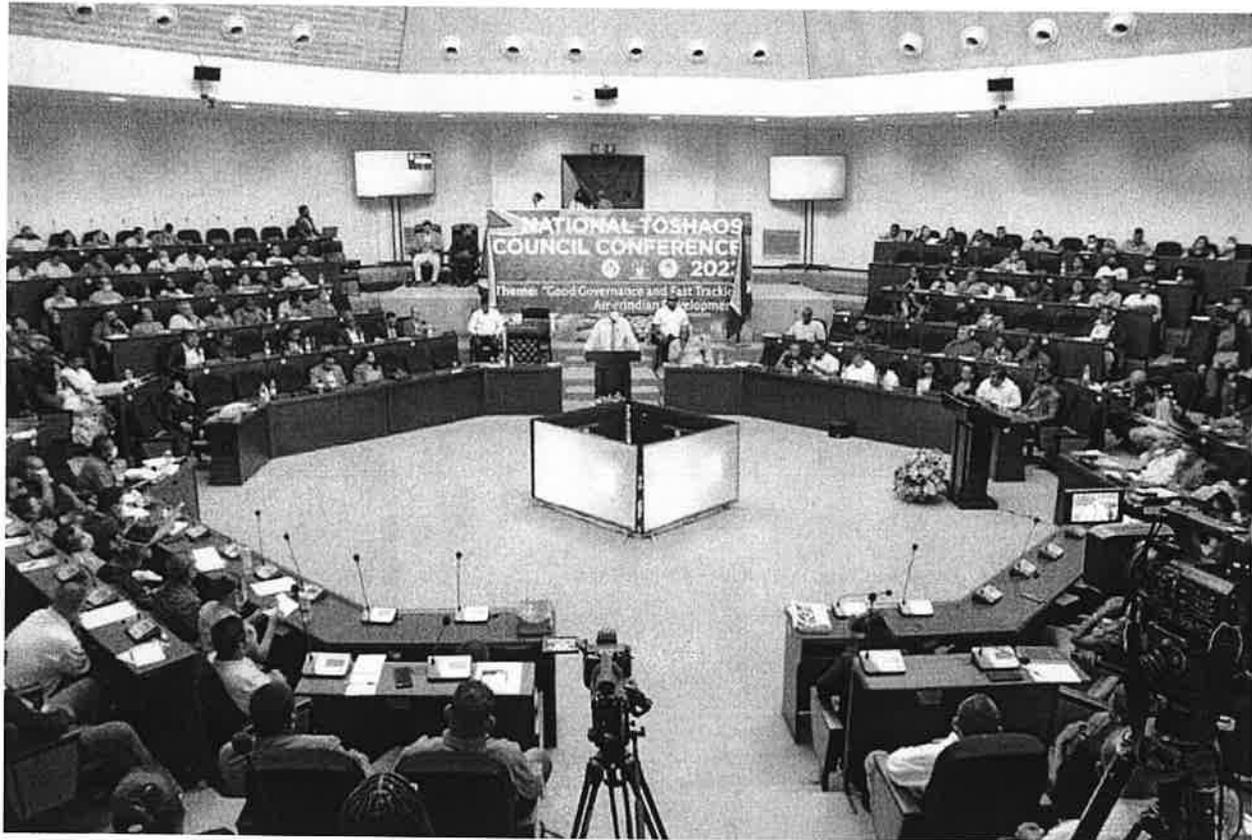
Appendix

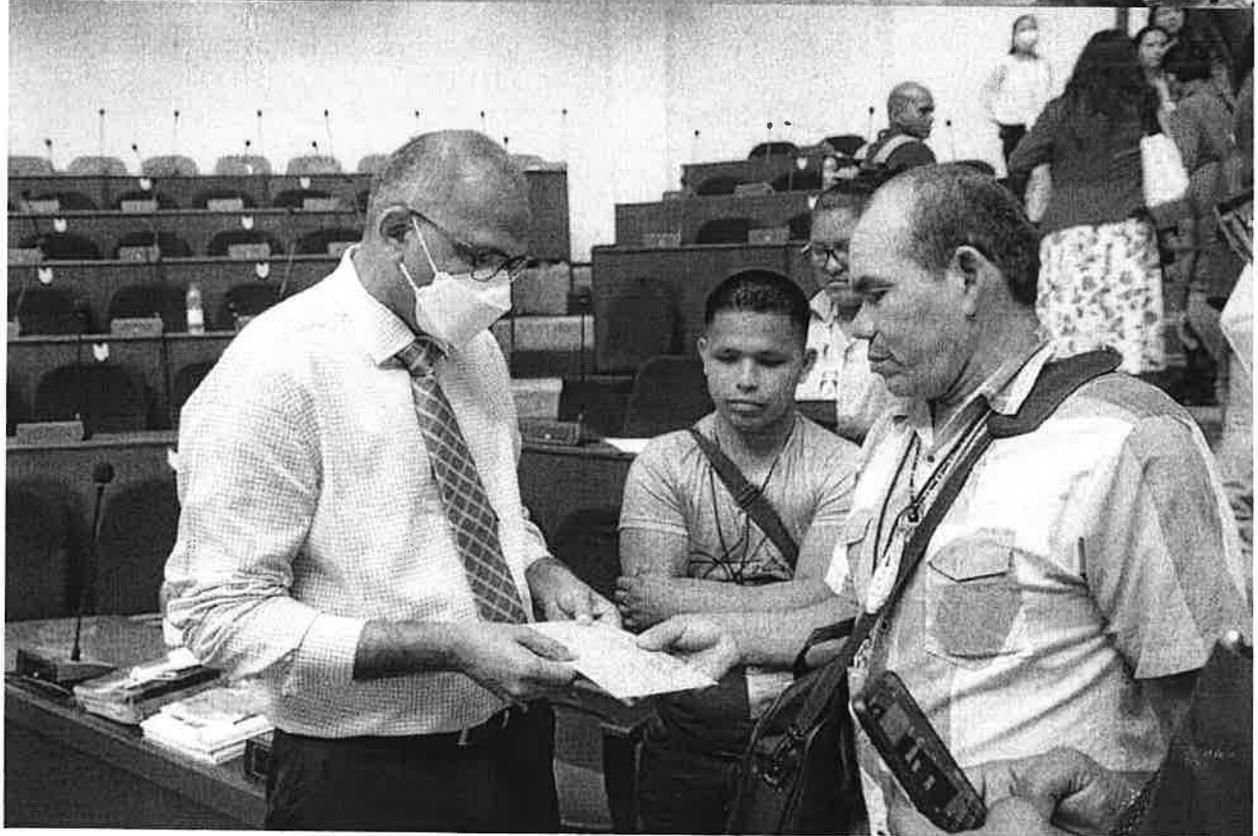


Minister of Health Dr. Frank Anthony and other officials engaging at the National Toshao Council Conference



Minister of Health Dr. Frank Anthony Addressing National Toshao's Conference





Minister of Health Dr. Frank Anthony Engaging with Stakeholders



Stakeholders

**GUYANA COVID-19 EMERGENCY RESPONSE PROJECT
REPORT ON STAKEHOLDER CONSULTATIONS
FIFTH ROUND OF CONSULTATIONS**

Date of Consultation: July 16, 2022

Venue: Windjammer Conference Room

Introduction

On January 30, 2020, the World Health Organization (WHO) declared the novel Corona Virus Disease (COVID-19) outbreak a public health emergency of international concern, after it was first identified in the City of Wuhan in Hubei Province, Peoples Republic of China in December 2019. Globally, as of 7:12pm CEST, July 22, 2022, there have been 565,207,160 confirmed cases of COVID-19 including 6,373,739, reported to WHO. As of July 19, 2022, a total of 12,219,375,500 vaccine doses have been administered.³⁴

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Since March 2020, the Government of Guyana has enacted several mitigation measures as a response to the threat of Covid-19. The Government had implemented social distancing measures and travel restriction measures. Additionally, a curfew had initially been in place from 6:00pm to 6:00am. As the Covid-19 outbreak emerged further, other measures mandated that conductors and operators of public transportation be vaccinated against COVID-19, so that they can safely transport passengers along various routes on land and along the waterways. They were also mandated to ensure that passengers were masked during their journeys.

³⁴ WHO Coronavirus (COVID-19) Dashboard: <https://covid19.who.int/>

Other measures allowed casinos, betting shops, restaurants and cinemas to operate at 40% capacity, and to gain access to these businesses, patrons were required to have a COVID-19 Vaccination card in their possession, accompanied by official identification. Concerning in-person access to Government services at its ministries and agencies, members of the public were required to be vaccinated. Those unvaccinated were allowed to access Government services by appointment.

The new Government had started a long, gradual reopening of the economy shortly after it assumed office in August 2020, making sure vaccinated persons enjoyed more freedom of access and movement to boost inoculation rates. After nearly two years of restrictions on social, physical and economic activity to curb the spread of the novel COVID-19, the Guyana Government has lifted these 'lockdown' measures, much like the rest of the world, clearing the way for a near complete rebound of economic activity.

In an updated public health ordinance published on March 14, 2022, the Government revoked the previous regulations and listed a few guidelines for citizens to follow to stay safe. The guidelines stated that businesses and places of worship are only mandated to have handwashing stations and hand sanitizing equipment installed, and that persons are encouraged – not mandated – to wear face masks.

It is no longer a requirement by the Government that persons be fully vaccinated to enter public buildings, but where anyone requires proof of vaccination to enter premises, it can be in any form including digital once it is identifiable and includes the stamp of the applicable country. Additionally, Guyana has lifted the Covid-19 testing requirements for all international travelers arriving by aircraft, but proof of vaccination is still required, effective from June 18, 2022.

Project Background

The World Bank Guyana COVID-19 Emergency Response Project (P175268) is an emergency investment project of US\$7.5 million that was originally approved by the World Bank on November 25, 2020. The Project Development Objective (PDO) is to prevent, detect and respond to the threat posed by COVID-19 and strengthen national systems for public health preparedness in Guyana. The Project was prepared as part of the World Bank's emergency response under the COVID-19 Strategic Preparedness and Response Program (SPRP). The Project consists of two components: (i) Emergency Response to COVID-19 (Subcomponent 1.1: Case Detection, Confirmation, Contact Tracing, Recording, and Reporting; Subcomponent 1.2: Health System Strengthening; and (ii) Implementation Management, and Monitoring and Evaluation.

In response to the need for COVID-19 vaccines purchase and deployment, the Project was supplemented by an Additional Financing (AF) of US\$5 million and a grant from the Health Emergency Preparedness and Response Trust Fund of US\$1 million, which were approved on June 29, 2021. The PDO of the AF is aligned with the PDO of the original project. The AF extends the Project Closing Date to June 30, 2023, to accommodate implementation of the additional activities. The AF is in line with National Deployment Vaccination Plan (NDVP), which was

developed by the Government of Guyana with the goals of procuring, storing, and deploying COVID-19 vaccines across the country.

Objective of the Consultation

As a requirement of the project, the objective of the consultations with LGBTQ Groups were to get feedback regarding the project and its various components. Stakeholders were consulted on the Stakeholder Engagement Plan (SEP) and the Environmental and Social Management Framework (ESMF) of the project.

Methodology

The consultations took place in-person at the Windjammer Conference Room at an event organized for vulnerable groups by the Ministry of Health. This round of consultation was led by the PIU’s Environmental and Social Specialist.

Stakeholders

Over 30 participants participated from the following Organizations:

- Proud to be Trans
- Guyana Trans United

Feedback Received During Consultation

The project was well received by stakeholders. Stakeholders gave their support to the Ministry for the implementation of this project. However, some specific feedback was received and recorded in the Table below.

Organization	Feedback Received	Government of Guyana – Ministry of Health Response
Proud to be Trans	The project is commendable. However, the stakeholder cautioned that there should be strict isolation for Transgender women in order to avoid discrimination in Covid-19 Hospital.	The MOH responded that isolation is not required at this time for positive cases, only critical cases. However, it was noted that arrangements will be made at the Covid-19 Hospital to have Transgender women in separate bays for safety.
Proud to be Trans	Stakeholder enquired where they can access Grievance forms.	The MOH responded that Grievance Forms can be found on the Ministry of Health’s website. Additionally, stakeholders were made aware that if they do not feel like filing a formal complaint, they can report through telephone, email or face-to-face.

**GUYANA COVID-19 EMERGENCY RESPONSE PROJECT
REPORT ON STAKEHOLDER CONSULTATIONS
SIXTH ROUND OF CONSULTATIONS**

Date of Consultation: July 20, 2022

Venue: Windjammer Conference Room

Introduction

On January 30, 2020, the World Health Organization (WHO) declared the novel Corona Virus Disease (COVID-19) outbreak a public health emergency of international concern, after it was first identified in the City of Wuhan in Hubei Province, Peoples Republic of China in December 2019. Globally, as of 7:12pm CEST, July 22, 2022, there have been 565,207,160 confirmed cases of COVID-19 including 6,373,739, reported to WHO. As of July 19, 2022, a total of 12,219,375,500 vaccine doses have been administered.³⁵

Guyana announced the first case of COVID-19 on March 11, 2020. On that same day, the WHO declared the outbreak of COVID-19 as a global pandemic following its rapid spread across the world. As of July 24, 2022, the number of confirmed cases in Guyana have been confirmed at 69,447, and the number of deaths confirmed at 1,270. Guyana is divided into ten (10) Administrative Regions, with Region 4 being the country's most populated Region, and the country's capital city. To date, Region 4 has recorded the highest number of Covid-19 cases at 49.7%; followed by Region 3 at 12.3% and Region 6 at 9.6%. Region 8 has the lowest number of Covid-19 cases recorded at 1.3%. Regions 1, 7, 8 and 9 are considered Hinterland Communities. These Regions host a high proportion of the Indigenous Population. Region 9 as an indigenously populated region has the highest record of Covid-19 cases, representing 6.2% of total cases; followed by Region 1 representing 3.8% of total cases; and Region 7 representing 3.7% of total cases. Region 10 accounts for 5.3% of total Covid-19 cases.

In terms of vaccination rates, as of July 22, 2022, 86.7% of the population 18 years and older have received a first dose, with 67.1% receiving a second dose. Total first dose administered to the population 12 to 17 years old is 48.4% and total second dose administered is 35.4%. In the population group 5-11 years old, total first dose administered is 5.6%, and total second dose administered is 1.0%.

Since March 2020, the Government of Guyana has enacted several mitigation measures as a response to the threat of Covid-19. The Government had implemented social distancing measures and travel restriction measures. Additionally, a curfew had initially been in place from 6:00pm to 6:00am. As the Covid-19 outbreak emerged further, other measures mandated that conductors and operators of public transportation be vaccinated against COVID-19, so that they can safely transport passengers along various routes on land and along the waterways. They were also mandated to ensure that passengers were masked during their journeys.

³⁵ WHO Coronavirus (COVID-19) Dashboard: <https://covid19.who.int/>

Other measures allowed casinos, betting shops, restaurants and cinemas to operate at 40% capacity, and to gain access to these businesses, patrons were required to have a COVID-19 Vaccination card in their possession, accompanied by official identification. Concerning in-person access to Government services at its ministries and agencies, members of the public were required to be vaccinated. Those unvaccinated were allowed to access Government services by appointment.

The new Government had started a long, gradual reopening of the economy shortly after it assumed office in August 2020, making sure vaccinated persons enjoyed more freedom of access and movement to boost inoculation rates. After nearly two years of restrictions on social, physical and economic activity to curb the spread of the novel COVID-19, the Guyana Government has lifted these 'lockdown' measures, much like the rest of the world, clearing the way for a near complete rebound of economic activity.

In an updated public health ordinance published on March 14, 2022, the Government revoked the previous regulations and listed a few guidelines for citizens to follow to stay safe. The guidelines stated that businesses and places of worship are only mandated to have handwashing stations and hand sanitizing equipment installed, and that persons are encouraged – not mandated – to wear face masks.

It is no longer a requirement by the Government that persons be fully vaccinated to enter public buildings, but where anyone requires proof of vaccination to enter premises, it can be in any form including digital once it is identifiable and includes the stamp of the applicable country. Additionally, Guyana has lifted the Covid-19 testing requirements for all international travelers arriving by aircraft, but proof of vaccination is still required, effective from June 18, 2022.

Project Background

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developed by the Government of Guyana with the goals of procuring, storing, and deploying COVID-19 vaccines across the country.

Objective of the Consultation

As a requirement of the project, the objective of the consultations with Civil Society Groups was to get feedback regarding the project and its various components. Stakeholders were consulted on the Stakeholder Engagement Plan (SEP) and the Environmental and Social Management Framework (ESMF) of the project.

Methodology

The consultations took place in-person at the Windjammer Conference Room at an event organized for vulnerable groups by the Ministry of Health. This round of consultation was led by the PIU’s Environmental and Social Specialist.

Stakeholders

Fifteen (15) participants participated from the following Organizations:

- National Aids Programme Secretariat
- National Coordinating Coalition
- Blossom Inc.
- Women and Gender Equality Commission
- SASOD Women’s Arm Guyana
- Guyana LGBTQ Coalition
- Phoenix Recovery Project Inc.
- Merundoi Incorporated
- Male Empowerment Network
- Guyana Transgender Union
- Youth Challenge Guyana
- Help and Shelter
- The Roraima Institute
- Guyana Global Fund Country Coordinating Mechanism

Feedback Received During Consultation

Generally, the project was well received by stakeholders. Stakeholders gave their support to the Ministry for the implementation of this project. Specific feedback and questions were received and recorded in the Table below.

Organization	Feedback Received	Government of Guyana – Ministry of Health Response
Women’s Group Equality	What kind of hospital and laboratory equipment are being procured?	The MOH responded that hospital equipment such as beds, ventilators, ultrasound machines, x-rays, and defibrillators. Laboratory

Organization	Feedback Received	Government of Guyana – Ministry of Health Response
		<p>equipment listed for procurement include biochemistry analyzers, hematology machines, microscopes, Covid-19 test kits, and Gene Xpert PCR machines.</p> <p>Not only is procurement limited to hospital and lab equipment, but it also includes cold storage and transportation equipment, such as ATVs, land ambulances and water ambulances, some of which has already procured and has been distributed to the relevant health facilities.</p>
Male Empowerment Network	What grievances have been recorded so far in the project?	<p>The MOH responded that since this is more of procurement project, grievances have been very limited, since it does not involve any civil works, nor displace any groups.</p> <p>The MOH responded that grievances mostly involve requests for Mobile Unit Vaccination for disabled persons who are unable to go to a vaccine site. These are immediately dealt with and the Mobile Unit usually takes 1-2 days.</p>
Youth Challenge Guyana	Where can grievance forms be accessed? What other methods for filing grievances exist?	The MOH responded that Grievance Forms can be found online on the ministry's website. The website link to the form was also shared with