SOUTH TARAWA SANITATION PROJECT

PROJECT IMPLEMENTATION ASSISTANCE CONSULTANT (PIAC)

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

Betio communal toilets

Final

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HYDROPLAN

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LIST OF ABBREVIATIONS AND ACRONYMS

3B	Betio, Bairiki and Bikenibeu (also known as BBB)
ACM	Asbestos Containing Materials
ADB	Asian Development Bank
AP	Affected Person/People
BBB	Betio, Bairiki and Bikenibeu (also known as 3B)
BCC	Behaviour Change Communication
BOD	Biological Oxygen Demand
CES	Community Engagement Specialist
CMIP	Coupled Model Inter Comparison Project
CSA	Community Sanitation Agreement
CSS	Country Safeguards System
DCP	Designated Contact Person
DFAT	Department of Foreign Affairs and Trade
DPM	Deputy Project Manager
DOO	Deep Ocean Outfall
EA	Executing Agency
EIA	Environmental Impact Assessment
ECD	Environment and Conservation Division
ENSO	El Niño Southern Oscillation
ESIA	Environmental and Social Impact Assessment
ESF	Environmental and Social Framework
ESMS	Environmental and Social Management System
ESS	Environmental and Social Standards (WB)
E&SS	Environmental and Social Screening
FI	Financial Intermediary
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
IA	Implementing Agency
IDA	International Development Association
IR	Involuntary Resettlement
IUCN	International Union for Conservation of Nature
GoK	Government of Kiribati
KAPII	Kiribati Adaptation Project Phase II
KHC	Kiribati Housing Corporation

KIEP	Kiribati Integrated Environment Policy
LMP	Labour Management Procedures
MC	Magistrate's Court
M&E	Monitoring and Evaluation
MELAD	Ministry of Land and Agriculture Development
MISE	Ministry of Infrastructure and Sustainable Energy
MoA	Memorandum of Agreement
NGO	Non-Governmental Organization
NSO	National Statistics Office
O&M	Operations and Maintenance
OPL	Office Peoples' Lawyer
ORS	Oral Rehydration Salt solution
OSS	On Site Sanitation
PACM	Probable Asbestos Containing Materials
PAP	Project Affected People
PDO	Project Development Objective
PEO	Principal Environment Officer
PIAC	Project Implementation Assistance Consultant
PM	Project Manager
PMU	Project Management Unit
PUB	Public Utilities Board
RHF	Recommended Homemade Fluid
SAPHE	Sanitation, Public Health Education
SEA	Strategic Environment Assessment
SEP	Stakeholder Engagement Plan
SPREP	Secretariat of the Pacific Regional Environment Program
SSS	Social Safeguards Specialist
ST	Safeguards Team
STSP	South Tarawa Sanitation Project
STWSP	South Tarawa Water Supply Project
STSISP	South Tarawa Sanitation Improvement Sector Project ST
TUC	Teinainano Urban Council
UNEP	United Nations Environmental Programme
UXO	Unexploded Ordnance
WaSH	Water Sanitation and Health
WB	World Bank

WHO	World Health Organization

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0 EXECUTIVE SUMMARY

0.1 Introduction

The ESIA is prepared for the implementation of the refurbishment of 30 communal toilets in Betio, relating to component 1 of the South Tarawa Sanitation Project (STSP).

This ESIA has been prepared in accordance with the requirements of the World Bank Environmental and Social Framework (ESF) which includes the ESS and the Government of Kiribati's Environment Act 2021 and Environmental (General) Regulations 2009.

An Environment License is required under the Environment Act 202. An application form was submitted to the ECD, and approval was given on the 16th of April 2025 for the STSP communal toilets and sewer connection components to go ahead without an EL. Based on their review and screening process, ECD concluded that "*the scope of the development is not significant and does not pose any potential environmental and social concerns.*" In parallel with the EL application process, the PMU safeguards team also prepared this ESIA and ESMP based on the guidance provided by the World Bank.

The STSP's Project Development Objective (PDO) is to increase access to sanitation services in selected areas of South Tarawa and to improve the Public Utility Board's (PUB) efficiency in sanitation service delivery. To achieve the PDO, the project has four components that include:

- Component 1: This aims to improve access to sanitation services in South Tarawa to protect freshwater sources.

  The subcomponents include increasing access to the existing PUB sewer system and refurbishment of communal toilets and in villages away from the BBB's, enhancing on-site sanitation facilities.

- Component 2: Operation and Maintenance, institutional strengthening, and sector improvement. This component aims to strengthen the capacity of PUB and MISE to provide and manage sanitation services.

- Component 3: Community engagement and support. This component aims to support significant transformations in the population's sanitation behaviour.

- Component 4: Project Management. This component will establish a regular PMU.

0.2 Baseline Environmental and Social Context

Kiribati is one of the smallest and most remote and geographically dispersed countries in the world, as well as one of the most exposed to impacts of climate change. As the country's only urban centre, South Tarawa spans a string of seven coral islets connected by several causeways[1] Land availability is a major constraint for infrastructure activities such as sanitation. Inadequate water and sanitation services and poor hygiene practices are closely associated with diarrhoea, environmental enteric dysfunction leading to malnutrition, and other waterborne diseases. South Tarawa's population suffers from poor availability and quality of sanitation services.

Women are disproportionately affected by poor sanitation services as they are generally responsible for household hygiene and sanitation, and for the care for household members afflicted by waterborne diseases such as diarrhoea. As collectors and carriers for water, they also tend to be more exposed to harmful pathogens in water and risk being ill themselves.

[1]South Tarawa's population is 63,000 (2020 census) and this is expected to grow to 116,000 by 2040.

0.3 Policy, Legal and Regulatory Framework

This ESIA examines the potential environmental and social impacts of proposed project activities and has been prepared in accordance with national and international laws and regulations. The World Bank's Environmental and Social Standards (ESS) are the primary international document used in developing this framework. The national legislations that are relevant to the ESIA are discussed in section 3.

0.4 Mitigation

The environmental and social (E&S) risk classification for this subcomponent is assessed as Moderate, based on the manageable nature of anticipated impacts and the urban context of the works. Mitigation measures have been developed to address key risks, including disruption to sanitation services, soil and water contamination, and occupational health and safety hazards. These measures will be incorporated into the detailed design and further specified in contractor-prepared Construction Environmental and Social Management Plans (CESMPs). Roles and responsibilities for implementing and monitoring these measures are defined in the ESMP and will be overseen by the PMU, PIAC, and ECD during construction and operation

0.5 Potential Significant Environmental and Social Impacts

The project is expected to result in net positive environmental and social impacts as improved sanitation will mitigate the existing environmental pollution associated with poor sanitation practices. Social benefits will accrue from improved health outcomes associated with improved sanitation. The design phase of the project will be approached to ensure that appropriate design specifications are adhered to including climate change contingencies, and that infrastructure locations seek to minimize environmental and social impacts.

This section presents the main environmental and social risks and impacts identified through the ESIA process, along with the conclusions that such impacts are generally low to moderate and can be effectively managed through the proposed mitigation measures and institutional arrangementsA stakeholder engagement plan has been developed as well as the grievance redress mechanism.

1 INTRODUCTION

1.1 General

The Government of Kiribati (GoK) has received funding for the South Tarawa Sanitation Project (STSP) under the World Bank (WB) International Development Association 19 (IDA19) grant. The implementing agency (IA) is the Ministry of Infrastructure and Sustainable Energy (MISE), with the executing agency being the Ministry of Finance and Economic Development, the funding covers implementation of technical components, and project management.

This project has been preceded by several projects in the past, including the Sanitation and Public Health Education (SAPHE) funded by the Asian Development Bank (ADB) and the South Tarawa Sanitation Improvement Sector Project (STSISP) funded by ADB and the Australian Department of Foreign Affairs and Trade (DFAT).

South Tarawa faces significant challenges in the availability and quality of sanitation services. Approximately, half of South Tarawa has access to basic sanitation services, the remaining population use shared sanitation facilities, and on-site unimproved sanitation systems such as pit latrines or practice open defecation There are notable inequalities in access between wealthy quintiles this is discussed in section 2. South Tarawa currently lacks a centralized wastewater treatment system. Fewer than 20 percent of residents are connected to the existing sewerage network. All collected sewage is discharged as untreated effluent into the ocean via 30-meter-deep marine outfalls, which extend beyond the littoral and intertidal zones. This practice presents ongoing environmental and public health concerns due to the absence of treatment prior to discharge. Furthermore, there is no management of greywater, as households generally discharge greywater locally, taking advantage of coral sand's high infiltration capacity. Marc Overmars [2], observed of Kiribati: *"Solving the issue of water and sanitation in Kiribati is one of the most difficult issues in the world. There are no golden solutions, only compromises"*.

This ESIA is a working document that currently covers one part of the overall project- subcomponent 1.1b, which focuses specifically on the rehabilitation of 30 communal toilet blocks in Betio, South Tarawa being under the management of the Kiribati Housing Corporation (KH). Future components of the South Tarawa Sanitation Project (STSP) will each undergo their own separate ESIA processes once their respective design phases are completed.

1.2 Activity Location

The Republic of Kiribati is an island nation in the Micronesia subregion of Oceania in the central Pacific Ocean. The state consists of 32 atolls and a remote, elevated coral island, Banaba. The total land area is 811 km^2 and covering 3,441,810 km^2 of ocean area. As per the 2020 census, the permanent population was over 119,000, more than half of whom live on Tarawa Atoll with a land area of 31.9km^2. The capital, South Tarawa, the most densely populated area, consists of a series of islands (islets) connected by a series of causeways. These make up about half the area of the Tarawa Atoll. The economy is largely based on fishing and the export of copra. Kiribati is one of the least developed countries in the world and is in a state of economic stagnation. Kiribati faces several environmental challenges, including rising sea levels, coastal erosion, and water scarcity. These issues are exacerbated by climate change, which has led to more frequent and severe storms, as well as ocean acidification.

Research from organizations including the Intergovernmental Panel on Climate Change (IPCC) warns that by the end of the 21st century, many Pacific Island nations, including Kiribati, could face existential threats due to sea-level rise. Some forecasts predict that this might happen as soon as 2070.

[2] formerly UNICEF Pacific's Chief water sanitation and health (WaSH) officer

Access to sanitation services in Kiribati is limited, particularly in rural areas. Many communities rely on pit latrines or traditional waste disposal methods, such as the burial of solid waste, which can lead to the contamination of groundwater and the spread of waterborne diseases. The Government has made efforts to improve the sanitation infrastructure, but funding and resources are limited.

The location of South Tawara within Kiribati is shown in orange in Figure 1 and Figure 2.

Figure 1: Map of Kiribati and Tarawa

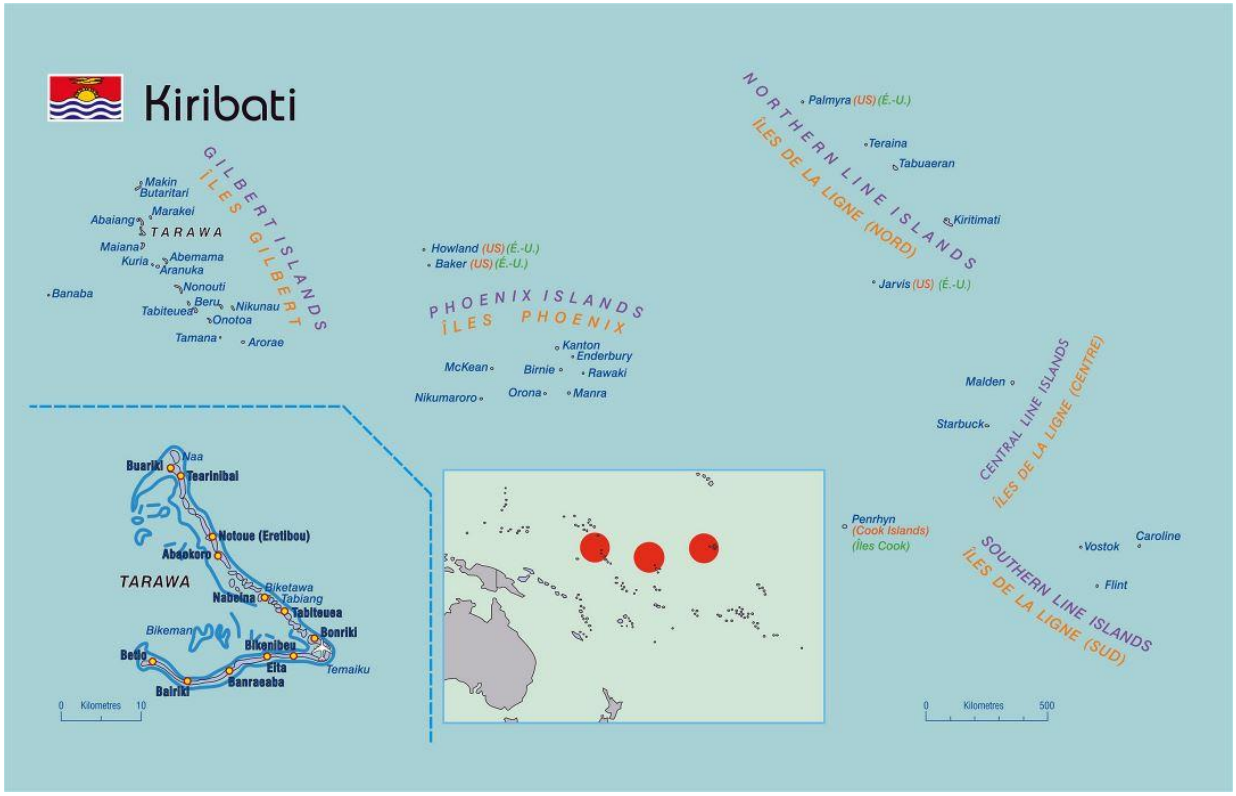


Figure 2: Map of South Tarawa

1.3 Summary of STSP Project Components

The South Tarawa Sanitation Project (STSP), supported by the World Bank, aims to improve sanitation services in South Tarawa through four components. This ESIA covers only subcomponent 1.1b- rehabilitation of 30 communal toilet blocks in Betio. Other components will undergo separate ESIAs once designs are finalized, as agreed with the World Bank. The four components of the STSP project are summarized below:

1.3.1 Component 1: Increased access to sanitation services

This component aims to improve access to sanitation services in South Tarawa to protect fresh water sources. It includes two subcomponents:

1.3.1.1 Subcomponent 1.1 Increased access to the existing sewerage system

This subcomponent will support new household connections in sewered areas of Betio, Bikenibeu and Bairiki (BBB or 3B) to all households not yet connected. The subcomponent will cover:

a. New household sewer connections comprising of
    i. Connecting existing HH's with existing toilets to the sewer system
    ii. New Toilets targeted for vulnerable HH's and connected to the sewer system
b. Retrofit the existing saltwater flushing arrangement with direct connections to the toilet facility, hence making redundant the current "common" centrally located standpipes that are proposed to be removed.
c. Community engagement to promote connection to the sewer network and effective use and maintenance of communal and public toilets.
d. Plumbing and other essential equipment for the PUB.

1.3.1.2 Subcomponent 1.1b the refurbishment of communal toilets in BBB

This component will cover the refurbishment of communal toilet blocks in the BBB domain. Following a pre-assessment conducted by the Project Management Unit (PMU) in March 2024, the first tranche of communal toilet investments will target 30 communal toilets manged by KHC and located by KHC land in Betio. Rehabilitation has been identified as a feasible starting point for the project. This first tranche of subcomponent 1.1b is the subject of this ESIA. Future tranches will be subject to separate or updated ESIA.

1.3.1.3 Subcomponent 1.2 Increased access to on-site sanitation systems

This subcomponent will finance the construction of household on-site sanitation systems, decentralized sanitation systems and communal toilets in areas adjacent to the townships that have reticulated sewer systems namely the islets of Nanikai, Teaoraereke west, Bikenibeu East and Bikenibeu West. These areas are prioritized as they are the most densely populated islets in South Tarawa, outside of BBB. The subcomponents will include:

- the construction of toilets, septic tanks, soak-away pits, and the toilet superstructure.
- funding mechanisms for vulnerable households such as revolving funds to enable vulnerable households to retrofit internal plumbing for greywater reuse.
- multifunctional communal toilet blocks with shower facilities.
- provision of essential equipment to PUB for septic sludge emptying services.
- confirming the technical and social acceptability of the direct use of greywater for flushing and supplementary use of local groundwater for flushing where greywater is not feasible.

1.3.2 Component 2: Operation and Maintenance, institutional strengthening, and sector improvement.

This component will aim to strengthen the capacity of PUB and MISE to provide and manage sanitation services and to ensure the sustainability of the systems implemented under Component 1. This component builds on key recommendations from the Sanitation Roadmap Addendum (2021) addressing institutional inefficiencies in the sanitation sector.

PUB will be supported through the following ways:

- Establishment of a regular seawater and groundwater quality monitoring system, which will help assess the impacts of sanitation activities and climate change and adjust design/construction standards if needed.
- Establishment and maintenance of a register for on-site sanitation installations.
- Development of sector regulations, for example to guide the formulation and periodic revision of tariffs.
- Establishing, standardizing or upgrading design standards and building codes for communal toilets and on-site sanitation facilities.
- Training and capacity building for carrying out sector supervision roles, such as inspection of septic tanks; and
- Establishing a transparent, fair, effective and reliable process for certifying Open Defection Free (ODF).

1.3.3 Component 3: Community engagement and support

This component aims to support significant transformations in the population's sanitation behaviour that are key to project success. It will carry on from the Water, Sanitation and Hygiene (WaSH) Awareness Program (WAP) that will be initiated under STWSP. Specifically, this component will target behaviour changes related to (i) connecting to the sewer system, (ii) reducing open defecation, (iii) maintaining communal systems and (iv) managing animal waste. An international firm has been recruited under the project and will implement the behaviour change communication (BCC) awareness campaigns with the support of local Civil Society Organizations at the community level.

To ensure communities are involved in planning and implementation, support sanitation and hygiene awareness and education, behaviour changes for a significant transformation in the population's approach to sanitation and WASH behaviour's including in schools and health care facilities and promoting women's roles.

1.3.4 Component 4: Project Management:

This component has established a regular PMU including a project manager (PM), deputy project manager (DPM) and core experts needed for project implementation. This cover works supervision, community engagement, monitoring and evaluation (M&E), environmental and social safeguards and project financial accounting. It also includes the Project Implementation Assistance Consultants (PIAC) to backstop the PMU with international expertise as needed.

1.3.5 Preliminary activities

This ESIA covers specific activities under tranche one of sub-component 1.1b. As mentioned, this covers the full replacement of 30 KHC communal toilets in Betio including demolition of existing struc-

tures and construction of new facilities. The design for Component 1:1b, including the selection of appropriate technologies and the identification of work locations, has been completed. The detailed design includes the following environmental and social considerations:

- Integration of environmental and social factors into the project to establish, standardize, or upgrade design standards for communal toilets noting that these facilities are currently connected to the existing PUB Sewer system.
- Strategic placement of infrastructure (including sewerage reticulation as required) to minimize impacts on existing infrastructure and environmental assets (e.g., fruit-bearing trees).

1.3.6 Existing infrastructure, baseline situation

The safeguards team of the PMU has investigated the status of these communal toilets located in Betio. The communal toilets can be divided into two different ownerships / management, namely those that are owned by the KHC and those that are owned by the Betio Town Council (BTC). The 30 KHC communal toilets will be the first toilets to be refurbished. In practice, refurbishment involves the demolition of existing structures, and the construction of new communal toilets based on the updated design. Generally, many of the toilet cubicles are in poor condition.

The communal toilets were constructed in the 1980s after the cholera outbreak of 1977. This means that these toilets are now at least 40 years old. These, now old communal toilets require replacing. The overall condition of the communal toilets is very poor and poses a high risk with hygienic threats to users of the toilets, as well as those who live close to these toilets.

The toilet blocks are connected to the PUB sewerage system. The PUB sewerage system is not working optimally, so as part of the STSP, this system will be refurbished by replacing pumps that pumps the effluent to the ocean outfall. This refurbishment of the PUB system is not part of this ESIA.

The total number of existing cubicles across all communal toilet blocks is 196. The new design matches the number of KHC households, as each unit has been designed / designated on a one-to-one basis—one cubicle per household. It is noted that with the combination of units, including 38 disable cubicles, resulting in a total of 234 actual cubicles. Seventy-three (73) cubicles are currently non-operational; some households now share cubicles. This has a severe impact on the original arrangement. It is difficult to measure which household is using which toilet, but approximately some 196 households make use of the remaining operational toilets. It is worth noting that the current toilet blocks lack hand washing facility, showers and are not accessible to wheelchair users.

As stated, the original arrangement was for 196 households to make use of these communal toilets. All the original households using the toilets or the tenants of the KHC houses, had some employment connection to the Government and should receive an income from the Government. When the resident's employment contract with the Government ends, tenants are to vacate the property.

Table 1: Overview of KHC communal toilet (March 2024)

Toilet Codes	Toilet description	(Non) operational	Land status	Source of water for flushing	Saltwater connection	Accessed by	Coordinates
HT1 	6 cubicles Back-to-back Connected to sewer Need full replacement	4 operational 2 not operational	Gov' land	Well water	Yes, but not working	KHC tenants and private household members	Long:172.9206102 Lat: 1.3574014

Toilet Codes	Toilet description	(Non) operational	Land status	Source of water for flushing	Saltwater connection	Accessed by	Coordinates
HT2 	6 cubicles Back-to-back Connected to sewer Need full replacement	1 operational 5 not operational	Gov' land	Well water	Yes, but not working	KHC tenants and private household members	Long:172.9208255 Lat: 1.357823
HT3 	6 cubicles Back-to-back Connected to sewer Need full replacement	1 operational 5 not operational	Gov' land	Well water	Yes, but not working	KHC tenants and private household members	Long:172.9210062 Lat: 1.3583203
HT4 	6 cubicles Back-to-back Connected to sewer Need full replacement	4 operational 2 not operational	Gov' land	Well water	Yes, but not working	KHC tenants and private household members	Long:172.9211467 Lat: 1.3581207
HT5 	6 cubicles Back-to-back Connected to sewer Need full replacement	2 operational 4 not operational	Gov' land	Well water	Yes, but not working	KHC tenants only	Long: 172.922364 Lat: 1.3573953
HT6 	6 cubicles Back-to-back Connected to sewer Need full replacement	4 operational 2 not operational	Gov' land	Well water	Yes, but not working	KHC tenants and private household members	Long:172.9223633 Lat: 1.3568133
HT7 	8 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational 3 not operational	Gov' land	Well water	Yes, but not working	KHC tenants and private household members	Long:172.9229382 Lat: 1.357238
HT8 	4 Cubicles Back-to-back Connected to sewer Need full replacement	4 operational	Gov' land	Well water	Yes, but not working	KHC Tenants	Long:172.9230833 Lat: 1.3567867

Toilet Codes	Toilet description	(Non) operational	Land status	Source of water for flushing	Saltwater connection	Accessed by	Coordinates
HT9 	4 Cubicles Back-to-back Connected to sewer Need full replacement	4 operational	Gov' land	Well water	Yes, but not working	KHC tenants and private household members	Long: 172.920025 Lat: 1.3569467
HT10 	5 Cubicles Back-to-back Connected to sewer Need full replacement	4 operational 1 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long: 172.92295 Lat: 1.3562233
HT11 	8 Cubicles Back-to-back Connected to sewer Need full replacement	3 operational 5 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9240083 Lat: 1.3563633
HT12 	8 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational 3 not operational	Gov' land	Well water	Yes, but not working	KHC tenants & private household members	Long:172.9233717 Lat: 1.3563517
HT13 	8 Cubicles Back-to-back Connected to sewer Need full replacement	4 operational 4 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9332152 Lat: 1.3577909
HT14 	7 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational 2 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9347733 Lat: 1.3554033
HT15 	7 Cubicles Back-to-back Connected to sewer Need full replacement	2 operational 5 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9349683 Lat: 1.3552733

Toilet Codes	Toilet description	(Non) operational	Land status	Source of water for flushing	Saltwater connection	Accessed by	Coordinates
HT16 	5 Cubicles Back-to-back Connected to sewer Need full replacement	5 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9349517 Lat: 1.3551816
HT17 	5 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long: 172.936305 Lat: 1.3551633
HT18 	5 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9363633 Lat: 1.355145
HT19 	8 Cubicles Back-to-back Connected to sewer Need full replacement	6 operational 2 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9353317 Lat: 1.355405
HT20 	6 Cubicles Back-to-back Connected to sewer Need full replacement	6 operational	Gov' land	Well water	Yes, but not working	KHC tenants and private households' members	Long:172.9349933 Lat: 1.354585
HT21 	5 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long: 172.93454 Lat: 1.3548009
HT22 	12 Cubicles Back-to-back Connected to sewer Need full replacement	6 operational 6 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9363617 Lat: 1.354635

Toilet Codes	Toilet description	(Non) operational	Land status	Source of water for flushing	Saltwater connection	Accessed by	Coordinates
HT23 	10 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational 5 not operational	Gov' land	Well water	Yes, but not working	KHC tenants and private households' members	Long:172.9363667 Lat: 1.3545733
HT24 	10 Cubicles Back-to-back Connected to sewer Need full replacement	6 operational 4 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9408033 Lat: 1.3541583
HT25 	4 Cubicles Back-to-back Connected to sewer Need full replacement	4 operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9411983 Lat: 1.3539
HT26 	5 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9414117 Lat: 1.3538233
HT27 	4 Cubicles Back-to-back Connected to sewer Need full replacement	4 operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9416033 Lat: 1.353625
HT28 	7 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational 2 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9419083 Lat: 1.3534233
HT29 	7 Cubicles Back-to-back Connected to sewer Need full replacement	5 operational 2 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long:172.9423317 Lat: 1.35314

Toilet Codes	Toilet description	(Non) operational	Land status	Source of water for flushing	Saltwater connection	Accessed by	Coordinates
HT30 	10 Cubicles Back-to-back Connected to sewer Need full replacement	6 operational 4 not operational	Gov' land	Well water	Yes, but not working	KHC tenants	Long: 172.94232 Lat: 1.3527117

There are several trees surrounding the site. **Error! Reference source not found.** shows the various types of trees and their positions relative to the current communal toilets. Although tree cutting is to be avoided, it is inevitable that some trees will have to be removed.

Table 2: Trees around communal toilet

Housing code	Types of trees (native names)	Distance to the site (m)
HT1	Coconut tree *(Cocos nucifera*)	1.0
	Coconut tree (*Cocos nucifera*)	4.0
HT2	Banana tree (*Musa acuminata*)	9.0
	Pawpaw tree (*Carica papaya*)	2.0
HT3	Breadfruit tree (*Artocarpus altilis*)	7.0
	Pawpaw tree (*Carica papaya*)	2.5
	Te non[3] (*Morinda citrifolia*)	1.0
HT4	Coconut tree (*Cocos nucifera*)	1.0
	Coconut tree (*Cocos nucifera*)	2.4
	Coconut tree (*Cocos nucifera*)	5.2
	Te ango *(premna serratifolia)*[4]	3.5
HT5	Te ango *(premna serratifolia)*	0.5
	Te uri (*Guettarda*)	4.0
HT6	Te ango *(premna serratifolia)*	0.5
HT7	Te ango *(premna serratifolia)*	4.0
	roti tree (*hisbiscus Rosa sinensis*)	3.0
	meria tree (*plumeria rubra)*	2.5
	Te ango *(premna serratifolia)*	3.8
HT8	Te ango *(premna serratifolia)*	3.9
HT9	Pandanus tree (*Pandanus tectorius*),	1.3

[3] Also known as Canary wood or Indian mulberry.

[4] This goes by different names in English, Premma mangrove is one of them.

Housing code	Types of trees (native names)	Distance to the site (m)
	Coconut tree (*Cocos nucifera*)	6.0
	Pawpaw tree (*Carica papaya)*	3.2
	Baby cucumber (*Cucumis sativus*)	1.2
	Coconut tree (*Cocos nucifera)*	3.2
HT10	Te ango *(premna serratifolia)*	2.0
	Te non (*Morinda citrifolia)*	0.5
	Pandanus tree (*Pandanus tectorius),*	2.5
	Pawpaw tree (*Carica papaya)*	6.0
HT11	Te buka Tree *(Pisonia grandis)*[5]	1.0
	Banana tree (*Musa acuminata)*	0.3
	Banana tree (*Musa acuminata)*	0.3
	Te non (*Morinda citrifolia)*	3.0
HT12	Banana tree (*Musa acuminata)*	0.3
	Coconut tree (*Cocos nucifera)*	6.5
	Te ango tree *(premna serratifolia)*	1.7
HT13	pawpaw tree (*Carica papaya)*	2.3
	Young coconut tree (*Cocos nucifera)*	3.6
	Coconut tree (*Cocos nucifera)*	6.0
	Young coconut tree (*Cocos nucifera)*	7.9
	Young coconut tree (*Cocos nucifera)*	7.9
	pawpaw tree (*Carica papaya)*	2.5
HT14	Te non tree (*Morinda citrifolia)*	2.0
	Pawpaw tree (*Carica papaya)*	1.5
	Teango tree *(premna serratifolia)*	2.0
	Banana tree (*Musa acuminata)*	3.0
	Bwaukin tree *(Cucurbita)*	3.5
HT15	Te buka tree *(Pisonia grandis)*	2.0
	Young coconut tree *(Cocos nucifera)*	1.4
	Pawpaw tree (*Carica papaya)*	3.3
	Young coconut (*Cocos nucifera)*	1.0
	Coconut tree *(Cocos nucifera)*	2.4

[5] This goes by different names in English, Birdcatcher tree or Grand Devil's-Claws

Housing code	Types of trees (native names)	Distance to the site (m)
HT16	Te non tree (*Morinda citrifolia)*	0.7
HT17	Pandanus tree (*Pandanus tectorius*),	4.0
	Te non tree (*Morinda citrifolia)*	1.0
HT18	Coconut tree (*Cocos nucifera)*	2.8
	Coconut tree (*Cocos nucifera)*	1.8
	Coconut tree (*Cocos nucifera)*	2.0
	Coconut tree (*Cocos nucifera)*	2.2
	Coconut tree (*Cocos nucifera)*	3.2
	Te non tree (*Morinda citrifolia)*	4.6
HT20	Te buka tree *(Pisonia grandis)*	2.3
	Banana tree (*Musa acuminata)*	1.8
	Pawpaw tree (*Carica papaya)*	1.2
	Pawpaw tree (*Carica papaya)*	1.7
HT21	Coconut tree (*Cocos nucifera)*	0.6
HT22	Te ango tree *(premna serratifolia)*	2.5
	Te non tree (*Morinda citrifolia)*	1.5
	te kunkun tree (*Terminalia samoensis*)	0.4
HT23	Te pawpaw tree (*Carica papaya)*	2.0
	Kunkun tree (*Terminalia samoensis*)	0.3
	Te non (*Morinda citrifolia)*	1.5
	Te ango tree *(premna serratifolia)*	2.0
HT24	Pawpaw tree (*Carica papaya)*	1.8
	Te non tree (*Morinda citrifolia)*	3.5
	Breadfruit tree (*Artocarpus altilis)*	3.5
	Coconut tree (*Cocos nucifera)*	1.8
	Coconut tree (*Cocos nucifera)*	1.8
	Coconut tree (*Cocos nucifera)*	1.8
HT25	Coconut tree (*Cocos nucifera)*	1.8
	Coconut tree (*Cocos nucifera)*	1.8
HT26	Coconut tree (*Cocos nucifera)*	2.0
	Pawpaw tree (*Carica papaya)*	3.5
	Pandanus tree (*Pandanus tectorius),*	0.3
	Coconut tree (*Cocos nucifera)*	3.0

Housing code	Types of trees (native names)	Distance to the site (m)
	Pawpaw tree *(Carica papaya)*	0.3
HT27	Te ango *(premna serratifolia)*	2.0
	Te breadfruit tree *(Artocarpus altilis)*	4.7
	Coconut tree *(Cocos nucifera)*	5.5
	Te ango *(premna serratifolia)*	1.2
	Coconut tree *(Cocos nucifera)*	1.6
	Te ango *(premna serratifolia)*	2.7
HT28	Coconut tree *(Cocos nucifera)*	1.5
	Te ango tree *(premna serratifolia)*	0.3
HT29	Te non tree (*Morinda citrifolia)*	3.6
	Pawpaw tree *(Carica papaya)*	4.0
	Te ango tree *(premna serratifolia)*	2.0
	Coconut tree *(Cocos nucifera)*	2.4
HT30	Coconut tree *(Cocos nucifera)*	6.2
	Pandanus tree *(Pandanus tectorius)*	4.4
	Te ango tree *(premna serratifolia)*	4.9

The location of these communal toilets is depicted below in Figure 3 and Figure 4 as numbered blue dots.

Figure 3: KHC communal toilets in West Betio relative to the main sewer line

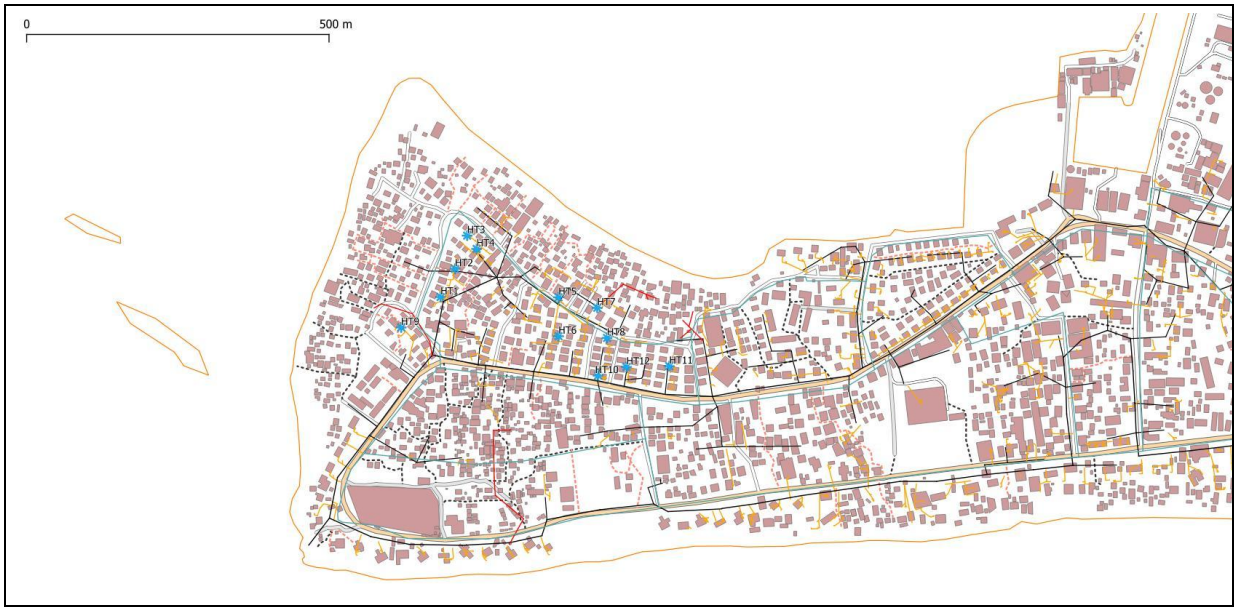


Figure 4: KHC communal toilets in East Betio relative to the main sewer line

1.4 Work to be undertaken

1.4.1 Standard Design Approach and Site Adaptations

MISE has prepared a series of designs for communal toilets. These designs are varied from single cubicles to 6 cubicles. Ultimately, the MELAD configuration, being based on the MISE design, was used as a base design and the designs ranged from Five to Eight-unit communal toilets. A key challenge for the design is optimise the configuration in the limited space available, and therefore each design needs to be adapted to its specific location. An initial environmental and social screening (ESS) survey was performed to establish whether replacement toilets would fit in the existing footprint. Detailed design will need to include an engineering survey to verify the ESS findings and to resolve any possible engineering bottlenecks. One of these bottlenecks identified, is the accessibility to these toilets. In many cases there are only narrow footpaths to access the toilet locations. Therefore, in these areas, the contractor will not be able to use heavy equipment for demolishing of existing structures and the construction of new ones, in those areas. An example of such a small footpath can be seen in Figure 5: Footpath leading to HT1.

Standardized preliminary designs for communal toilets have been developed to guide the rehabilitation and construction of facilities under the project. These designs range from four (4) to seven (7) cubicle Five (5) to eight (8) units, including the addition of a disabled toilet). These layouts include accessible features such as disability-friendly toilets and showers. Based on the MELAD-style layout outlined in the *Handbook for Technical and Service Standards for MISE Sewerage and Sanitation Assets*, the designs ensure consistency across sites while aligning with environmental and social requirements.

While these preliminary designs provide a strong foundation, further refinement may be necessary prior to construction. Site-specific adaptations will be required to address spatial constraints and environmental factors, such as proximity to boreholes for groundwater extraction. These adjustments are to ensure that the designs are suitable for each location, & minimize environmental impact, and comply with safeguard standards. The use of standardized yet adaptable designs support efficient implementation and reduces the risk of inconsistencies that could lead to environmental or social issues during construction. It is noted that flush water is sourced from a borehole of fresh water – ground water lens.

Figure 5: Footpath leading to HT1

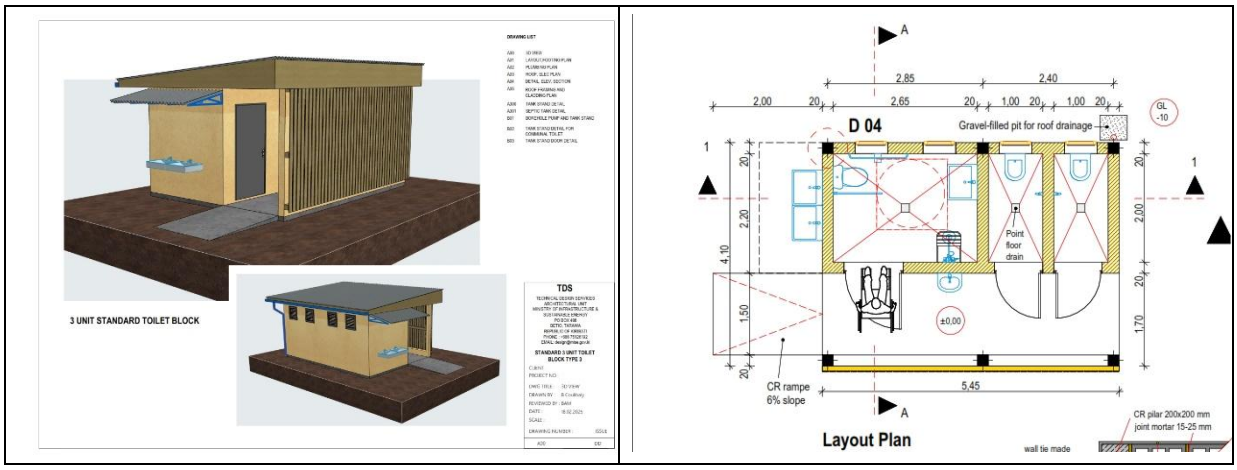
A typical design of a three-unit communal toilet, being two cubicle and a disability toilet/shower is presented. The PIAC team has modified the designs that has been provided by MISE in PDF format, and improved to include a shower allow for accessibility for wheelchairs. The 3-unit (2 cubicle plus a disabled toilet) design is used as a template to produce designs for larger toilet blocks.

All the existing cubicles will be replaced on a one-for-one basis, plus the additional shower/disability toilet. This means that the new number of cubicles will increase from 196 to 234. This increase in number of cubicles does not necessarily relate to an addition in the total numbers of benefactors, as the disabled toilets are facilities to be used by patrons within the original number of groups 196 * 7 being 1372 users. The addition of disabled toilets is designed to make life easier for those HH's where a person suffering a disability resides.

The effluent of the toilets (black water) will be discharged to the PUB's sewerage system as is the case in the existing arrangements, while the grey water from the shower and hand washing basins / trough basis, will be collected in a soak-away pit with a minimum distance of 15m to the nearest ground water extracting borehole. The grey water will percolate to the groundwater table. The toilet blocks will not be connected to the existing PUB saltwater system.

Although the 30 communal toilet blocks are conceptually designed to fit within their existing footprints, it is anticipated that site-specific modifications may be required during the detailed design phase. These adjustments will address spatial constraints, such as narrow access paths and compact urban settings, as well as environmental considerations, such as the proximity to groundwater boreholes. These refinements will ensure that construction activities are technically feasible, minimize local disturbance, and comply with safeguard requirements.

Figure 6: Typical design of a 2-cubicle communal toilet with a combined toilet/shower



It is noted that this is an example only and the actual drawings range from 5 units to 8-unit communal toilets,

1.4.2 Footprint of the new toilet blocks

The design, incorporating new features, of the new communal toilet units / blocks offers a great improvement over the existing. However, the footprint of the new toilets appears to be a much larger area than existing facilities.

For example, the existing width of HT1 is 1.8m, but the overall width required is 3.8 to 4.0 m allow room for the doors to open, situated on both sides. For HT 1 this increases the effective Footprint required from 12.6 to 27.6 Sqm.

The new HT1 toilet unit is wider as there is an accessway at the front of the unit, which is located behind a privacy screen, and there are overhanging eves to reduce rainwater landing on the accessway, which could cause a slip hazard.

The new toilets have the addition of a disabled toilet which occupies 14 Sqm and the new structures' footprint has the comfort of a roof-eve making the surroundings cleaner, dust-earth-sand free. The addition of disabled toilets, and the covered walk away with a privacy screen are designed to increase privacy, comfort, and general dignity for the patrons / users from the community.

Error! Reference source not found. shows the comparison between the existing and proposed footprint, (not considering the allowance for door opening on the existing units).

Table 3: Footprint comparison between the existing and proposed new toilet

	Dimension existing toilet block (m)	Surface existing toilet block (m^2)	Dimension replacement toilet block (m)	Surface replacement toilet block (m^2)
HT1	7 x1.8	12.60	9.850 x4.800	47.28
HT2	6.4x2.2	14.08	9.850 x4.800	47.28
HT3	6.8x1.8	12.24	9.850 x4.800	47.28
HT4	6.4x1.7	10.88	9.850 x4.800	47.28
HT5	7.4x1.8	13.32	9.850 x4.800	47.28
HT6	7 x1.8	12.60	9.850 x4.800	47.28
HT7	8.8x1.8	15.84	9.850 x4.800	47.28
HT8	6x1.8	10.80	7.450x4.800	35.76
HT9	4.5x1.8	8.10	7.450x4.800	35.76
HT10	7.8 x1.8	14.04	8.650x4.800	41.52
HT11	7 x1.8	12.60	6.250x4.800	30.00

	Dimension existing toilet block (m)	Surface existing toilet block (m^2)	Dimension replacement toilet block (m)	Surface replacement toilet block (m^2)
HT12	6.5x1.8	11.70	9.850 x4.800	47.28
HT13	7.5x1.9	14.25	7.450x4.800	35.76
HT14	8.8x1.7	14.96	9.850 x4.800	47.28
HT15	8x1.7	13.6	9.850 x4.800	47.28
HT16	7.7x1.8	13.86	8.650x4.800	41.52
HT17	7.7x1.8	13.86	8.650x4.800	41.52
HT18	9.3x1.4	13.02	8.650x4.800	41.52
HT19	7.8x1.8	14.04	9.850 x4.800	47.28
HT20	6.4x1.7	10.88	9.850 x4.800	47.28
HT21	7.7x1.8	13.86	8.650x4.800	41.52
HT22	12.5x1.8	22.50	9.850 x4.800	47.28
HT23	13.8x1.6	22.08	8.650x4.800	41.52
HT24	10.6x1.8	19.08	9.850 x4.800	47.28
HT25	4.5x1.8	8.10	7.450x4.800	35.76
HT26	5x1.8	9.00	8.650x4.800	41.52
HT27	4.5x1.8	8.10	7.450x4.800	35.76
HT28	7.7x1.8	13.86	7.450x4.800	35.76
HT29	10x1.8	18.00	8.650x4.800	41.52
HT30	10x1.8	18.00	9.850 x4.800	47.26

Although the footprint of the new toilets is larger compared to the existing toilet blocks, all proposed toilet blocks can fit.

1.4.3 Summary of works to be undertaken.

The following works should be undertaken according to the bidding document KI-MISE-466547-CW-RFQ. The Bid is for the works to:

- disconnect the existing communal toilet blocks from the PUB sewer system.
- provide and maintain a temporary toilet facility for the local community to use during construction.
- secure the site / works area.
- assess the site for the presence of UXO.
- demolish and remove existing communal toilet blocks.
- clear and prepare the site for the new communal toilets.
- construct communal toilets (30) located on existing locations and connected to the PUB sewer system.
- commission and hand over the completed communal toilet to the KHC; and,
- clear the site.

If it is necessary to remove a tree associated with the works, then the Contractor is to notify the Project Manager and the PMU's Safeguard team to ensure the owner(s) of the tree are informed and any arrangements associated with the removal of a tree are made. Banana bush trees are to be removed as required.

No tree is to be removed without the Project Manager's permission.

Error! Reference source not found. shows the work that needs to be undertaken for the replacement of the communal toilets.

Table 4: Required works to be undertaken

Name of Communal Toilet	Existing cubicles	New Unit configuration	New configuration details		Description
			Cubicles single toilet	Disable unit	
HT1	6	7	6	1	The existing dimensions available 7 *1.8 EXISTING 6 Cubicle **Requirement (see above note)** Demolish existing structure e. Prepare the site and construct according to standard drawings and notes for a Seven (7) Unit new structure replacing a six (6) cubicle according to standard drawings and notes.
HT2	6	7	6	1	No dimensions of current area on Screening information, an existing water well is 13.8 m away EXISTING 6 Cubicle **Requirement (see above note)** Demolish existing structure. Prepare the site and construct according to standard drawings and notes for a Seven (7) Unit new structure replacing a six (6) cubicle according to standard drawings and notes.
HT3	6	7	6	1	Dimensions of current area 1.8 Wide 6.8 long EXISTING 6 Cubicle **Requirement (see above note)** Demolish existing structure. Prepare the site and construct according to standard drawings and notes for a Seven (7) Unit new structure replacing a six (6) cubicle according to standard drawings and notes.
HT4	6	7	6	1	The existing toilet dimensions are1.7* 6.4. Well water 2.7m / 8.4 m away EXISTING 6 Cubicle **Requirement (see above note)** • Demolish existing structure. Prepare the site and construct according to standard drawings and notes for a Seven (7) Unit new structure replacing a six (6) cubicle according to standard drawings and notes.

Name of Communal Toilet	Existing cubicles	New Unit configuration	New configuration details		Description
			Cubicles single toilet	Disable unit	
					Remove one (1) tree[6]
HT5	6	7	6	1	The existing facility has the following dimensions 7.4 * 1.4 EXISTING 6 Cubicle **Requirement (see above note)** • Demolish existing structure. Prepare the site and construct according to standard drawings and notes for a Seven (7) Unit new structure replacing a six (6) cubicle according to standard drawings and notes. Remove one (1) tree
HT6	6	7	6	1	Existing toilet dimensions: 7.0* 1.8. EXISTING 6 Cubicle **Requirement (see above note)** • Demolish existing structure. Prepare the site and construct according to standard drawings and notes for a Seven (7) Unit new structure replacing a six (6) cubicle according to standard drawings and notes. Remove one (1) tree
HT7	8	Two* 5*	8	2	The existing structure has the following dimensions:1.8*8.8 EXISTING 8 Cubicle **Requirement (see above note)** Demolish existing structure. Prepare the site and construct according to standard drawings and notes for inline side by side Two * Five Unit replacing One Eight Cubicle
HT8	4	5	4	1	Existing structure dimensions: 6*1.8 Well located at 8.4 M away EXISTING 4 Cubicle **Requirement (see above note)**

[6] The actual number of trees may differ from this table. Thes depends on the actual situation on the ground that can only be established during construction

Name of Communal Toilet	Existing cubicles	New Unit configuration	New configuration details		Description
			Cubicles single toilet	Disable unit	
					Demolish existing structure. Prepare the site and construct according to standard drawings and notes for a five (5) Unit new structure replacing a Four (4) cubicle according to standard drawings and notes.
HT9	4	5	4	1	Existing structure dimensions 4.5 * 1.8. Well located at 7.3m. EXISTING 4 Cubicle **Requirement (see above note)** Demolish existing structure. Prepare the site and construct according to standard drawings and notes for a five (5) Unit new structure replacing a Four (4) cubicle according to standard drawings and notes.
HT10	5	6	5	1	Existing structure dimensions 7*1.8. No Bore hole Water near to houses EXISTING 5 Cubicle **Requirement (see above note)** Demolish existing structure. Prepare the site and construct according to standard drawings and notes for a Six (6) Unit new structure replacing a Five (5) cubicle according to standard drawings and notes. remove one (1) tenon tree
HT11	8	Two* 5*	8	2	Existing structure Dimensions 7*1.8 EXISTING 8 Cubicle **Requirement (see above note)** • Demolish existing structure. Prepare the site and construct according to standard drawings and notes for inline side by side Two * Five Unit replacing One Eight Cubicle Remove one to ten (1-10) banana trees
HT12	6	7	6	1	Existing structure 6.5 * 1.8. EXISTING 6 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for a Seven (7) Unit new structure replacing a six (6) cubicle according to standard drawings and notes.

Name of Communal Toilet	Existing cubicles	New Unit configuration	New configuration details		Description
			Cubicles single toilet	Disable unit	
					Remove one to ten (1-10) banana trees
HT13	8	Two* 5*	8	2	Existing structure Dimensions 7.5*1.9 EXISTING 8 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for inline side by side Two * Five Unit replacing One Eight Cubicle
HT14	7	8	7	1	Existing structure dimensions 8*1.7 EXISTING 7 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for an eight` (8) Unit new structure replacing a seven (7) cubicle according to standard drawings and notes.
HT15	7	8	7	1	Existing Dimensions 8*1.7 / EXISTING 7 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for an eight (8) Unit new structure replacing a seven (7) cubicle according to standard drawings and notes.
HT16	5	6	5	1	Existing Dimensions 8*1.7 EXISTING 5 Cubicle **Requirement (see above note)** Prepare the site and construct according to standard drawings and notes for a Six (6) Unit new structure replacing a Five (5) cubicle according to standard drawings and notes.
HT17	5	6	5	1	Existing structure 7.7 * 1.8.

Name of Communal Toilet	Existing cubicles	New Unit configuration	New configuration details		Description
			Cubicles single toilet	Disable unit	
					EXISTING 5 Cubicle **Requirement (see above note)** Prepare the site and construct according to standard drawings and notes for a Six (6) Unit new structure replacing a Five (5) cubicle according to standard drawings and notes.
HT18	5	6	5	1	Existing Structure 1.7*9.4 EXISTING 5 Cubicle **Requirement (see above note)** Prepare the site and construct according to standard drawings and notes for a Six (6) Unit new structure replacing a Five (5) cubicle according to standard drawings and notes.
HT19	8	Two* 5*	8	2	Existing structure 7.8*1.7. EXISTING 8 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for inline side by side Two * Five Unit replacing One Eight Cubicle
HT20	6	7	6	1	Existing dimensions: 6.4*1.7 Has well 5.6m EXISTING 6 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for a Seven (7) Unit new structure replacing a six (6) cubicle according to standard drawings and notes. Remove one (1) tree
HT21	5	6	5	1	Existing Structure 7.5 * 1.9. No Borehole water is available nearby. EXISTING 5 Cubicle **Requirement (see above note)**

Name of Communal Toilet	Existing cubicles	New Unit configuration	New configuration details		Description
			Cubicles single toilet	Disable unit	
					Prepare the site and construct according to standard drawings and notes for a Six (6) Cubicle new structure replacing a Five (5) cubicle according to standard drawings and notes.
HT22	12	Two* 7*	12	2	The existing structure notes HT 22 is 3 M from HT 23. Dimensions:12.5 * 1.8 EXISTING 12 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for inline side by side Two * Seven Unit replacing One Twelve Cubicle
HT23	10	Two* 6*	10	2	Existing structure dimensions: 12.5 * 1.8 EXISTING 10 Cubicle Requirement (see above note) • Prepare the site and construct according to standard drawings and notes for inline side by side Two * Six Unit replacing One ten Cubicle
HT24	10	Two* 6*	10	2	Existing Structure 1.8 * 10.4 EXISTING 10 Cubicle Requirement (see above note) • Prepare the site and construct according to standard drawings and notes for inline side by side Two * Six Unit replacing One ten Cubicle Remove one (1) tree
HT25	4	5	4	1	Existing structure notes 4.5*1.8-foot print EXISTING 4 Cubicle **Requirement (see above note)** Prepare the site and construct according to standard drawings and notes for a five (5) Unit new structure replacing a Four (4) cubicle according to standard drawings and notes.
HT26	5	6	5	1	The existing structure notes a 5*1.7 footprint. No Bore Hole

Name of Communal Toilet	Existing cubicles	New Unit configuration	New configuration details		Description
			Cubicles single toilet	Disable unit	
					EXISTING 5 Cubicle **Requirement (see above note)** Prepare the site and construct according to standard drawings and notes for a Six (6) Unit new structure replacing a Five (5) cubicle according to standard drawings and notes.
HT27	4	5	4	1	Existing structure dimensions: 1.8*4.4 EXISTING 4 Cubicle **Requirement (see above note)** Prepare the site and construct according to standard drawings and notes for a five (5) Cubicle new structure replacing a Four (4) cubicle according to standard drawings and notes.
HT28	7	8	7	1	Existing structure notes 1.8*7.6 footprint. EXISTING 7 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for an eight` (8) Cubicle new structure replacing a seven (7) cubicle according to standard drawings and notes.
HT29	7	8	7	1	Existing structure notes 10.4*1.8 footprint. EXISTING 7 Cubicle **Requirement (see above note)** • Prepare the site and construct according to standard drawings and notes for an eight (8) Unit new structure replacing a seven (7) cubicle according to standard drawings and notes.
HT30	10	Two* 6*	10	2	Existing Structure dimensions: 10.1*1.8 10. EXISTING 10 Cubicle Requirement (see above note)

Name of Communal Toilet	Existing cubicles	New Unit configuration	New configuration details		Description
			Cubicles single toilet	Disable unit	
					• Prepare the site and construct according to standard drawings and notes for inline side by side Two * Six Unit replacing One ten Cubicle

2 BASELINE ENVIRONMENT AND SOCIAL CONTEXT

2.1 Access to Sanitation

South Tarawa continues to face major challenges in the provision of adequate and sustainable sanitation services. Although approximately half of the population has access to basic sanitation, a significant proportion still rely on shared toilets, unimproved on-site systems such, as pit latrines without slabs, or, in many cases, practice open defecation in nearshore areas. Estimates suggest that up to 60 percent of the population resorts to open defecation at least occasionally. These practices are more prevalent among low-income households, where over two-thirds of the poorest quintile lack access to any form of sanitation.

The environmental implications of this situation are serious. With less than 20 percent of the population connected to reticulated sewerage networks, the majority of wastewater is either discharged directly into the environment or into the sea via submarine outfalls, without treatment, beyond primary bar filtration, that is designed to remove larger objects and rag that have entered the system. Greywater is typically discharged directly onto the land, making use of the high infiltration capacity of coral sand. However, this poses risks to both groundwater and surface water quality. Past studies have detected microbial contamination at all well sites and frequent occurrences of faecal coliforms in lagoon and reef waters, which are commonly used for bathing and subsistence activities. The lack of wastewater treatment, combined with inadequate solid waste disposal and poor on-site systems, continues to threaten environmental and public health outcomes across the island.

South Tarawa is serviced by three sewer systems located in Betio, Bairiki, and Bikenibeu, each historically designed to include seawater flushing networks. However, connection rates remain low due to the lack of household-level technical and financial support. Many households lack the equipment needed to connect to submerged sewer lines, and poor construction standards for on-site systems have resulted in structural failures. Many septic tanks, and cess pits, are not properly sealed, are inaccessible for desludging, or collapse over time, forcing households to bury waste or construct makeshift systems such as drum latrines—practices that further compromise the quality of the freshwater lens.

The situation in Betio mirrors these broader challenges, but with even more acute impacts due to high population and infrastructure deterioration. A household survey conducted in early 2025, covering 2,471 households in Betio, found that 39 percent had no toilet at all. Of these households, 72 percent used a Neighbour's toilet, 19 percent relied on communal toilets, and 12 percent practiced open defecation. Even among households with toilets, many were not connected to the sewerage system, and most relied on well water (bore water) for flushing due to limited or inconsistent availability of PUB-supplied salt water. This widespread use of non-sewered systems contributes to pollution and public health risks.

To address these issues, the STSP proposes the removal and replacement of existing communal toilet facilities in Betio. The new toilet blocks will be constructed largely on the original footprints of demolished structures to minimize disruption. Where possible, recyclable materials from the demolished buildings will be recovered, while the remainder will be disposed of at the Betio landfill in accordance with national guidelines. Saltwater taps will be decommissioned and removed due to the transition toward freshwater-based flushing systems, corrosion concerns, and community feedback citing risks to well – ground water and surrounding vegetation.

The upgraded toilets will discharge blackwater into the existing PUB sewer network, while greywater from showers and handwashing facilities will be diverted to standard MISE designed, soak pits sited at

a minimum distance of 15 meters from boreholes and other water sources, in accordance with national environmental guidelines and as detailed in the Kiribati Building Code.

Special care will be taken during construction to avoid damage to nearby gardens, trees, and household infrastructure, as many residents expressed concerns over the potential impact of pipe excavation on their property. However, as the Communal Toilet is to be connected to the existing connection point to access the PUB sewer system, the amount of digging, whilst not quantified, is envisaged to be kept to minimum and where-ever possible follow existing trenches.

2.2 Climate

Many of Kiribati islands, including Tarawa, lie within the equatorial waters with a maritime tropical climate. Two seasons occur, characterised mainly by the wind patterns, but also by rainfall. Between October and March, easterly trade-winds predominate, and rainfall is generally higher, while between April and September, more variable winds occur including westerlies, which can be strong, and rainfall is lower. Temperatures generally vary between 28°C and 32°C, averaging 31°C, though monthly averages remain very constant between 26°C (February) and 28°C (September). Rainfall averages 2,027 mm annually. However, this varies widely, between 398mm and 4,333mm. The main reason for this variability is the El Niño–Southern Oscillation (ENSO).

El Niño events in Kiribati are typically characterized by increased rainfall and warmer-than-usual ocean temperatures, which in turn raise maximum air temperatures. During the dry season, however, minimum air temperatures can be lower than normal. In contrast, La Niña conditions often result in reduced rainfall and a heightened risk of drought. Historical records show that prolonged droughts have occurred, notably from 1988 to early 1989 and again from 1998 to mid-1999, causing significant losses of essential food crops such as coconut (*Cocos nucifera*) and breadfruit (*Artocarpus altilis*). While many Pacific islands are prone to cyclones, Tarawa is rarely affected by such events.

2.2.1 Climate change

Climate change is a longer-term phenomenon and will result in landform changes which may become unstable or untenable for communities. Using the 18 Global Climate Model data obtained from the International Coupled Model Inter-Comparison Project phase 3 (CMIP3) experiments, Pacific Climate Change Science Program reports that over the course of the 21st century, mean rainfall, air temperature, sea surface temperature and the frequency and strength of extreme events are likely to increase.

As with most low-lying atolls, sea-level rise is of great concern. Average sea-level rise around Kiribati has been on the order of 1–4 mm per year since 1993, gradually encroaching on shoreline properties. Mean sea-level is also projected to continue to increase during the 21st century. With the increase in mean sea level South Tarawa could lose 25 to 54% of its land mass by 2050. Furthermore, according to a study carried out under Kiribati Adaptation Project Phase Two (KAPII) in 2008 the groundwater yields from Bonriki and Buota reserves are expected to be reduced by about 19% by 2030.

2.3 Topography, geology and soils

The Tarawa atoll developed from a volcano which appeared between 55 million and 65 million years ago (during the Palaeocene geologic epoch). Over time, the peak of the volcano sank below sea level due to subsidence of the ocean floor. The island surface is formed by successive coral deposits around the old and now submerged volcano. Atolls originate as coral reef formations at the tidal level at the rim of the original volcano; these formations rise in successive layers of dead coral. The atolls of North and South Tarawa, and surrounding reef delineate the edges of the lagoon which occupies the site of the former volcanic core. Most of the land is less than 3 meters above sea level, with an average width of only 430 meters.

Like other coral atolls and islands, the nature of the soil is derived from limestone which has been formed due to coral formation over thousands of years. The soil is alkaline, porous and lacks essential elements and therefore it does not support the growth of certain plants and trees. The topsoil which comprises decaying or composted organic matter mainly decaying leaves and plant materials is thinly spread over most of the area with plant cover and other areas covered with wild bushes.

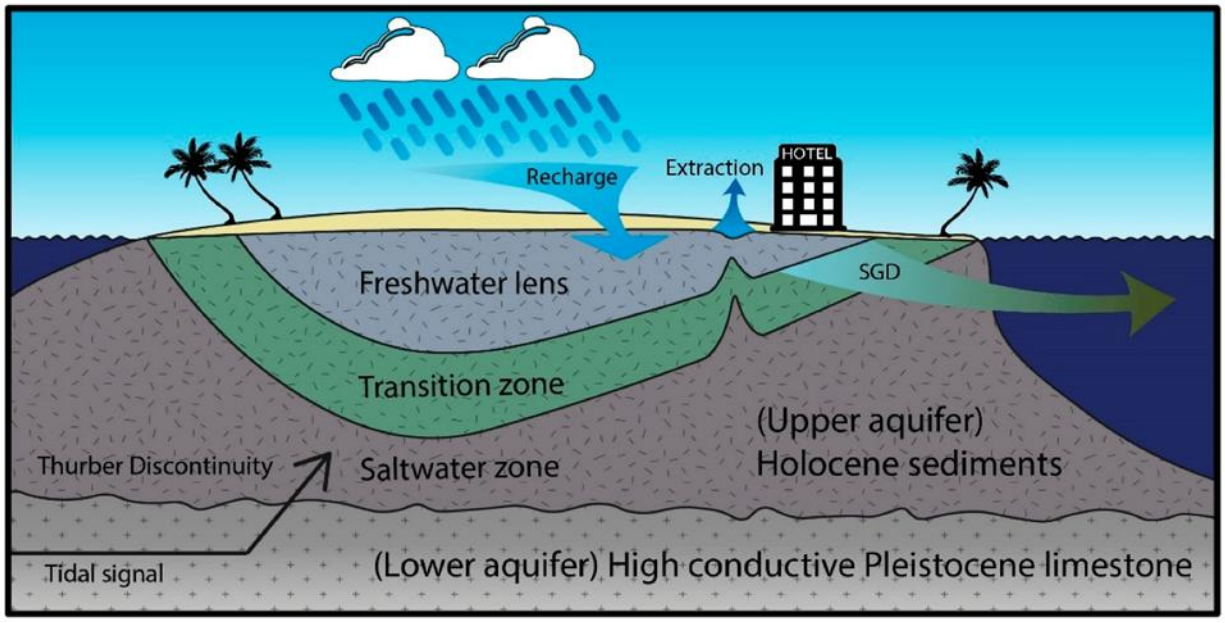
2.4 Fresh Water

There are no fresh surface water resources available on South Tarawa. South Tarawa has two groundwater lenses located in protected water reserves at Bonriki and Buota, that are suitable for drinking water production that is reticulated across the island. However, their yield is insufficient to meet water demand. This challenge is further exacerbated by the effects of climate change.

Underground freshwater lenses are recharged by rainfall and households frequently use rainwater catchments to supplement other water sources. Prolonged periods of low rainfall or droughts associated with La Niña conditions have historically had serious implications. The principal pollution threat to groundwater lens is from faecal contamination. There are two sources of faecal contamination in Tarawa, humans (via open defecation and septic tanks) and animals (including pigs). Shallow groundwater systems (boreholes) are also vulnerable to seawater intrusion.

Figure 8 is an overview schematic of the ground water len(s) in South Tarawa

Figure 7: Schematic overview of a Water Lense



Climate-related risks such as more intense rainfall events can lead to latrine overflows and increase the risk of waterborne diseases. As such, the proposed improvements to sanitation infrastructure are expected to significantly contribute to climate change adaptation by reducing public health risks and enhancing the island's overall resilience.

Given the chronic water stress, households are well practiced at several water scarcity management principles, such as diversification of water resources including fit-for-purpose water use from shallow wells for non-potable use. Maintaining wells water at acceptable quality levels for non-potable uses is thus an important aspect of households' resilience to water scarcity.

These water scarcity challenges are expected to be aggravated by the effects of climate change. The Asian Development Bank (ADB) and World Bank (WB) co-funded the South Tarawa Water Supply project (STWSP) in which desalination plants have been constructed in Betio & Bikenibeu to mitigate the shortage of water from the water lenses, as well as water derived from rainwater harvesting.

2.4.1 Marine water

Nearshore marine waters on both the lagoon and ocean sides of the atoll are significantly polluted due to anthropogenic pressures. This pollution includes effluent (including from the existing communal toilets) discharging into the Ocean from the three outfalls. Due to the poor state of the saltwater flushing system, the flushing of communal toilets is being executed by using ground water. Due to the buoyancy effect of groundwater compared to sea water, the effluent gets closer to the ocean/lagoon surface. Graves et al[7] noted that South Tarawa "*...provides an extreme example of human pressures causing severe impacts on an atoll system where coastal community and ecosystem health are closely interconnected.*" The authors concluded that:

> *The areas around Tarawa where risks of and from poor water quality are greatest are those in the vicinity of anthropogenic pollution sources: the main (Betio) port, a large landfill site (Nanikai), the inner lagoon (Temaiku aquaculture ponds), and adjacent to the Tungaru Central Hospital. The anthropogenic pressures on urban Tarawa's coastal environment are clear: high population density and waste inputs into the marine environment, combined with increased water residence time in the lagoon. Unfortunately, observations of the deteriorating water quality alongside change to pressures, which include modifications to aging sewage infrastructure and urban runoff associated with increasing population, have been too intermittent and incomplete to clearly demonstrate their impact. The current lack of monitoring contributes to the challenges faced in protecting coastal systems."*

Beyond the nearshore on the atoll's ocean side, water quality is not significantly impacted by atoll-based anthropogenic activity, although broader scale impacts associated with climate change are likely to be apparent.

Currently a reticulated saltwater system is installed in each of the 3B's to provide toilet flushing water supply to households, connected to the PUB sewer system and the saltwater is delivered by a "common" standpipe. The system in Bairiki and Bikenibeu do not operate and in Betio, the system relies on a single pump. Through the STSP project new pumps are being procured. Saltwater is lifted from an ocean gallery to an elevated tank, where the saltwater gravitates to the network. Many of the common standpipes are known to leak.

[7] Carolyn A. Graves, Andy Powell, Michelle Stone, Farran Redfern, Teema Biko, Michelle Devlin (2021) Marine water quality of a densely populated Pacific atoll (Tarawa, Kiribati): Cumulative pressures and resulting impacts on ecosystem and human health. Marine Pollution Bulletin, Volume 163, 2021

Figure 8: Salt Water Elevated tank on Tower Betio

Although it is outside of the current scope of the status of this ESIA, it is expected that due to component 1.1 there will be less saltwater infiltration into the water lens and therefore will have a positive environmental impact of the project.

2.4.2 Water use estimated for this component

The volume of water extracted from the sub-terranean freshwater lens is expected to increase from the original arrangement. This is attributed to the additional ground water required from flushing toilets. The original facilities had saltwater flushing supplied by the PUB's saltwater system via common standpipes. The PUB's saltwater system has not been fully functioned for a time and has now been abandoned for flushing at the communal toilets, with the users of the communal toilet using ground water for flushing. For the new communal toilets, the flushing will be ground water.

Ground water is also to be used for showering and for handwashing.

The design of the communal toilets includes the collection of shower and hand washing water, "grey water" and it is piped to a MISE standard soak away pit, so there will be a degree of recharge. The soak away pit will be located 15 m from the ground water borehole, as discussed with the World Bank.

The value of 80 l/p/d has been adopted, included in this daily use is 14 l/p/d attributed to flushing which is a value recommended by WHO.

It is difficult to exactly quantify to amount of water extract in the new arrangement compared to the original arrangement. However, the use of returning grey water to the ground is advantageous.

For the purposes of comparing the original arrangement and the new arrangement, the saltwater flushing will not be used and that the 14 l/p/d use of ground water for flushing is an addition from the original

arrangement. As indicated, the use of saltwater has declined and it is not currently used, with flush water currently being taken from the ground water lens.

The Table below shows the original arrangement use and the proposed design (new arrangement) use of water. It is not possible to estimate how much water extracted in the original arrangement, used for washing and bathing, found its way back to the ground water lens, nor it is possible to definitively indicate how much of the new arrangement water will be returned.

Table 5: Water Use

A	B	C	D	E	F	G	H	I	J	K
				B*C*D/1 000	B*C*14/ 1000	E-F	F	E		F
	Households (number)	People per household	Water use per person a day (li)	Total daily water use m^3/day	Daily use / person Flushing (WHO) m^3/day	Original arrangement (m^3/day)		New Arrangement m^3/day		Additional Ground water extracted m^3/day
Total Water use	196	7	80	110	19.2					
Groundwater						90.8		110		19.2
Saltwater							19.2		Zero	

The volume of water extracted from the lens has increased from the original arrangement, as use of saltwater for flushing has decreased to zero. The required water to be extracted from the lens, using bore – pumps, is estimated to be 110 m^3/d. The return of shower and hand washing water (grey water) to the ground water lens reduces the net extraction.

2.4.2.1 Impacts of this additional extraction.

In the April 2021 paper *Review of toilet flushing water options for South Tarawa piped sewerage systems* Authored by T Falkland states that the estimated sustainable yield of fresh groundwater from the Betio lenses is respectively, 258 m3 day.

As the original arrangement supplied 19.2 m3/day of saltwater, and as saltwater flushing has been abandoned, it is possible to state that the 19.2 m3/day water for flushing is now (and has been for a time) sourced from groundwater extracted from the lens, this additional extraction equates to 7 % of the Betio freshwater sustainable yield.

2.5 Terrestrial flora and fauna

2.5.1 Terrestrial flora

Indigenous flora and vegetation of Kiribati is among the least diverse and poorest on earth. In the Gilbert Islands, including Tarawa, and some locations in other inhabited islands, this flora has been severely modified or removed. Generally, terrestrial vegetation in Kiribati is limited to coastal strand vegetation, mangroves and coastal marsh vegetation (limited), inland forest, and pinnacle vegetation on limestone escarpments. The vegetation on South Tarawa is substantially influenced by human habitation and has

little biodiversity conservation significance. The selected sites for the proposed the project are located at areas with varying degrees of disturbance to natural vegetation but is dominated by ferns, coconut palm, saltbush, breadfruit and te ango (*Permna serratifolia*), pandanus (*Pandanus fanning enosis*) and starbuck island daisy (*Bidens kiribatiensis*).During the construction phase it is expected a number of trees need to be removed, due to construction activities, or due to the increased footprint of the new toilets.

2.5.2 Terrestrial fauna

There are no endemic mammals or avifauna (birds) on Tarawa. Two avifauna species are included in the 90 species classified on the IUCN Red List as threatened species. Species of land- and seabirds that are commonly sighted on South Tarawa include, among others, the white tern (*Gygis microrhyncha*), great frigatebird (*Fregata minor*), black noddy (*Anous minutus*) pacific reef heron (*Egretta sacra*)[8]. The sparse number of avifauna may be influenced by the high population on South Tarawa and probably the impact of the invasive ship rat (Rattus rattus). The rat is a nuisance in almost every household on the island. It is not expected that the project will have any negative impact on the terrestrial fauna.

2.6 Land tenure, zoning and use

There are two main types of land tenure in Kiribati – private ownership and state ownership. 95% of land is under traditional private ownership, while 5% is State-owned. State lands in South Tarawa are predominantly confined to Temaiku Bight, an area of reclaimed land of approximately 200 hectares at the apex of the island between South and North Tarawa where Bonriki Airport is situated. The remaining lands in South Tarawa are privately owned, except for small parcels of land that have been reclaimed from the sea. Women as well as men can inherit or own land in I-Kiribati tradition. However, the land on which the KHC communal toilets are situated is owned by KHC and therefore will be considered as Government land.

It is expected the new toilet blocks will have a larger footprint compared to the ones that will be replaced and therefore will have a negative impact on land use.

The communal toilets are located on land owned by KHC and are therefore considered to be Government land. The replacement of communal toilets will have no impact on any land ownership.

2.7 Hazardous materials

2.7.1 Asbestos

In 2015 a survey was conducted regarding the presence of asbestos in Kiribati. This survey was based on methods indicated in the MDSH100 guidelines [9]. The HSC 264 guideline, that replaces MDH100, will be use. A systematic risk assessment approach should be adopted to assess the risk that identifies asbestos containing material (ACM) present in the remains of the existing communal toilets that are accessible to the public.

2.8 End of life vehicles

End of life vehicles (ELV), including those vehicles that cannot be repaired and have been abandoned close to the communal toilets and will need to be removed, in accordance the relevant legislation, including the Environmental Act 2021, before construction starts.

[8] As observed by the PIAC expert and team leader in November 2024.

[9] MDSH 100: Developed by the Health and Safety Executive (HSE) from the U

2.9 Unexploded ordnance

Unexploded Ordnance (UXO) from World War II remains a significant concern in Tarawa. The Battle of Tarawa in 1943 left behind numerous explosive remnants, particularly in the South Tarawa lagoon. A 2013 survey highlighted the presence of such debris, underscoring the ongoing risks to the local community and environment.

Kiribati's legal framework includes the Occupational Health and Safety Act 2015, which aligns with international standards. However, compliance and enforcement are noted to be weak.

Additionally, there is an emphasis on improving legislation and guidelines, as well as capacity building through training and internships, to address health and safety challenges, including those related to UXO.

International assistance has been pivotal in addressing UXO issues in Kiribati. The United States, through its Quick Reaction Force, has provided support in mitigating UXO threats across the Pacific, including in Kiribati.

This collaboration aims to enhance safety and security by addressing the dangers posed by residual wartime ordnance.

While specific UXO standards for Tarawa may not be extensively documented, the combination of national legislation, international support, and ongoing efforts to improve safety protocols contributes to managing and mitigating UXO risks in the region.

2.10 Human Communities

2.10.1 Population

From the 2020 Population and Housing Census[10] , performed by the National Statistics Office (NSO), the total population of Kiribati is 119,438 comprising 58,904 males (49.3%) and 60,534 females (50.7%). South Tarawa's population is 63,072 (52.8% of total) an increase from 2005 of 22,761 or an annual growth of 1.95%. Compared to the census of 2015 and previous censuses, NSO has stopped to make distinctions between the various islands of South Tarawa. The only distinction according to NSO terms, is Betio and South Tarawa – effectively Teinainano Urban Council (TUC). The ethnic composition of Kiribati is primarily people of Kiribati descent (I-Kiribati) who make up 96% of the population. The remaining population report themselves as being of mixed I-Kiribati descent with others being immigrants from Tuvalu as well as small numbers of other ethnic groups (i.e. Chinese, Australian, British, etc.).

The South Tarawa population is predominantly urbanized, with the remainder living in rural areas on outer islands throughout the country. Life expectancy at birth in 2022[11] was 67.7 (65.7 for males and 69.4 for females). The infant mortality rate[12] (IMR per 1,000 live births) was 43.9 (coming down from 134 in 1960); a rate significantly higher than other Pacific Island small states with Marshall Islands and Nauru the next highest at 24.and 22.3 respectively. This is the reason that a childbirth is traditionally only celebrated at the child's first birthday.

The population size of South Tarawa broken down by BBB, and the remaining villages of South Tarawa can be seen in the following table:

Table 6: Population figure on South Tarawa

Village	2005	2010	2015	2020

[10] National Statistics Office (2021). 2020 Population and Housing, General Report and Results, Bariki, Kiribati.

[11] https://data.worldbank.org/indicator/SP.DYN.LE00.FE.IN?locations=KI

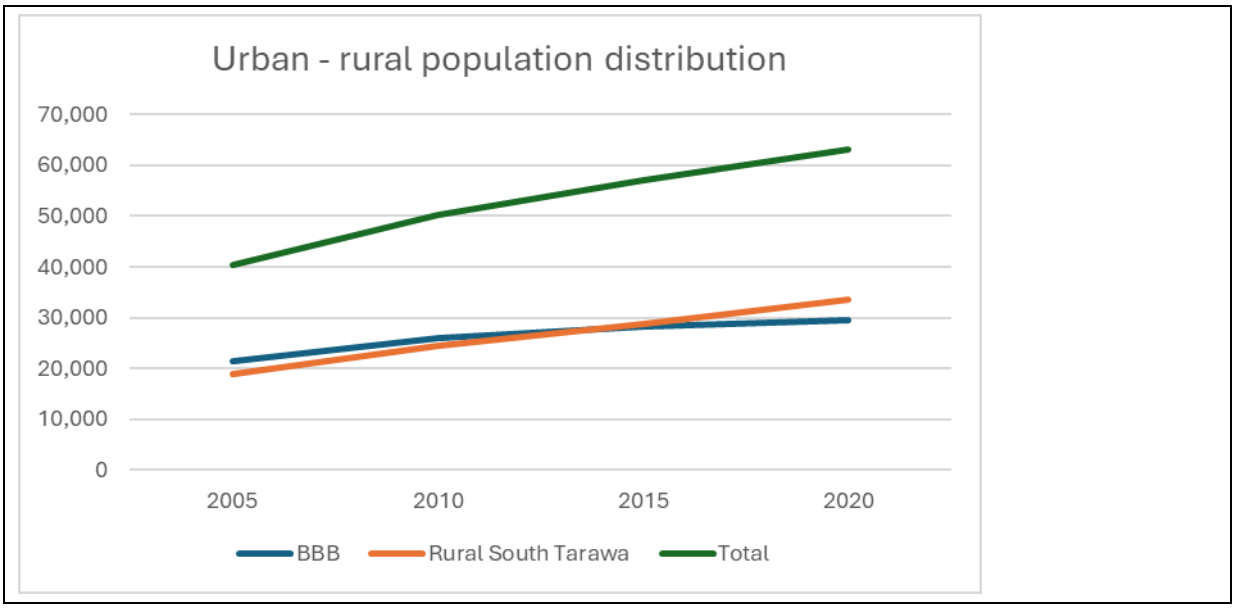
[12] https://data.worldbank.org/indicator/SP.DYN.IMRT.IN?locations=KI

Tanaea	91	279	198	320
Bonriki	2,119	2,355	2,829	3,047
Temwaiku	2,011	3,135	4,072	5,495
Ananau Causeway	1,780	2,054	1,843	2,541
Bikenibeu	6,170	6,568	7,575	7,530
Abarao	908	1,665	1,761	2,018
Eita	2,299	3,061	3,935	3,858
Tangintebu	94	89	150	210
Taborio	955	1,282	1,293	1,406
Ambo	1,688	2,200	2,780	3,345
Banraeaba	1,789	1,969	2,072	2,875
Antebuka	390	1,087	1,615	1,213
Teaoraereke	3,939	4,171	5,105	6,007
Nanikai	803	988	1,152	1,256
Bairiki	2,766	3,524	3,218	3,522
Betio_	12,509	15,755	17,330	18,429
Total	40,311	50,182	56,928	63,072

Table-7: Urban/rural distribution

Urban/Rural	**2005**	**2010**	**2015**	**2020**
BBB	21,445	25,847	28,123	29,481
Rural South Tarawa	18,866	24,335	28,805	33,591
Total	40,311	50,182	56,928	63,072

Figure 9: Urban-rural distribution



Presented in Figure Table 6: Population figure on South Tarawa

6 and **Error! Reference source not found.**, they show that the growth rate in rural South Tarawa is higher compared to BBB. One likely explanation is that, although limited, there is still some space left to construct buildings. The terms urban and rural may be misleading; while BBB are clearly urbanized in the sense of population density, large parts of rural South Tarawa are also densely populated.

It is important to have some idea of future developments regarding population size. For this, the population's annual growth rate can be used to come to the following table. The Project Implementation Assistance Consultant (PIAC) expert is familiar with the numerous uncertainties associated with such an exercise[13] .

Table 8: Population growth in BBB

	2020	**2025**	**2030**	**2035**
BBB	29,481	32,866	36,198	39,868

However, since the toilet blocks will be replaced on a "like-for-like" basis the population growth is not envisaged to have any impacts on the capacity of the units. There will be limited additional pressure to the newly built communal toilets because they will service the same population as present.

2.10.2 Social/cultural resources and heritage

Ancestral shrines and te maneaba (meeting house) are the two important cultural resources on land. Fishing traps, typically built on the reef flat on the ocean side of the island, by overlaying reef boulders and stones, are of equal importance. None of these structures are present at the proposed project sites. Tarawa was the scene of significant combat between Japanese and American forces during WWII. The large guns and bunkers installed by Japanese forces remain in place and provide a strident reminder of the events in the 1940s.

[13] The PIAC expert worked in the SAPHE project in the year 2000 and did also a population forecast by using the growth rate based on NSO data. The estimated population size was 53,116, some 3,000 more than the actual figure in 2010.

2.10.3 Education

Education is free and compulsory for children between the ages of 6 and 14. I-Kiribati receive seven years of primary education and five years of secondary education. In South Tarawa, 9 primary schools and 10 secondary schools provide primary and secondary education. Data from the Kiribati Ministry of Education indicate that in 2013, enrolment rates were 86% for junior secondary school students and 44% for senior secondary school students.

Kiribati is the home of several tertiary institutions, the Institute of Technology, (formerly known as Tarawa Technical Institute). The Marine Training Centre, and the Kiribati Teachers College based in South Tarawa offering training for primary teachers. Kiribati is a partner in the regional University of the South Pacific, which has its main campus in Suva, Fiji Islands, and a campus in Tarawa, Kiribati, with a wide range of courses using the university's distance learning facilities.

2.10.4 Poverty and marginalized groups

The term poverty is applied for a range of situations from where families struggle to provide adequate food for themselves, to where people are disadvantaged compared to their neighbours and struggle to meet the needs of a minimum standard of living in their own society. Poverty and hardship may be caused by a sudden change in personal/household circumstances. This could be extraneous such as a natural disaster or a conflict situation. Poverty may be due to personal circumstances such as unemployment, sickness, death, or disability. People can be well fed and moderately healthy but still live in relative poverty. They may not have access to basic services such as water, sanitation, health, education, or socio-economic opportunities. Hardship and poverty centre around the lack of regular and sufficient income, poor access to basic services and the lack of skills to meet opportunities and challenges as they arise.

2.10.4.1 Poverty In the Kiribati Context

Kiribati people believe that you are not poor if you can maintain a subsistence living by going out fishing and obtaining basic needs from the land. To some Kiribati people being poor means lacking anything to eat (without considering the nutritional values). However, poverty in the Kiribati does not mean hunger or destitution in the traditional sense but rather that many households are struggling to meet their basic living expenses on a daily or weekly basis. This is particularly noticeable in those expenses that require cash payments. Families must make choices between the competing demands for household expenditure and the limited availability of cash income to meet that expenditure. Defining poverty by level of cash income or expenditure alone might not be appropriate in Kiribati. In Kiribati, outside of South Tarawa, most households have important levels of subsistence production and consumption.

2.10.4.2 The figures

Poverty in South Tarawa is the highest in Kiribati with around 22.4% of the population below the basic needs' poverty line. Food poverty was estimated to be around 5 per cent of the population. Poverty in Kiribati is linked to several trends including the exclusion of certain groups e.g. people with disabilities and unemployed youths. The Economic Costs of Poor Water and Sanitation South Tawara study conducted by the ADB in 2014, found that female children have a higher likelihood of suffering from diarrhoea and dysentery than males, and that age influences the likelihood of suffering from these diseases. The study goes on to state that women, children, the elderly, vulnerable and disabled bear a disproportionate share of the burden of inadequate water and sanitation services in South Tarawa.

2.11 Infrastructure, public services and utilities

2.11.1 Transport

There are only two paved roads in Kiribati, on South Tarawa and Kiritimati. A program to construct causeways between North and South Tarawa was completed in the mid-1990s. The road throughout

South Tarawa (except Tanaea) has been rehabilitated to a quality standard with funding support from ADB and World Bank. The causeway connecting the rest of South Tarawa to the main shipping port located at Betio has been rehabilitated. Kiribati has 21 airports: two of them (Bonriki and Kiritimati) served by international flights, only four of them with paved runways. The country has domestic fleets to serve the outer islands.

2.11.2 Water supply

The existing public water supply system is operated by PUB for the entire population on South Tarawa. Overall, the water supply infrastructure is in poor condition with numerous water leakages in the reticulated system. Fresh water is supplied from fresh groundwater reserves extracted from a total of 28 galleries in Bonriki and Buota, with a total sustainable yield from the groundwater lenses of 2,010 m^3/day. An estimated freshwater demand for South Tarawa by 2020 is 3,735 m3/day projected under the high population growth and conservative leakage control scenario. The water supply of these galleries is currently being supplemented by two desalination plants using reversed osmosis. This process requires electric power. The increase of fuel prices since 2025 draws heavily on the resources of PUB.

2.11.3 Sanitation

South Tarawa has three sewerage systems coupled with seawater supply networks for flushing in the historical settlement centres of Betio, Bairiki and Bikenibeu. In each of the villages, salt water is being pumped to a tower to be distributed to the villages.

Communal toilets and connected houses are connected to the sewerage system through manholes. The sewerage is being pumped out to the separate ocean outfalls in each of the villages. It has been observed that pump stations are not operational because the pumps were missing, pump stations enclosures are being used as a rubbish dumps[14]. The current sanitation system draws heavily on power supply by PUB. The increase of fuel prices draws heavily on the financial resources of PUB.

Connection rates to the sewerage networks have remained low (less than 20 per-cent of the population is served) due to the lack of financial support or incentive to facilitate household connections and lack of equipment to connect latrines to the sewer pipes that are located under the groundwater table level. Lack of standards, regulation and training on design and construction has led to many poorly constructed on-site sanitation systems.

Many of these systems are unable to be emptied due to poor structural integrity, lack of a sealed base or no access for a vacuum truck; these households may resort to burying their waste or making a new toilet with a drum, which poses a risk to groundwater quality.

There is no management of greywater as households generally discharge greywater locally, taking advantage of coral sand's high infiltration capacity. Although the amount of greywater generated is estimated to be small as on average only 10 l/p/d of PUB water is supplied to connected households while water consumption from alternative sources, e.g. rainwater and groundwater, amount to about 22 l/p/d.

2.11.4 Electricity supply

PUB is responsible for the electrical power supply in South Tarawa. There are approximately 6,331 households connected to grid with a contracted power per household of about 500 to 700 watts. The average monthly consumption of electricity lays between 150 and 200 kWh; with monthly bills for electricity of AUD 60 to 80 per household. The number of illegally connected households is not known; PUB is just planning an investigation. Beside the domestic connections, there are 897 commercials, and 408 industrial companies connected to the grid. Yearly there are 10 to 12 blackouts, caused by technical

[14] https://miseki-my.sharepoint.com/personal/katarina_botioa_miseki_onmicrosoft_com/Documents/Desktop/Annex/TUC%20On%20Site%20Communial%20Tassessment%20Reports.docx

problems and with an average duration of 1-2 hours. In addition, customers suffer eventual short shut-downs of the energy supply, caused by failures of the distribution system, the poor state of wiring or the deficient internal electrical installation. The increase of fuel prices draws heavily on PUB's financial resources. This increase may have an overall negative effect on PUB's performance on sanitation since the sewer system draws heavily on pumping stations.

3 LEGAL AND POLICY FRAMEWORK

3.1 Relevant Laws, ordinances, and policies of Kiribati

Under the Kiribati constitution (1979) all land in Kiribati belongs to the I-Kiribati people except for the Phoenix and Line Islands, small portions of reclaimed land owned by the Government, and lands belonging to the Catholic Church. Rights and interests in I-Kiribati land are acquired mostly by inheritance and gifting customs as codified in the Gilbert and Phoenix Islands Lands Code (1956). The various customs governing the acquisition of interests and rights to land are defined in the Code. The Code documents customs and practices as of 1956 and, despite changes to a market economy, these customs and practices continue to be highly relevant in Kiribati society today.

The Constitution of Kiribati and land-related legislation begin with the premise that land cannot be alienated by sale, gift, lease or otherwise to a person who is not a native. It does not, however, restrict the alienation of land to the State, Local Government Council, and the Housing Corporation. The State can acquire land, by agreement or compulsorily, for public purposes including the location of electric power generation, storage, and distribution infrastructure.

The following legislation and policies provide the legal and policy framework for the acquisition of any land required, or of access and user rights. Those most relevant to STSP are discussed in further detail in the following section.

- Constitution of Kiribati.
- State Acquisition of Lands Ordinance 1954 (rev 1979).
- Native Lands Ordinance 1956 (rev edition 1977) and the Native Lands Amendment Act 2011
- Public Utilities Board Ordinance 1977.
- State Lands Act 2001.
- The Land Registration Grievance Tribunal Act 2002.
- The Squatters' Recovery Act 2005; and
- Occupational Health and Safety Act 2015.
- Environment Act 2021
- Kiribati Integrated Environment Policy
- National Building Code of Kiribati
- Employment and Industrial Relations Code 2015

The overview and impacts of these legislations are summarised in the section below.

3.1.1 The Constitution of Kiribati.

The Constitution of Kiribati declares that all-natural resources of Kiribati are vested in the people and their government. The Constitution generally empowers the citizens of Kiribati with a general right to have their property ownership protected.

3.1.2 State Acquisition of Lands Ordinance 1954 (rev 1979).

The State Acquisition of Lands Ordinance 1954 (rev. 1979) is a key legal framework in Kiribati that governs the acquisition of land by the state for public purposes. In the context of the communal toilet in Betio, no land acquisition activities will occur.

3.1.3 Native Land Ordinance 1956 and Native Lands Ordinance Amendment Act 2011

The Native Land Ordinance of 1956 is a key piece of legislation in the governance of land in Kiribati, Under the Native Land Ordinance, land was classified as either native or public, with native land being held by traditional landowners and governed according to custom.

The Native Lands Ordinance Amendment Act 2011 of Kiribati was enacted to address and update the governance and management of native land in the country, reflecting the evolving legal, social, and economic realities

The Act amends Section 4 of the Native Lands Ordinance to address the concerns of I-Kiribati who feel they have lost their lands because of fraud committed by those who are currently registered over the disputed lands or by their predecessors. The amendment seeks to give aggrieved people the opportunity to challenge those titles in Lands Court.

3.1.4 The Public Utilities Board (PUB) Ordinance 1977

The Public Utilities Board (PUB) Ordinance 1977 of Kiribati established the legal framework for the regulation and operation of public utilities in the country. It created the PUB, a government body responsible for overseeing and managing public utilities, including water – sanitation, electricity. The Ordinance outlines the governance for decision making by the PUB. As the PUB is the body managing sewer assets and the Project will impact these assets by disconnection / re-connection activities.

3.1.5 The State Lands Act 2001

The State Lands Act 2001 of Kiribati governs the management, allocation, and regulation of land owned by the state. The Project is located on Government leased land and this Act empowers the State to make some of this land available for development purposes.

3.1.6 The Land Registration Grievance Tribunal Act 2002

The Land Registration Grievance Tribunal Act 2002 of Kiribati establishes a legal framework for addressing disputes related to land registration. The Act outlines the procedures for filing grievances, including time limits for submitting complaints, the required documentation, and how hearings will be conducted.

3.1.7 The Squatters' Recovery Act 2005.

The Squatters' Recovery Act 2005 of Kiribati is a piece of legislation introduced to address the issue of land squatting on government and private land in the country. The Act was created in response to growing concerns about the rising number of informal settlers, many of whom built homes on land without legal ownership or formal permission. The Act primarily aimed to balance the interests of landowners with the rights of squatters, ensuring that people who had settled on land for an extended period were not unfairly displaced. It provides a legal framework for recognizing and addressing the rights of squatters, offering them an opportunity to regularize their status.

3.1.8 Occupational Health and Safety Act 2015

The Occupational Health and Safety (OHS) Act of Kiribati sets forth legal frameworks to protect the health, safety, and welfare of workers within the workplace. The act reflects international standards and Kiribati's commitment to providing a safe and healthy working environment, which is essential for economic and social development. Key Provisions of the act include Employers responsibilities, Workers right, Government oversight activities, Enforcement and Penalties,

3.1.9 The Environment Act 2021

The Environment Act 2021 of Kiribati, officially cited as Act No. 18 of 2021, was enacted to provide a comprehensive framework for the protection, conservation, management, and sustainable use of the nation's environment. This legislation addresses various environmental challenges faced by Kiribati. The key objectives of the Act are to: Protect and improve the environment / Establish clear definitions of environmental infringements and corresponding enforcement actions / Promote sustainable development.

A significant component of the Act is the requirement for Environmental Impact Assessments for activities likely to have significant environmental effects.

The Act additionally specifies procedures for application, conditions for obtaining an Environment License (EL), and mandates the development of Environmental Management Plans. Under Section 56, a person may apply to the Secretary of MELAD for an EL in relation to any proposed activities using the Environment

3.1.10 The Building Act 2006 and the National Building Code of Kiribati

The National Building Code of Kiribati (NBCK) is designed to ensure that buildings within the country meet acceptable standards of structural sufficiency, fire safety, health, and amenity, benefiting the Kiribati community both now and in the future. The design of the communal toilets used the KBC guidelines. The Building Permit indicated under the Building Act will be applied for by the Contractor, following the award of the Contract.

3.1.11 The Employment and Industrial Relations Code 2015

The primary objective of the Act is to ensure decent work conditions for employees while safeguarding the rights and reputations of employers. It provides a legal framework for the regulation of employment contracts, industrial relations, and the settlement of employment disputes, thereby promoting fair and equitable labour practices across Kiribati. The provisions of the Act include: Employment Contracts / Minimum wage and payment / Working hours and rest periods / Equal Employment Opportunities and Non-Discrimination / Industrial Relations and Trade Unions / Enforcement and Compliance. The Employment and Industrial Relations Code of 2015 aligns Kiribati's labour laws with international standards by embedding the Fundamental Principles and Rights at Work (FPRW) as outlined by the International Labour Organization (ILO).

3.2 World Bank Environmental and Social safeguards

The World Bank's Environmental and Social Standards (ESS) are part of its' Environmental and Social Framework (ESF), which was introduced to ensure that projects financed by the Bank are sustainable and inclusive. The ESS outlines the responsibilities of borrowers to manage environmental and social risks effectively, aiming to achieve positive development outcomes.

The STSP applies specific elements of the World Bank's Environmental and Social Standards (ESS) that are directly relevant to the project's scope and risks. The standards guide the project's approach to managing all related impacts associated with the project's implementation

The relevant ESS items are detailed as follows:

3.2.1 ESS1: Assessment and Management of Environmental and Social Risks and Impacts

This standard requires borrowers to assess, manage, and monitor risks and impacts throughout a project's lifecycle. It emphasizes achieving outcomes consistent with the ESS framework. This ESIA applies ESS1.

3.2.2 ESS2: Labor and Working Conditions

Recognizing the importance of fair treatment and safe working conditions, this standard promotes sound worker-management relationships and ensures the well-being of workers involved in projects. The ESMP and ESMP will apply ESS2 requirements in line with the STSP Labor Management Procedures.

3.2.3 ESS3: Resource Efficiency and Pollution Prevention and Management

This standard addresses the efficient use of resources and the prevention of pollution, aiming to minimize environmental degradation caused by economic activities and urbanization. ESS3 considerations are addressed in this ESIA and ESMP and will be implemented by the Contractor under the CESMP.

3.2.4 ESS4: Community Health and Safety

It focuses on protecting project-affected communities from health, safety, and security risks, with special attention to vulnerable groups. ESS4 considerations are addressed in this ESIA and ESMP and will be implemented by the Contractor under the ESMP.

3.2.5 ESS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement

This standard seeks to avoid involuntary resettlement whenever possible. If unavoidable, it ensures that adverse impacts are minimized and mitigated. Because all land for this sub-project is on KHC land, there are no land acquisition, restrictions on land use or involuntary resettlement. Any trees or structures that need to be removed or replaced will be compensated under the conditions outlined in the ESMP.

3.2.6 ESS10: Stakeholder Engagement and Information Disclosure

It promotes meaningful engagement with stakeholders throughout the project lifecycle, ensuring transparency and responsiveness to concerns.

The ESF also emphasizes capacity building, adaptive risk management, and the integration of environmental and social considerations into project design. It supports green, resilient, and inclusive development while fostering transparency and accountability.

3.3 Impact Assessment Methodology

3.3.1 Area of influence (AOI)

The study area for this ESIA has been defined based on a preliminary analysis of the direct (primary) and indirect (secondary) impacts of the proposed activities. Figure 3 and Figure 4 gives an overview of the AOI. The AOI has been divided into a direct impact zone and an indirect impact zone accordingly. These zones constitute the project's area of influence where risks and impacts will be analysed in greater detail.

The direct impact zone covers all areas that will be physically affected by the construction and operation of the infrastructure. The indirect impact zone consists of an area beyond the direct impact zone

where the construction and operation of the infrastructure may indirectly affect the physical, biological, and/or human environment. The exact size of this zone depends on the themes being studied.

3.3.2 Impact assessment

In addition to utilizing the World Bank's Guidelines, including the ESS and the national procedures, this ESIA utilises the recommended approach of the United Nations Environment Programme (UNEP) and the Secretariat of the Pacific Regional Environment Program (SPREP[15]) to summarise impact assessments by way of a matrix.[16]

3.3.2.1 Nature: Direct, Indirect, Cumulative

Nature indicates whether the identified change has a causal proximity in time and space to the intervention (direct), or causal distance (indirect). The cumulative effects of an activity/intervention may be either: (a) additive—incremental accumulation; or (b) synergistic—produced by the interaction or combination of effects in the past, present and reasonably near future. Cumulative impacts are the successive, incremental, and/or combined impacts of one or more activities on society. They may aggregate linearly, exponentially or reach 'tipping points' after which major changes in environmental, social and economic systems may follow' (Franks, et al. 2010[17]).

3.3.2.2 Duration: Construction, Operation, Closure / Short, Medium, Long-term

Duration indicates selected periods that reflect the defined project phases. Construction (12 months), Operation (> 25 years) and Closure (2 years). In without-project scenarios, these periods are replaced by a short (1–5 years), medium (5–10 years) and long-term (10–25 years) gauge.

3.3.2.3 Extent: Local, Regional or National

Extent indicates the geographical and/or social localities (villages, etc.) where the impacts will be experienced. It must be noted that in the South Tarawa context it is difficult to distinguish local and regional.

3.3.2.4 Magnitude: High, Medium or Low

Magnitude carries the nuance of severity, size and reversibility of change. In gauging social impacts these assessments are often indistinguishable from each other.

3.3.2.5 Likelihood: Likely, Possible, Unlikely, Rare / Certain, Unlikely, Probable

Likelihood reflects predictive considerations concerning impact occurrence prior to avoidance, mitigation, and management measures. For residual impact predictions after avoidance, mitigation, and management measures terms such as certain, unlikely, and probable are also used with their conventional connotations.

3.3.2.6 Manageability: High, Medium, or Low

Manageability indicates the degree or level to which adverse consequences can be avoided or mitigated in size, scope, or duration. It refers to asking the question if impact will happen regardless or will happen on a lesser scale if appropriate mitigations are put in place. Manageability is based on the recognition that minimising impacts of some activity entails managing the social consequence of those activities. Where an adverse social consequence can be completely avoided then it receives a 'high' manageability rating.

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[15] Secretariat of the Pacific Regional Environment Program (SPREP) (2016) Strengthening environmental impact assessment: guidelines for Pacific Island countries and territories. Apia, Samoa.

[16] The following caveat is provided: this is a hybrid process, multi-factorial in nature and always partially subjective. In all cases the simple visual presentation should not hide the complexity of the assessments in the sector analyses.

[17] Franks, DM, Brereton, D, Moran, CJ, Sarker, T and T, Cohen. 2010. CUMULATIVE IMPACTS - A GOOD PRACTICE GUIDE FOR THE AUSTRALIAN COAL MINING INDUSTRY. Centre for Social Responsibility in Mining & Centre for Water in the Minerals Industry, Sustainable Minerals Institute, The University of Queensland. Australian Coal Association Research Program. Brisbane.

3.3.2.7 Valence: Positive, Negative

Valence indicates whether the impact will promote or progress, degrade or detract from the wellbeing of communities or constituencies; 'valence' is understood as the 'value of an outcome' which is generalised here as either positive or negative in nature.

3.4 Soil erosion and soil contamination

3.4.1 Soil erosion

During the construction phase, soils may be impacted due to

- clearing of vegetation
- excavations for removal of old toilet blocks and waste and
- the installation of system components (e.g. sewerage pipelines, septic tanks) new toilet blocks.

Exposure to the ground and removal of vegetation cover, expose the soil to erosion by wind and running water. However, impacts are marginal due to the

- flat topography,
- soil characteristics and
- the limited earthworks associated with infrastructure building removal and installations

These impacts are manageable through applying "good" industry practice during the execution of the construction works.

Removal or clearing of vegetation or surface improvements shall be limited to an extent no clearer than necessary for the execution of the works. This will be agreed with the Project Manager (incorporating the STSP Safeguard personnel) prior to any action and noted in the relevant Safeguard Documentation.

At the operational phase there will be no soil erosion. Rainwater from the roof will be transported to a soak away via a guttering system. There may be an opportunity for future rainwater harvesting, under another project.

There is minimal risk of project-induced soil erosion during the operation phase.

Table 9: Impact Assessment - Soil Erosion

Nature	Duration	Extent	Magnitude	Likelihood	Manageability	Valence
Direct	Construction	Local	Low	Probable	High	Negative

3.4.1.1 Management measures and residual impacts:

- Except where clearing is required for permanent works or excavation operations, all ground-level vegetation shall be preserved and protected.
- Topsoil shall be set aside and reserved where possible.
- All exposed surfaces and backfill areas shall be covered with topsoil and replanted or re-seeded.
- Run off prevention activities as described in the specification.
- The number of earthworks shall be limited as much as possible.

- Excess excavation spoil will be beneficially utilised as close to site as possible (e.g. for filling potholes or depressions in access tracks)

The magnitude of the impact on soil erosion without mitigation is rated as low negative and will reduce further after mitigation measures. Applying mitigation measures will slightly reduce the likelihood of the impact, decreasing from probable to unlikely.

3.4.2 Soil contamination

Due to the current disrepair of the toilets, soil may already be contaminated by piggery, human, and hazardous wastes (hazardous wastes from vehicle and other waste dumping). Alternative toilets, such as pit latrines, may also have contaminated soils in the area if the allocated toilet is not operational due to lack of repair and households have used latrines as an alternative. Demolishing buildings could further pollute the environment by moving or spilling sewage waste and other materials during the process. The risk of water contamination is extremely high given the porous soils, elevated groundwater table (1-3m below ground, and sometimes at the surface), and excavation activity.

Soil contamination from the deconstruction and removal of waste and the construction of new toilet blocks also involves a risk of accidental hydrocarbon spills or release of other hazardous materials from construction equipment causing localised impacts. If such spills are not contained and handled immediately, there is a substantial risk that they can cause soil and water contamination. However, this risk is considered low because there will be limited use of large machinery and can be mitigated by good international industry practice in construction works.

During the operational phase there will be discharges of grey water, from shower & hand basin drains, to the soil and shallow groundwater. This may create a build-up of organic matter at the discharge location over time. If people use the grey water system for disposal of sewerage, oil, chemicals, and other liquid hazardous wastes then the soil will become contaminated, along with the shallow groundwater. Refer table 11: soil contamination.

There is little chance of soil contamination from sewerage, provided that the toilet blocks are being well maintained, and repaired if necessary and all sewerage is discharged to the reticulated network.

Table 10: Impact Assessment - Soil contamination

Nature	Duration	Extent	Magnitude	Likelihood	Manageability	Valence
Direct	Construction	Local	Medium	Probable	High	Negative

3.4.2.1 Management measures and residual impacts:

Construction phase

- Demolition procedures include visual observations of contaminated soil and sources of waste that could cause contamination during demolition.
- All soil with visible contamination (oil, sewerages, piggery waste) shall be managed as hazardous waste and removed from site. A protocol for contaminated soil removal will be provided in the CESMP including suitable location for final disposal of soil.
- Demolition procedures will include safe removal of waste to avoid spills. The Contractor is to prepare a construction procedure for the dis-connection of the existing pipe work to the PUB sewer, and the reconnection is to be detailed including pressure test (to be documented in the CSEMP).
- Keep all machines and vehicles well-maintained and check daily for leaks.
- No fuel or hazardous materials shall be stored at worksites with equipment to be refuelled using a mobile fuel system.
- All construction sites shall have spill kits together with the refuelling vehicle.
- All used spill response materials will be securely packaged and removed from the island for disposal at a licenced sanitary landfill.

The magnitude of the impact of land or water contamination without mitigation is rated as medium during the construction phase. Applying the mitigation measures will change likelihood from likely to probable, while the magnitude remains medium, and valence remains negative.

Operation phase

- Awareness raising to tenants regarding the use of greywater systems to avoid discharges of any contaminants to the system.
- Awareness raising to tenants regarding the expectations to maintain / protect the toilet blocks from damage and to report issues promptly to KHC.
- Operational and maintenance budgets, training and procedures are required so that KHC can continue to maintain the systems to ensure all sewage is discharged to the network and that all greywater systems remain operational. Procedures to include observations of soil contamination and remediation where necessary.

The magnitude of the impact of land or water contamination without mitigation is rated as medium during the operational phase. Applying the mitigation measures will reduce the magnitude of the impact to low and the likelihood of the impact changes from likely to unlikely, while the valence remains negative. There is a potential risk that once the new infrastructure is installed there could be failures (e.g. leaks). Considering the current state of the communal toilets this is a severe risk if the O&M are not clearly defined.

3.5 Climate and Air Quality

3.5.1 Emissions

The use of vehicles and powered mobile plant is exceedingly small scale and for short durations at each location and not considered to pose an issue in relation to greenhouse gas emissions or air quality issues from exhaust fumes. Dust is not an issue in environments with sandy soils, regular rainfall, shelter (houses, vegetation) and low wind environments such as Betio, but may occur during earthworks in prolonged dry periods, high wind events and because of demolition activities where dust is disturbed during the breakdown of building materials. The Contractor will indicate in the CSEMP the management of Dust and air borne partials, that may include, as required, dust suppression.

The operational phase of the project will not result in any measurable change in greenhouse gas emissions. Impact Assessment: Climate and air quality – Emissions

Table 11: Impact Assessment - Emissions

Nature	Duration	Extent	Magnitude	Likelihood	Manageability	Valence
Direct	Construction	Local	Low	Unlikely	Medium	Negative

3.5.1.1 Management measures and residual impacts:

- Use groundwater to suppress dust during of construction activities.
- Maintain all vehicles and machinery used for the construction in accordance with the manufacturer's specifications to limit exhaust emissions.
- Ensure that clean up and restoration proceeds as soon as is practicable after works are completed to limit the duration of exposure of disturbed areas.

There is no measurable change to greenhouse gas emissions during operation and therefore no mitigation is required.

3.6 Water resources

3.6.1 Groundwater

Groundwater contamination is indirectly affected by soil contamination (Section 3.6.2) from historic activities, disturbances during construction and through the changes in communal toilet operation. It is reported and recognised that the shallow groundwater is already contaminated and not fit for potable use because of animal wastes, contaminated stormwater and pit latrines and other septic systems in the Betio area. During construction, soil contamination and groundwater contamination may be increased through the disturbance of contaminated soils or by spills from sewerage, animal wastes and hazardous wastes stored on site and from accidental spills from powered plant. These are all described in (Section 3.6.2). Direct discharges to groundwater are not anticipated during the construction phase, but groundwater is indirectly at risk where the spills are large, sediments porous and / or where groundwater is shallow.

Based on community request made at the 12th of April consultation at the Police line, PIAC tested salinity and confirmed that most of the boreholes in the vicinity exceed the 2, 500uS/cm limit and not suitable for washing/showering.

3.6.1.1 Management measures and residual impacts:

Construction phase

- All measures as per Section 3.6.2.1.

The magnitude of the impact of water contamination without mitigation is rated as low during the construction phase. Applying the mitigation measures will change likelihood from possible to unlikely, while the magnitude remains low, and valence remains negative.

There is a potential risk that once the new infrastructure is installed there could be failures (e.g. leaks). Considering the current state of the communal toilets this is a severe risk, if the O&M are not clearly defined.

Table 12: Impact Assessment - Groundwater

Nature	Duration	Extent	Magnitude	Likelihood	Manageability	Valence
Direct	Construction	Local	Low	Unlikely	Medium	Negative

3.6.2 Marine Waters

The 30 communal toilet blocks will connect to the Betio sewerage network and will discharge to sea via the Betio outfall after primary screening. The design for the Betio outfall was based on the 2010 population of 15,700. The environmental impact assessment considered the impacts to be acceptable since the outfall is located at 30m depth, beyond the reef platform and coral habitats on reef slope, and the outfall was designed with diffusers to increase the dilution rate and reduce the size of the mixing zone.

Compared to the current baseline situation and considering the new toilet units will replace “like for like” the number of cubicles remain at 196. However, disable toilets are additionally provided, these are envisaged to be used by HH’s in substitution to the conventional cubicles. Shower and hand washing water is to be collected and taken to a soak pit and will not enter the PUB’s sewer system. Flushed water from the 196 cubicles is to enter the PUB sewer, at a volume similar to the assumed existing volume of 19.2 m^3 per day. However, the flush water is to be sourced from ground water and not saltwater.

Table 13: Impact Assessment - Marine Water Pollution

Nature	Duration	Extent	Magnitude	Likelihood	Manageability	Valence
Direct	Operation	Local	Low	Unlikely	High	Negative

3.6.2.1 Management measures and residual impacts:

Not applicable. Specific mitigation for this subproject is not required as the impacts from this subproject will be very low to unmeasurable as. Any mitigation to the long-term impacts from the Betio outfall is best managed at the network level which is beyond the scope of this subproject.

3.6.3 Protected Areas

The proposed activities will be undertaken in established urban areas on South Tarawa where no protected areas are present. The sewage outfalls discharge to the ocean to the south of Tarawa which is no situated near any protected areas. These locations have no sensitive biodiversity that would justify future protection status for conservation purposes.

3.6.3.1 Management measures and residual impacts:

Not applicable.

3.6.4 Terrestrial Biodiversity

The footprint of the sanitation infrastructure will have a negligible impact on the local ecosystem. There is the possibility that some trees and shrubs may need to be removed to allow construction however this will be avoided as far as practicable by citing and routing design. The project is not a greenfield development that will result in the loss of habitat and disturbance to wildlife during construction as it will be situated in an already degraded environment (i.e., the South Tarawa urban areas). There are no plant species of conservation concern; no regular occurrence of threatened mammals, reptiles or amphibians; no migration corridor for terrestrial wildlife; and no breeding or roosting of threatened bird species on South Tarawa. On the other hand, it is not expected that the number of rats will diminish. Rats thrive on human waste, such as garbage. If the community does not change its behaviour regarding the handling of solid waste, the construction of new toilets will have no effect on the number of rats. There is no impact difference between the construction phase and the operational phase. Invasive species could be introduced accidentally through dirty equipment.

Table 14: Impact Assessment - Habitat Loss and Disturbance

Nature	Duration	Extent	Magnitude	Likelihood	Manageability	Valence
Direct	Construction and operation	Local	Low	Unlikely	High	Negative

3.6.4.1 Management measures and residual impacts:

- Except where clearing is required for permanent works or excavation operations, all ground-level vegetation shall be preserved and protected.
- Invasive weed species can be cleared and removed as part of any site preparation and waste removal practices.

The infrastructure will have a very small-scale footprint causing local impacts on an already degraded environment due to urban development. The magnitude of the impact on biodiversity is neutral without mitigation and neutral / no impact with mitigation in the construction phase.

3.6.5 Marine Biodiversity

The project will not involve new infrastructure construction in the marine environment and instead relying on the existing sewage outfalls that were upgraded under the STSISP. These outfalls discharge beyond the reef platform at a depth of 30 metres below sea level where biodiversity is less abundant than at shallower depths. The impact on marine water quality (Section 4.4.2) concludes the impacts are unlikely to be measurable due to the small overall increase in effluent expected from the upgrade and are within the original design and impact assessment. Therefore, there are no associated biodiversity impacts. No mitigation measures are required.

Additional attention will be required by contractors to implement control measures to prevent soil and water contamination during construction. These will be detailed further in the CESMP to be prepared and approved prior to construction.

3.7 Human Environment

3.7.1 Land Access

The project will require access to government leased land for the installation of the new toilet blocks. The blocks will be rebuilt on a similar footprint and will be connected to the existing PUB sewerage lines and associated infrastructure.

The project therefore has no involuntary resettlement impact. Some design flexibility exists which will allow for the reduction of land/asset impacts during the detailed design stage of development.

3.7.1.1 Management measures and residual impacts

- Implementation and maintenance of the grievance redress mechanism detailed in the Stakeholder Engagement Plan (SEP)
- Tenants will let contractors access the sites, help look after the toilets, and work with tenants.
- Temporary toilets will be provided while construction is happening.
- If needed, a separate agreement with each household will be made for land use, access, or tree removal.
- Any short-term problems, like disturbance during construction, will be managed with clear communication and temporary facilities.

3.7.2 Infrastructure and Services

3.7.2.1 Utility Damage

- Excavation and construction activities for the rehabilitation of communal toilets have the potential to damage existing utilities, such as water supply pipes, sewer connections and electricity. Risks will be minimized by obtaining plans from the PUB showing the locations of any existing pipelines, sewer lines, and electrical cables near the toilet blocks.
- consultation with KHC and local tenants to identify any informal or undocumented utility services.
- hand digging prior to machine excavation to locate services that may be impacted.
- realignment/relocation of new infrastructure to avoid existing services or temporary relocation/disconnection to allow construction activities.

3.7.2.2 Property Damage

Installation of infrastructure has the potential to damage property (from construction activities) or require temporary relocation of structures (e.g. pig pens, fences) to allow infrastructure to be installed.

To avoid damage any property that could be damaged with either be fenced off or temporarily relocated. Where this is necessary the contractor will be required to reinstall/make good.

In some instances, it may be necessary to remove trees to allow infrastructure to be installed efficiently or due to engineering requirements. While the priority will be to avoid this, if unavoidable compensation will be paid

Rehabilitation works for communal toilets may cause accidental damage to surrounding property (e.g., nearby structures, household fences, small sheds) or may require the temporary relocation of items (such as pig pens, washing areas, or fences) to allow safe access for construction activities. To avoid property damage:

- Any structures or items at risk will be clearly identified and either fenced off for protection or temporarily relocated before work begins.
- The contractor will be responsible for reinstalling or restoring any temporarily relocated structures to their original or better condition after construction.
- In some cases, limited tree removal may be necessary to allow proper access to the communal toilet site or meet construction requirements. Tree removal will only occur when unavoidable.
- Where tree removal is required, compensation will be provided to affected parties according to the project's entitlement matrix.

3.7.3 Assessment of Social Impacts

3.7.4 Land Status for Kiribati Housing Communal Toilets

All the 30 community toilets owned by the KHC (KHC) are situated on Government leased land. This arrangement ensures that the land use for these facilities is fully authorized and secured under Government provisions. To confirm this, STSP and KHC sought and obtained official verification and clearance from the Land Management Division under the Ministry of Environment, Lands and Agricultural Development (MELAD).

The Land Management Division provided written confirmation accompanied by maps that clearly indicate the locations of Government leased land where all 30 communal toilets are located. With this confirmation, it is assured that there will be no land issues for any of the sites. This provides a solid foundation for the continued use, maintenance, and any future improvements of these communal facilities.

Each communal toilet unit has its own space requirements. It depends on the design and number of cubicles for each block. This will be well documented in the bidding document. However, the environmental and social screening for the 30 communal toilets has shown that there is enough space for each communal toilet block. If any assets or trees need to be removed, relocated or replaced, this will be done in accordance with the ESMP.

3.8 Entitlement Matrix

To quantify the losses and the compensation policies, an entitlement matrix is presented in Annex 8

3.8.1 Community Health and Safety

3.8.1.1 Improved Sanitation

The project activities will finance the improvement of sanitation facilities services for approximately 1400 Government staff members and their families residing in KHC housing in Betio and will result in an overall positive outcome and impacts on community health, particularly through:

- a small unmeasurable reduction in contamination (such as faecal coliforms) to the groundwater lens and coastal and lagoon environments through poor sewage use and open defecation for a small number of people who currently do not have access to functional sanitary facilities (either the existing communal toilets or other alternatives).
- Reduced risks of exposure for around 1400 people to faecal coliforms, *e. coli* and other bacteria, pathogens and viruses because of clean /functional toilet and shower facilities and running water for hand washing.

There are some risks to community health and safety during construction:

- the misuse and potential vandalism of the communal toilets, this may also raise tensions among the community specially creating a divide between certain groups (elderly, youth, vulnerable, disabled etc.) exposure to waterborne diseases and pathogens from grey water discharged to seepage systems and subsequent water lens contamination, or leaks / damage to sewerage system resulting in exposure to raw sewage, noting soakaway - seepage pits using the MISE design are located 15 m from a bore well.; and
- minor health and safety risks such as exposure to small levels of dust and noise during minor construction works.

Alongside human waste, faeces from animals, particularly pigs and dogs are a major source of disease-causing pathogens on the islands. Animal faeces also carry dangerous parasites such as zoonotic soil-transmitted helminths. Options for management of waste from animals – particularly free roaming dogs are limited.

The presence of pigs and dogs in and around dense urban settlements that characterise much of South Tarawa presents a severe health hazard in terms of transmission of diarrhoeal diseases, as well as parasites such as zoonotic soil-transmitted helminths (STHs). The hazard of STHs is significant worldwide, and pregnant women and children are particularly vulnerable to effects such as cognitive impairment, mineral deficiencies, stunted growth and malnutrition A recent study published in the *Emerging Infectious Diseases* journal[18] highlights the prevalence of zoonotic soil-transmitted helminths (STHs) in free-roaming dogs in Kiribati, including South Tarawa. The research found a 96.5% prevalence of these parasites in dogs, emphasizing the urgent need for treatment and prevention programs to address this public health concern.

With little pig waste being transferred to toilets or septage facilities and a highly limited range of feasible sanitary measures available for dog waste, pig and dog faeces remain a highly significant source of pathogens that may compromise the effectiveness of improved human sanitation. Measures to support reductions in disease and death from communicable diseases feature in the Kiribati-World Health Organization Country Cooperation Strategy 2018 – 2022, which specifically mentions soil-transmitted helminths and diarrhoea.

Table 15: Impact Assessment - Improved Sanitation

Nature	Duration	Extent	Magnitude	Likelihood	Manageability	Valence

[18] Patsy A. Zendejas-Heredia, Allison Crawley, Helen Byrnes, Rebecca J. Traub, Vito Colella. Zoonotic Soil-Transmitted Helminths in Free-Roaming Dogs, Kiribati. *Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 27, No. 8, August 2021*

Direct	Construc-tion and op-eration	Local	Low	Confident	High	Negative

3.8.1.2 Management measures

- Establishment of sanitation committees for communal facilities to ensure facilities are maintained and misuse is controlled.
- Awareness raising with toilet users regarding how to avoid exposure to pathogens, bacteria and viruses from washing hands
- All personnel involved with construction activities will be required to adhere to the prevailing Government of Kiribati COVID-19 management measures. A memorandum of agreement (MoA) has been prepared for the use of the communal toilets. This is presented in Annex 5.

3.8.1.3 Exposure to noise and dust

Some people will be exposed to construction related noise and dust. This is likely to be short term (see 3.7.1).

3.8.1.3.1 Management measures

Construction environmental and social management plan (CESMP) will be prepared by the contractor to ensure that dust and noise emissions are minimised.

3.8.2 Construction of the toilet blocks

During the construction phase of the project, it is important that the community will be kept safe from the construction area. This is particularly challenging in the extremely overpopulated areas of Betio. The Contractor shall therefore (for details see section 5):

- Fence off the construction site.
- Cover all earth materials.
- Block the open sewerage system once the current toilet blocks have been demolished.

3.8.3 Labour and Working Conditions

The project has a Labour Management Procedures (LMP) which should be considered by the contractor when preparing the CESMP in accordance with ESS2, to ensure protection of worker's rights, occupational health and safety, and access to a grievance mechanism. A contracted firm has been selected to undertake the works for the activities described for the STSP; the project does not envisage engaging community labour for this project. The Contractor shall follow Occupational Health and Safety standards. Ensuring worker safety near sewage involves a combination of proper hygiene practices, personal protective equipment (PPE), training, and vaccinations. Refer to Table 18 for the key measures.

The PMU Social Safeguards Officer will oversee social issues and apply strategic approaches according to the ESIA and ESMP, in consultation with the national safeguard system and procedures. The social safeguard officer will ensure that the ESHS Manager from the construction company serves as the focal point for receiving and responding to grievances firsthand on the ground. Moreover, the Social Safeguards officer will manage and supervise the overall implementation of the CESMP, the Grievance Redress Mechanism (GRM) and other social issues that might be coming up during every stage of the construction works.

The PMU Environmental Safeguards officer will be responsible for supervising the Contractor work relating to environmental compliance and ensure environmental standards are followed in line with the procedures and regulation and mitigation measures specified in the ESIA and ESMP.

The PMU Engineer with the support of the PIAC's sites' Engineers & will supervise the overall construction and will ensure OSH management is followed (as per the CESMP), the requirements of the Building Code are followed and compliance in meeting the standards and the procedures requirements during demolishing and constructing communal toilets.

Both of the PMU's Environmental and Social Safeguards officers will be working closely with the KFSU Safeguards team and the PIAC's Safeguards expert to ensuring the environmental and social risks and impact are mitigated well and follow international and national procedures and strategies.

Occupational Health and Safety risks are associated with both the construction and operational phases of the Project activities, such as exposure to sewage, piggery waste, hazardous materials and waste potentially asbestos and UXO. During construction there are potential risks to workers from civil works including high risk construction work activities such as:

- work that is carried out in or near a confined space (e.g. connecting a new sewer to a sewer main in a 3-metre deep trench;
- work that is carried out in or near a shaft or trench with an excavated with an excavated depth of more than 1.5 metres (e.g. laying or repairing pipes or conduits in a trench that is more than 1.5 metres deep);
- Work that is carried out in an area at a workplace in which there is any movement of powered mobile plant;
- Work in areas where hazard materials / asbestos is identified / suspected of being present;
- Work in areas where UXO are discovered; and,
- Working at heights.

Mitigation measures for such activities are:

- Workers to wear appropriate personal protective equipment (PPE) such as waterproof gloves, rubber boots, goggles, face masks, and protective clothing to minimize direct contact with hazardous materials.
- Comprehensive training on hazard identification, risk assessment, and safe handling procedures is essential.
- Regular handwashing, keeping wounds covered, and avoiding eating or drinking in contaminated areas help reduce health risks.
- Having an emergency manual and operational control procedures in place ensures quick response to accidents.
- Proper disposal methods for biohazardous waste prevent environmental contamination.
- Regular inspections and maintenance of sewage systems help identify and address potential hazards.
- Contractor to follow CSEMP procedures for UXO management
- Contractor to follow CSEMP procedures for Asbestos management.
- Contractor to ensure working at height procedures are included in the CSEMP

Construction activities will be small scale and may involve only small work crews using small machinery and vehicles, meaning that these risks will be reduced; however, the inherent hazards of these high-risk activities remain meaning mitigation measures will be required.

During the operation phase OHS risks are associated with operations and maintenance activities undertaken by KHC staff and future contractors. These risks will be managed in accordance with KHC's OHS procedures.

Labour Management Procedures (LMP) should be prepared by the construction contractor as part of CESMP. It should be noted that the works will be undertaken by a contracted firm, and that no community labour is required for this project. The Contractor shall follow Occupational Health and Safety

standards. Ensuring worker safety near sewage involves a combination of proper hygiene practices, personal protective equipment (PPE), training, and vaccinations. Refer to Table 18 for the key measures.

Table 16: Impact Assessment - OHS

Nature	Duration	Extent	Magnitude	Likelihood	Manageability	Valence
Direct	Construction	Local	High	Unlikely	High	Negative

3.8.3.1 Management measures:

- Provide protective clothing including hard hats, protective footwear and high visibility jackets for use during any construction activity.
- Ensuring that equipment and vehicle operators hold licenses where applicable, and have been trained specifically in the operation of each item of equipment,
- Arrange for the provision of first aid facilities, training of at least one member of staff at each site in first aid, emergency transport to the hospital, and allocate responsibility for ensuring that these arrangements are continually in place,
- Arrange for regular safety checks of vehicles and material, and allocate responsibility for this to a designated, qualified and experienced Health and Safety Officer within the Contractor's staff, provide hazard warning signs around excavation sites, and direct vehicle and pedestrian traffic away from work sites.
- The Contractor will be required to maintain a register of accidents detailing date, circumstances, severity, action taken and outcome in each case.
- The Contractor will provide sufficient training to its staff with regard to UXO and asbestos.

4 ENVIRONMENTAL AND SOCIAL MITIGATION AND MANAGEMENT

The potential environmental and social impacts associated with construction and operation of the 30 communal toilets is assessed and described in Section 5. This section also identifies mitigation and management measures that should be implemented to avoid and minimise the potential adverse impacts. This Chapter/ Section details the environmental and social mitigation and management plan (ESMP) and is to be used to inform the preparation of CESMP by the contractors.

The ESMP is a requirement of the World Bank and Environment Conservation Division (ECD) and will also be used to inform future phases of the project. The ESMP will be implemented before, during and after construction. This includes the processes, roles and responsibilities for implementation, monitoring, and reporting.

4.1 Roles and responsibilities

4.1.1 PMU

The PMU Safeguards Officers, comprising the Social Safeguard Officer and Environmental Safeguard Officers will be responsible for supervising the contractor to ensure compliance with all social and environmental safeguards requirements. The key roles and responsibility include ensuring that the social and environmental standards along with the mitigation measures specified in the ESIA and ESMP are properly implemented, Reviewing and providing feedback on the CESMP to ensure consistency with the project safeguards and regulatory requirements. Monitor contractor performance in relation to social and environmental safeguards through project implementation. Coordinating and working closely with the PIAC Safeguard Expert and the KFSU team to address and manage social and environmental matters. Overseeing Occupational Health and Safety (OHS) for both project workers and the surrounding communities and ensuring that the contractor effectively implements the OHS measures specified in the ESIA and ESMP.

4.1.2 KFSU

The KFSU environmental and social specialists will review all documents, including CESMP, prepared under STSP. The KFSU team will support the PMU safeguards specialists, especially if there are difficult risks and hazards to manage, grievances etc

4.1.3 KHC

The KHC (KHC) will be responsible for the operation and maintenance of the communal toilets. KHC will ensure that these facilities are kept in functional and hygienic condition through regular service and necessary repairs. Additionally, KHC will provide supervision to its tenants to ensure compliance with the KHC Tenants Agreement. One of the key responsibilities outlined in the agreement is that tenants are expected to maintain the cleanliness of the communal toilets and promptly report any damage or issues to the KHC office. An agreement has been prepared and Parties, MISE / KHC have signed the agreement

4.1.4 PIAC

The PIAC team consists of the team leader/engineer (international), a social safeguards expert (international), deputy team leader/engineer (national), two site supervisors (regional). The PIAC will also be responsible for providing construction supervision service.

The PIAC will support the PMU to monitor environmental mitigation measures during construction, to review CESMPs for environmental content, and reporting any non- compliance or emerging issues to the PMU via a dedicated environmental content. Though a dedicated environmental position is not listed, these responsibilities are integrated into the existing PIAC safeguards roles. This includes reviewing the CESMP and ESIA before recommending clearance to PMU, support the monitoring the construction contractor as they implement the CESMP, providing technical guidance on how to resolve environmental and social issues, including OSH and labour and working conditions, as these arise and reporting progress regularly to the PMU. Environmental responsibilities within the PIAC team are currently supported by the Social Safeguards Expert

The PIAC will also support the PMU Environmental Safeguards to ensure compliance with the ESIA and ESMP before any clearance can be made by PMU and also in any other safeguards related matters that need their input,

4.1.5 Construction Contractor

The construction contractor will be responsible for all construction activities onsite. They will be obligated under their contract to complete works in accordance with this ESIA/ESMP and any relevant Conditions of Contract. The construction contractor will be responsible for preparation. maintenance of and the implementation of the CESMP, including compliance monitoring and reporting on compliance with any Conditions of Consent. They will also have primary responsibility for the health and safety of all workers and visitors onsite.

4.1.6 Environmental and Social Health and Safety Manager

The Environmental, Social, Health and Safety (ESHS) Manger will be part of the construction contractors' team and is responsible in producing the relevant CESMP sub plans as outlined in the Bidding documents. He/she will also be responsible for ensuring the implementation of the CESMP throughout the construction period.

4.1.7 ECD

ECD is responsible primarily for the administration and enforcement of the Environment Act. ECD will be responsible for issuing the EL (environmental license) and any conditions for the development by way of review and approval of the Environment Licence application. ECD also have a role of compliance monitoring during construction.

4.2 Detailed design and construction planning

The concept design for the Project (as reflected in this ESIA) and the design drawings submitted as an attachment has sought to avoid or mitigate adverse effects through design refinement. This process will continue during detailed design and development of the construction methodology in the next phase of the Project development.

4.3 Bidding documents

The bidding documents for the Construction Contractor includes specific work requirements that will contractually bind the successful bidder to environmental and social tasks and outcomes. The specification presented in the Bidding documents are generally reflected the Contract under which the Contractor will execute the works. The bidding documents stipulates the minimum requirements for the nominated ESHS Construction Manager, including a minimum number of years of relevant experience in similar roles and qualification requirements.

The scope of works including the Employers Requirements, and the Specification, and other documentation issued to the Bidders (including this ESIA), itemize the specific Environment, Social, Health, and Safety tasks that need to be completed. The Bill of Quantities describe items to be deliver and the associated "tendered" price is considered to include the costs to perform all these tasks, during the execution of the works. Any workforce training and community engagement are all to be included in the tendered Price.

All construction work force will be expected to sign a code of conduct for behaviours relating to sexual exploitation and sexual harassment.

The bidding documents also outline specific hold points in the contract where works cannot commence without certain approvals being obtained. For example, construction cannot start before the EL has been granted and the land acquisition/compensation process has been completed.

This ESIA will be attached to the bidding documents so that the mitigation and management measures become contractual requirements and are adequately incorporated into construction pricing and planning.

4.4 Construction Environmental and Social Management Plan

A key feature in managing construction related impacts is the preparation and implementation of a CESMP. A CESMP will be prepared by the Construction Contractor before any works commence onsite. The CEMP is the overarching management plan which sets out the methods and tools to be implemented by the Construction Contractor to manage impacts during construction. It is prepared to meet the Environmental Licence Conditions, the mitigation and management measures in this ESIA, the STSP Labor Management Procedures, World Bank Safeguards Standards, and relevant Kiribati legislation. Its purpose is to ensure that construction related impacts are appropriately managed during all stages of construction.

The final CESMP will be provided to the PMU and WB for approval prior to construction, to allow the PMU and WB to confirm that the CESMP meets the applicable requirements of the consent conditions and WB Standards. The PMU require that contractors undertake all construction activities on site in accordance with the provisions of the relevant consent conditions and management plans as part of their contractual arrangements. The CESMP will provide details of:

- Environmental policy
- Staff and contractors' responsibilities
- Training requirements for employees, sub-contractors and visitors
- Environmental incident and emergency management
- Complaints grievance management
- Compliance monitoring
- Reporting (including detail on the frequency of reporting)
- Mitigation measures
- Corrective action procedures
- Procedure for the management of asbestos
- Procedure for the management of UXO
- Chance Find Procedure(s) including the management of human remains

The CESMP provides an overarching framework for the management of environmental and social risks onsite. In addition, an Occupational Health and Safety Management Plan must be included in the CESMP and implemented.

A key aspect of the CESMP will be the implementation of the Project's Grievance Redress Mechanism (GRM) as well as ongoing community engagement. The GRM sets out the process for managing and responding to community concerns or complaints. The GRM is discussed further in Section 6.

4.5 Summary of mitigation and management measures

Key to the delivery of the Project, including the management of impacts, is the development, implementation and monitoring of a suite of measures covering detailed design, construction and operation. Table 18 provides a summary of the mitigation and managements proposed in this ESIA and outlines the responsibility and timing for implementation.

Table 17: Mitigation Table

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
Detailed Design							
A.	Multiple potential impacts	<u>Detailed design and review</u> 1. Ensure all E&S issues are incorporated into detailed designs A. For example, sewage infrastructure design minimises the risk of system leaks impacting groundwater quality. B. B. Minimise the water use requirements. C. Ensure >15m soak pits and wells. D. Locate wells at least 15m from existing septic disposal, soak pits and burial locations and in areas that do not obstruct access, footpaths etc. 2. Design is reviewed by an independent consultant.	1. PMU Safeguards team 2. PIAC	PMU	Check that detailed design related E&S mitigation measures are incorporated into the final detailed design.	Final detailed design report.	PMU/PIAC/STSP

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
	Footprint	1. **Minimize Disturbance:** • Limit site clearing strictly to areas needed for construction. • Use existing access routes and infrastructure where possible. 2. **Clear Demarcation:** • Clearly mark the boundaries of the construction zone with **barriers or signage**. • Avoid encroachment into **buffer zones** (e.g., around water bodies or cultural sites). 3. **Erosion and Sediment Control:** • Install **silt fences, bunds, or sediment traps** around disturbed areas. • Stabilize exposed soil quickly with vegetation or cover. 4. **Restoration:** • After construction, restore temporary work areas (e.g., replant vegetation, remove debris). • Where possible, **rehabilitate the site** to its original condition or better. 5. **Community Engagement:**	contractor				

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
		• Inform local residents about the footprint and schedule. • Ensure construction avoids **restricted access** to homes, businesses, or services.					
Pre-Construction							
A	General	2. Prepare a Construction Environmental and Social Management Plan (CESMP). The CESMP should include all those aspects listed in Section 5.4: For example. a. Mitigation and management measures that will be implemented to minimise and avoid adverse impacts during construction. b. Monitoring parameters for each mitigation measure. c. Roles and responsibilities for construction personnel implementing the CESMP. d. Corrective actions procedures. e. A monitoring schedule. f. A communications plan including complaints register. g. Training and induction information for construction personnel regarding their roles and responsibilities.	1. Construction stage: Contractor	Site Inspector, PIAC Supported by the PMU Safeguards team	Review, comment and assist with obtaining WB clearance of CESMP. Monitor implementation of the CESMP against the requirements set out in the CESMP.	Final CESMP Weekly checklists and monthly progress reports	Contractor
B	Borehole salinity for	1. Locate boreholes inland nearer to the football field, where groundwater can be more fresh (less brackish)	1.PMU / PIAC	MISE	Water Quality Monitoring	Monthly/Quarterly reports	PMU/PIAC/STSP

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
	HT24 to HT30	2. Have notice in showers informing occupants/users that water is brackish 3. PMU / PIAC execute further groundwater investigations to ascertain the suitability / availability of groundwater for washing	2.MISE 3. PMU/PIAC		(including water quality monitoring plan for the site) by MISE before, during and after construction.		
C	Unexploded Ordinance UXO	1. UXO Survey: An UXO survey of the agreed works area and 2 metre beyond the boundary, will be undertaken by a qualified entity/person before construction implementation. 2. UXO management procedure: Any identified UXO is to be reported to the Project Manager and arrangements made to manage the item, the police are to be informed if a UXO is identified. a. PMU is to engage a specialist to prepare a procedure to be followed if UXO are discovered/identified. b. The procedure is to be presented to the contractor who is required to put this in the CESMP. 3. Report: Following the site being declared as free of UXO by the contractor issuing a report to the Project Manager. 4. Instruction to proceed with construction: The Project Manager will request the Contractor to proceed with the works.	1. Contractor 2. PMU 3. Contractor 4. Project Manager	Site Inspector, PIAC Supported by the PMU Safeguards team	Details of procedures will be presented in the CSEMP	Monthly progress reports	PMU/PIAC/STSP

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
D	Temporary toilet arrangement- for tenants and Inadequate sanitation for workers during construction; risk of open defecation and environmental contamination	5. - Provide gender-segregated portable toilets at appropriate locations, minimum 30–50 m from water sources. - Ensure daily cleaning and regular waste removal - Install handwashing stations with soap and clean water. - Decommission and restore sites post-construction.	Contractor	Site inspection, PIAC supported by the PMU SAFEGAURS TEAM	Details of procedures will be presented in the CSEMP	Monthly progress report	
Construction							
A	General	1. Implement the CESMP. 2. Provide weekly progress reports and monthly progress reports to PIAC. 3. Maintain all ESHS staff in place for the duration of the contract.	Construction: Contractor	Site Inspector, PIAC Supported by the PMU Safeguards team	Monitor implementation of the CESMP against the requirements set out in the CESMP. Undertake monthly review of compliance and manage	Weekly checklists and monthly progress reports	Contractor

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
					any ongoing issues that are not resolved from week to week.		
B	Soil erosion	1. Except where clearing is required for permanent works or excavation operations, all ground-level vegetation shall be preserved and protected. 2. Topsoil shall be set aside and reserved where possible. 3. All exposed surfaces and backfill areas shall be covered with topsoil and compacted. 4. The area of earthworks shall be limited as much as possible. 5. Excess excavation spoil will be beneficially reused as close to site as possible (e.g. for filling potholes or depressions in access tracks). 6. Relating to Surface Drainage and Runoff Control), the Contractor shall not alter the existing pattern of surface drainage. 7. Safeguards, if required, will be the Contractor's responsibility to prevent run off (other than natural as before construction) to enter other areas.	Construction Contractor	Site Inspector, PIAC Supported by the PMU Safeguards team	Site inspections	Weekly checklists and Monthly Progress Reports	Contractor
C	Soil Contamination	1. No fuel or hazardous materials shall be stored at worksites. 2. Equipment to be refuelled using a mobile fuel system. 3. A spill kit should be kept on the refuelling vehicle.	Construction Contractor	Supervision consultant Support by the PMU Safeguards	Weekly site inspections	Weekly checklists and Monthly Progress Reports	Contractor

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
		4. Demolition procedures include visual observations of contaminated soil and sources of waste that could cause contamination during demolition. 5. All soil with visible contamination (oil, sewerages, piggery waste) shall be managed as hazardous waste and removed from site. A protocol for contaminated soil removal will be provided in the CESMP including suitable location for final disposal of soil. 6. Demolition procedures will include safe removal of waste to avoid spills. The Contractor is to prepare a construction procedure for the dis-connection of the existing pipe work to the PUB sewer, and the reconnection is to be detailed including pressure test (to be documented in the CSEMP). 7. Keep all machines and vehicles well-maintained and check daily for leaks. 8. No fuel or hazardous materials shall be stored at worksites with equipment to be refuelled using a mobile fuel system. 9. All construction sites shall have spill kits together with the refuelling vehicle. 10. All used spill response materials will be securely packaged and removed from the island for disposal at a licenced sanitary landfill. 11.					

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
D	Emissions	1. Use water to suppress dust emissions during periods of extended dry weather and when dust nuisance has the potential to occur because of construction activities. 2. Maintain all vehicles and machinery used for construction in accordance with the manufacturer's specifications to limit exhaust emissions.	Construction Contractor	Site Inspector, PIAC Supported by the PMU Safeguards team	Weekly site inspections for visible signs of dust or excessive exhaust emissions from machinery.	Weekly checklists and Monthly Progress Reports	Contractor
E	Groundwater	1. Monitor the installation of sewage infrastructure to ensure the quality of work undertaken will minimise the potential for leakage and impacts on groundwater quality.	Construction Contractor	Site Inspector, PIAC	Daily during installation of sewage infrastructure	Monthly Progress Reports	Contractor
F	Terrestrial Biodiversity	1. Except where clearing is required for permanent works or excavation operations, all ground-level vegetation shall be preserved and protected. 2. Any productive trees that must be removed will be compensated. 3. Invasive weed species can be cleared and removed as part of any site preparation and waste removal practices.	Construction Contractor	Site Inspector, PIAC Supported by the PMU Safeguards team	Weekly site inspections for excessive clearing of vegetation beyond the limit of works.	Weekly checklists and Monthly Progress Reports.	Contractor
G	Utility Damage	1. Obtain plans from the PUB showing the locations of pipelines and electricity cables. 2. Consult with landowners to establish the location of any informal services. 3. Hand digging prior to machine excavation to locate services that may be impacted.	MISE/PUB Construction contractor	TBC as part of monitoring system design. Supervision consultant engineer (PIAC)	TBC as part of monitoring system design. Daily prior to any earthworks	TBC as part of monitoring system design. Monthly progress reports	Contractor

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
H	Property Damage	1. Fence of buildings or structures that have the potential to be impacted by construction activities or the movement of machinery. 2. Structures may be relocated where necessary, however the contractor mut reinstall/make good as soon as practical.	MISE/KHC/Construction contractor	TBC as part of monitoring system design / Supervision consultant engineer (PIAC)	TBC as part of monitoring system design. Prior to work commencing at a new location. Take photos of pre and post construction condition.	TBC as part of monitoring system design. Monthly progress reports	Contractor
I	Community Health and Safety	1. All personnel involved with construction activities will be required to adhere to the prevailing Government of Kiribati COVID-19 management measures. 2. Enforce code of conduct that explicitly prohibits SEA/SH with the adherence of all staff and contractors. 3. During interactions with the community, educate individuals on their rights and project reporting mechanisms. 4. Establish specialized grievance redress mechanism (GRM) on SEA/SH incidents for responsible implementing agency to address in a timely and sensitive manner. 5. Engage and inform the community about project timelines and potential risks.	1. All, during construction 2. PMU, during construction 3. BCC/PMU, during construction 4. PMU/BCC, during construction 5. PMU/Contractor, before and during construction 6. Contractor /PIAC, during construction 7. PMU/Contractor, during construction 8. Contractor, during construction	Site Inspector, PIAC Supported by the PMU Safeguards team	Ongoing community engagements, public signage and notifications	Monthly progress reports GRM records Signed Workers' Code of Conduct	Contractor

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
		6. Restrict public access to hazardous areas using barriers and fencing. 7. Set up a community feedback system for on-going health and safety concerns. 8. Securing the site: Temporary Fencing is to be installed to secure the site for the safety of the public, and for the security of the Contractors (See point 6). 9. Signage for public awareness and safety should be visible at all times with appropriate safety messaging covering all risks involved in the construction activities. 10. Safety of the public on site: Public safety must be ensured at all times through. a. Securing site b. Notifications and public meetings c. Provision of security staff to manage access to the site d. Methodology for site security 2. Any proposed methodology will be authorized by the Project Manager.	9. Contractor, during construction 10. Contractor, during construction.				
J	Occupational Health and Safety	1. Occupational Health and Safety Plan to be prepared and implemented for the duration of construction. It should include: a. Health and safety measures for workers' safety and against potential exposure to sewage and effluent. b. Briefings and training to workers on safety precautions, and their responsibilities for the safety of themselves and others. c. Compulsory protective clothing including hard hats, protective footwear and high-visibility	Construction Contractor	Site Inspector, PIAC Supported by the PMU Safeguards team	Review, comment and assist with obtaining WB clearance of OH&S Management Pan. Undertake weekly site	Occupational Health and Safety Management Plan Weekly site inspections Monthly progress reports Incident register	Contractor

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
		jackets for use during any construction activity. 2. Ensuring that equipment and vehicle operators hold licenses where applicable, and have been trained specifically in the operation of each item of equipment, 3. Arranging for the provision of first aid facilities, training of at least one member of staff at each site in first aid, emergency transport to the hospital, and allocating responsibility for ensuring that these arrangements are continually in place, 4. Arranging for regular safety checks of vehicles and material, and allocate responsibility for this to a designated, qualified and experienced Health and Safety Officer within the Contractor's staff, provide hazard warning signs around excavation sites, and direct vehicle and pedestrian traffic away from work sites. 5. A register of accidents detailing date, circumstances, severity, action taken and outcome in each case.			inspections to monitor implementation of the OH&S requirements.		
K	Working conditions	1. All workers must be over the age of 18 2. Implement the workers GRM process outlined in the CESMP where workers can raise issues with the contractor without fear of prejudice, retaliation or consequences. 3. Report summary of grievances in monthly reports.	Construction contractor	PMU	i. Check new employment contracts. i. Review the GRM	• Checking and reviewing monthly. • Monthly report	• Contractor

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
					documentation and ensure information is anonymous.		
L	Hygiene practices	1. Wash hands thoroughly with soap and water after handling sewage, before eating, and after using the toilet. 2. Avoid touching the face, mouth, eyes, or open wounds while working. 3. Keep any cuts or sores covered with clean, dry bandages. 4. Do not smoke, chew gum, or eat in areas where sewage is handled. 5. Personal Protective Equipment (PPE): 6. Wear goggles to protect eyes from splashes 7. Use a protective face mask or splash-proof face shield for nose and mouth protection. 8. Wear liquid-repellent coveralls to keep sewage off clothing 9. Use waterproof gloves and rubber boots to prevent direct contact with sewage. 10. Training 11. Provide workers with training on disease prevention, proper use of PPE, and safe handling of sewage.	Contractor	PMU	Contractor to have daily toolbox meeting and hygiene practices to be highlighted and minutes provided to PMU	Monthly report	Contractor

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
		12. Encourage workers to seek medical attention if they experience symptoms like vomiting, diarrhoea, or stomach cramps 13. Vaccinations 14. Ensure workers are up to date on tetanus vaccinations 15. Consider vaccinations for Hepatitis A, Hepatitis B, typhoid fever, and polio, based on local health recommendations.					
M	Asbestos Worker OHS Community Safety	1. Procedure: An Asbestos Management Specialist, engaged by PMU will prepare a procedure to manage asbestos-containing material. This procedure is to be presented to the Contractor and to be included in the CESMP. 2. Notification: If material is discovered to contain asbestos or is suspected of containing asbestos, the Contractor will cease activities and notify the Project Manager as soon as practical. 3. Handling and Disposal: The Contractor is required to handle and dispose of asbestos in accordance with the procedure outlined in the CESMP to avoid / prevent Exposure to Asbestos.	1. PMU, Prior to construction 2. Contractor, Prior construction 3. Contractor, During construction	Site Inspector, PIAC Supported by the PMU Safeguards team	Details of procedures will be presented in the CSEMP	Monthly progress reports	Contractor
N	Demolishing of communal toilet – proper waste management	4. - Prepare and implement a Demolition and Waste Management Plan. - Segregate waste (reusable, recyclable, hazardous, general). - Transport debris to approved disposal sites. - Ensure asbestos or hazardous materials (if any) are handled by licensed professionals. - Prevent dust generation through wetting and protective gear.	4. Contractor (under supervision of PMU Safeguards Team)	Site Inspector, PIAC Supported by the PMU Safeguards team	Details of procedures will be presented in the CSEMP	Monthly progress reports	Contractor

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
O	Surface Run-off	1. Subject to Employer Requirement relating to surface runoff. the Contractor shall not alter the existing pattern of surface drainage. 2. Safeguards, if required, will be the Contractor's responsibility to prevent run off (other than natural as before construction) to enter other areas.	Construction Contractor and PMU Safeguards	Site Inspector, PIAC Supported by the PMU Safeguards team	Details of procedures will be presented in the CSEMP	Monthly progress reports	Contractor
Operation							
A	Community Health and Safety	1. Establishment of sanitation committees for communal facilities to ensure facilities are maintained and misuse is controlled 2. A memorandum of agreement (MoA) has been prepared for the use of the communal toilets that will outline the requirements for operation and maintenance of the communal toilets. 3. Water Quality Testing	1. MISE/PMU, Gov't stakeholders, NGOs and communities 2. MISE/PMU in collaboration with KHC 3. MISE/PMU	1. MISE/PMU 2. MISE/PMU in collaboration with KHC 3. MISE/PMU	1. Regular meeting and reporting 2. Regular meeting and reporting 3. Regular testing and reporting	Every 6 months to yearly	KHC
Post Construction							
A	Grey water disposal	1. Community awareness sessions on proper disposal of grey water. 2. Install approved soak pits designed for grey water disposal (not blackwater). 3. Prohibit discharge of grey water into sewer lines or boreholes.	PMU safeguards	PMU	Regular monitoring, community	Every 6 months	PMU

Ref	E&S impacts	Mitigation measures	Implementation responsibility	Monitoring			
		Responsibility		**Details**		**Reporting**	**Funding source**
		4. Include messaging in O&M training and household handover materials. 5. - Periodic inspections by the local council or health inspectors to ensure compliance.			engagement and reports		
B	Misuse of soak pits or sewer system (pouring oil, chemicals, etc.)	1. Distribute simple sanitation guides on what can and cannot be disposed of in soak pits/sewers. 2. Ongoing behaviour changes campaigns post-construction. 3. Engage local or awareness or consultation	MISE	MISE/ PMU	Regular monitoring, community engagement and reports	Every 6 months	MISE
C	Household misuse of soak pits or sewer system (pouring oil, chemicals, etc.)	1. Distribute simple sanitation guides on what can and cannot be disposed of in soak pits/sewers. 2. Ongoing behaviour changes campaigns post-construction. 3. Engage local or awareness or consultation	MISE	MISE/ PMU	Ongoing behaviour changes campaigns / public consultation	Every 6 months	MISE/PMU
D	Use of Ground water for safe bathing and washing	1. Compliance to the WHO guidelines carried out by regular monitoring of ground water measuring microbial and chemical levels 2. Testing of Ground water at extraction borehole - Any noncompliance to WHO guideline levels results in a notification “do not use water for bathing / washing”	MISE / KHC	MISE/ PMU	Quarterly and annual testing of ground water,	Every 3 months	MISE/KHC

4.6 Clarification on the Role of the ESMP in CESMP

This chapter provides a generic Environmental and Social Management Plan (ESMP) developed based on the current concept designs for Sub-component 1.1b: Rehabilitation of 30 communal toilets in Betio. It identifies potential environmental and social risks, outlines corresponding mitigation measures,

describes monitoring requirements, and defines institutional roles and responsibilities for managing these aspects during both construction and operation phases.

The ESMP is intended to serve as a guiding framework for contractors in preparing detailed, site-specific Construction Environmental and Social Management Plans (CESMPs). These CESMPs must take into account the particular conditions of each site—such as proximity to boreholes, access limitations, and any community-specific concerns. They must also include the contractor's specific procedures for health and safety, waste disposal, pollution control, and community engagement.

Before any construction begins, the CESMPs must be prepared by the contractors and submitted for review and approval by the Project Management Unit (PMU), the World Bank, and the Environment and Conservation Division (ECD), to ensure they meet both national regulations and World Bank safeguard policies.

5 STAKEHOLDER ENGAGEMENT

Stakeholder engagement for the South Tarawa Sanitation Project (STSP) follows a stepwise approach, aligned with the Environmental and Social Framework (ESF) and outlined in the Stakeholder Engagement Plan (SEP)[19]. The engagement process began shortly after the environmental and social specialists joined the PMU and continues to evolve as the project progresses through design, assessment, and implementation phases.

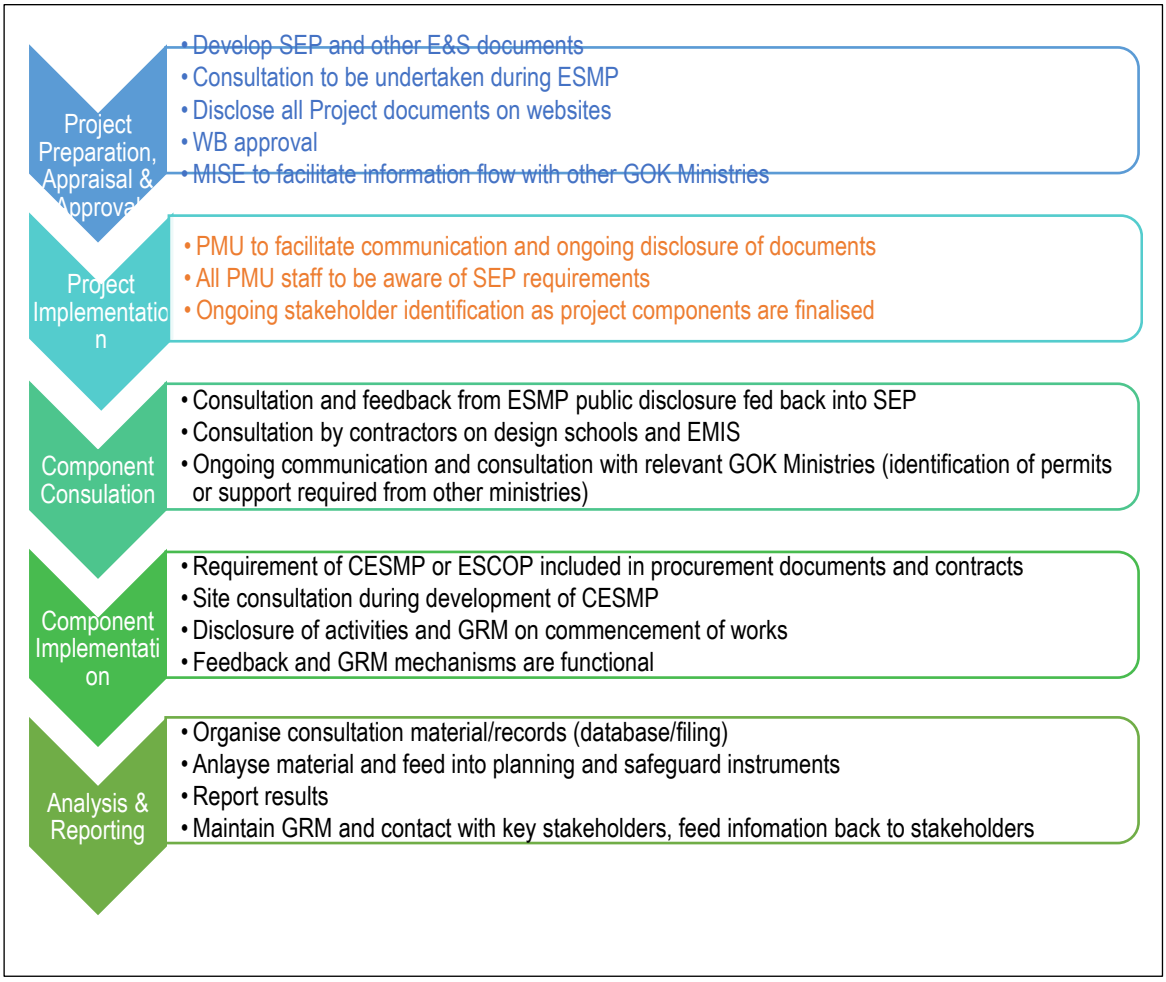
5.1 Objectives of stakeholder Engagement

The objective of stakeholder engagement is to ensure that affected and interested parties are informed of the project's scope, design, risks, and mitigation measures, and have meaningful opportunities to provide input throughout the project lifecycle. This process helps ensure that community concerns are addressed and that project activities are implemented transparently and inclusively. The Stakeholder Engagement Plan (SEP) will be regularly updated by the community engagement officer as the project progresses

5.2 Stakeholder Engagement Approach

The PMU has followed a stepwise consultation process (Figure 10), beginning with stakeholder identification and engagement during project design. This included initial discussions with institutional partners such as the Betio Town Council (BTC), Teinainano Urban Council (TUC), the Kiribati Housing Corporation (KHC), the Public Utilities Board (PUB), and the Land Management Division (LMD) of MELAD. Engagement with tenants, households, and affected communities has been conducted progressively.

Figure 10: Step approach Process



5.3 Engagement conducted to date

5.3.1 Institutional Stakeholder Engagement

Engagement with institutional stakeholders began with meetings between the STSP PMU and the Betio Town Council (BTC), Teinainano Urban Council (TUC), and key national agencies. On 17 October 2023, the PMU team met with BTC representatives—including the Mayor, Vice Mayor, Clerk, and Deputy Clerk—to present the project's objectives and identify potential target areas in Betio. A follow-up consultation was held on 30 April 2024 to present the findings of the Household Sanitation Survey conducted by the Kiribati Red Cross and to discuss community consultation plans. On 20 February 2025, the PMU briefed the newly elected Mayor and Councillors on the current status of the project. BTC confirmed its full support and agreed to assist in identifying households in the three main wards of Betio: Northern, Central, and Southern.

Similarly, in October 2023, the PM and Deputy PM met with TUC leadership and councillors to present the project background and scope and to seek the Council's support. TUC also confirmed its willingness to support the project and to remain engaged through future consultation activities.

On 21 February 2024, a joint meeting was held with the Kiribati Housing Corporation (KHC), the Public Utilities Board (PUB), and the Land Management Division (LMD) of MELAD. This meeting focused on clarifying the ownership and maintenance responsibilities of communal toilets, sewerage connection boundaries, and land ownership status. It was confirmed that KHC owns the communal toilets used by its tenants, while PUB agreed to connect toilets to the sewer network within a maximum distance of six meters, provided the gravitational incline is appropriate. The LMD confirmed that most of the communal toilets are located on Government-leased land, with a few situated on private land.

5.3.2 Community- Level Engagement

At the community level, the PMU engaged with selected villages in Betio and TUC to raise awareness of the sanitation improvement plans and associated safeguards. Consultations targeted tenants and households near the 30 communal toilet sites, especially those under KHC's management. These sessions involved discussions on toilet rehabilitation plans, proposed sites, and feedback on preferred construction approaches. KHC staff expressed support for a "like-for-like" replacement strategy, which was taken into consideration in the detailed design phase. Design presentations were jointly delivered by PIAC and the PMU, with feedback documented and incorporated into the project planning. Additionally, the Land Management Division verified that the land for most toilet sites is Government-leased, further confirming the feasibility of the proposed rehabilitation works.

5.4 Consultation on Draft ESIA

In accordance with the ESS10 requirements, consultations were conducted in April 2025 to present and seek feedback on the **draft Environmental and Social Impact Assessment (ESIA)**. These consultations targeted tenants of KHC communal toilets and nearby community members. The sessions covered the draft ESIA's key findings, environmental and social impacts, mitigation measures, and the Grievance Redress Mechanism (GRM).

- **Consultation 1:** 4 April 2025 – Location Police maneaba
- **Consultation 2:** 4 April 2025 – Location Teiaro maneaba
- **Consultation 3:** 28 April 2025 – Location Te onibeeki maneaba

These consultations were led by the PMU Safeguards Team in collaboration with PIAC:

- **PIAC** presented the project design.
- **Social Safeguards** presented social risks, GRM, and mitigation measures.
- **Environmental Safeguards** presented environmental impacts and related mitigation.

Feedback collected during these sessions was considered in finalizing the ESIA. Any new information added after these consultations was reviewed by the PMU for material significance. Where needed, informal consultations were conducted. All engagement activities are being updated and reflected in the SEP (Annex 5).

5.5 Summary of Feedback and Follw up

The consultations confirmed strong stakeholder support, especially from local councils and KHC. Communities expressed preferences on design choices and concerns related to land, sewer connections, and toilet access. These inputs informed the final designs and mitigation plans outlined in the ESMP and CESMP

5.6 Grievance Redress Mechanism (GRM)

The GRM was explained during community consultations and institutional meetings. Affected persons were informed of the GRM's structure, access points, and process for lodging and resolving grievances. The GRM will continue to be monitored and updated throughout the project lifecycle.

6 CHANCE FIND PROCEDURE

Cultural heritage encompasses tangible and intangible heritage which may be recognized and valued at a local, regional, national, or global level. Tangible cultural heritage, which includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. For this project, the likely cultural heritage items that may be found could be human remains or grave sites.

If, during demolition or construction, human remains, items, artefacts or sites of cultural value are found, the following procedures for identification, protection from theft, and treatment of discovered artefacts should be followed and included in standard bidding documents.

Chance find procedures will be used as follows:

a) Stop the earthworks, construction or land clearing activities in the area of the chance find.

b) Delineate the discovered site or area.

c) Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the national police will take over.

d) Notify the supervisory Engineer/ Project Manager who in turn will notify the responsible local authorities and the relevant Ministry immediately.

e) Responsible local authorities and the relevant Ministry would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures.

f) Decisions on how to handle the finding shall be taken by the responsible authorities and the relevant Ministry.

g) Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the relevant Ministry; and

h) Construction work could resume only after permission is given from the responsible local authorities and the relevant Ministry concerning safeguard of the heritage.

These procedures must be referred to as standard provisions in construction contracts. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered are observed.

7 GRIEVANCE REDRESS MECHANISM

7.1.1 Goal of the Grievance Redress Mechanism

Members of the public will have rights to make grievances known to the MISE and for them to be addressed, to the extent practicable and reasonable. The STSP has established a grievance redress mechanism (GRM) for any matters related to project design, construction and operation. This STSP GRM provides pathways for making a complaint or resolving any dispute that may arise during the implementation of STSP including this subproject and to ensure that appropriate and mutually acceptable redress actions are identified and implemented, at no cost and without retribution, and to the satisfaction of complainants.

The GRM for STSP allows members of the public to submit complaints or feedback regarding the way the activities of the projects are being conducted and how the activities directly and/or indirectly affect them. Complaints may relate, but are not limited to, excessive noise, damage to plants or property, pollution concerns, workers behaviour, harassment, quality of the works or other concerns. Grievances submitted can be anonymous.

The GRM serves as a platform to receive, register, review, and resolve grievances and address feedback from the public in the most efficient, effective, transparent, and timely manner, and if necessary, in an anonymous way, during the implementation of STSP. It is also a mechanism to inform the GoK through PMU of MISE of design and implementation risks and impacts that can be used to improve the project.

The GRM shall provide an important quality control function for STSP to continually improve its operations and implementation through engaged community and the public and best practice in resolving the complaints.

The Communications Strategy including Frontline SMS, Hotline and Help Desk, will also assist in providing regular feedback from stakeholders to MISE.

The establishment of this GRM aims to avoid the need to resort to judicial proceedings that may incur cost on the complainant(s). However, it is also a requirement of the Project to respect the choice of the complainant(s) to use any pathway or mechanism they trust and are comfortable with. This may include existing legal system within GoK including the Office of Peoples' Lawyer (OPL).

7.1.2 The role of the Contractor

The Contractor for the 30 communal toilets blocks will play a crucial role in the GRM. Their responsibilities include:

- Grievance Handling: The Contractor will address grievances related to construction activities, such as noise, dust, or safety concerns. They must ensure that grievances are resolved promptly and effectively. The CESMP will have detailed grievance redress system that complies with this ESIA and the STSP GRM.

- Community Engagement: The Contractor is expected to engage with the local community to build trust and ensure transparency. This includes informing the community about the GRM and how to lodge complaints.

- Documentation and Reporting: The Contractor must maintain a grievance register to document all complaints received, actions taken, and resolutions achieved. This helps in M&E.

- Compliance with Standards: The Contractor is required to work with MISE and PMU, KHC, local authorities and to adhere to the environmental and social standards set by the WB, ensuring that their activities do not adversely affect the community or environment.

- Coordination with Stakeholders: Contractors work closely with project implementers, local authorities, and other stakeholders to address grievances effectively and ensure smooth project implementation.

7.2 GRM Communication channel

Complaint/feedback can be submitted, lodged, and communicated through the following channels.

Table19: GRM Communication Channel

Communication Channel	Description
In-person	Individuals or anyone with complaints related to the Project are encouraged to reach out to the Designated Contact Person (DCP) which is the PMU Social Safeguard Specialist (SSS) or contractors at on-site areas to report their grievances or provide feedback. Additionally, the aggrieved party are welcome to visit the STSP PMU Office in person and lodge complaints directly to a Designated Contact Person.
Drop-box/letter	Complaints are permitted to utilize the Drop-Box located at both the STSP PMU Office and the MISE Headquarters. Each drop box is clearly labelled according to its respective locations: Complain & Feedback (C&F) for Betio, C&F for Bairiki, and C&F for Bikenibeu. It is important to note that all information placed into these drop boxes is treated with outmost confidentiality. Access to the contents is strictly restricted to a Designated Contact Person only, ensuring the privacy and security of the submitted information.
Office Landline/Mobile Phone	General or specific complaints and feedback/grievances can be communicated through the office landline or via a dedicated phone number managed by a SSS for registering incoming complaints and/or feedback. The STSP PMU Office land line is 63030120, and the Mobile phone number is 73018537.
SMS	In times where there is no credit available to make a call for reporting complaints and/or feedback, SMS can be also utilized to communicate grievances using the provided phone number 73018537 / 73059598.
c. Email	Complaints and/or feedback can be also communicated through the provided email address: matea.aaran@mise.gov.ki / christina.reiher@mise.gov.ki . This email channel offers a broad means of communication that is both efficient and secure.

Communication Channel	Description
d. Social media/Online Platform	The Project's Facebook page and website serves as effective channels for communication, allowing individuals access to social media to report complains and feedback using the Messenger rather than public comment space. The Project's Facebook Page is named "South Tarawa Sanitation Project" while website can be accessed through the MISE Website under Ongoing Project.

7.3 GRM steps

the PMU Social Safeguard Specialist (SSS) is responsible for managing the STSP GRM for the project and ensuring that all complaints received are resolved and addressed at all levels.

The GRM steps are as follows. The full GRM form can be seen in Annex 6.

7.3.1 Level 1.

i. A member of the public (Complainant) starts the process through submission of a complaint (grievance) / feedback. All complaints, whether by SMS, email, telephone through hotline, social media, drop-box/letter, or in-person will be received and handled by the SSS.
ii. The SSS will register the details of the complaint/feedback in the GRM Register (see Annex 7) and provide timely communication to the complainant that the complaint/feedback has been received with a case number.
iii. The SSS in close coordination with the PMU's Project Manager (PM) and the Deputy Project Manager (DPM) will review the complaint/feedback to ensure that the issue raised is relevant to the project. If not relevant to the project, the SSS will communicate to the complainant the reason for ineligibility.
iv. The type of complaint/feedback will be classified as:
    A. queries, comments, and suggestions.
    B. allegation of violation of rights, sexual harassment and abuse, unjust and inequitable decisions/benefit sharing, or non-performance/poor performance of obligations against consultants, contractors, or another dispute.
    C. allegation of fraud or corruption,
v. If the complaint/feedback is not relevant to the project, the SSS will communicate to the complainant the reason the matter cannot be addressed in the GM.
vi. The SSS acknowledgment, assessment and communication are to be sent to the complainant in writing within two (2) working days using the Standard Letter.
vii. If the complaint/feedback is relevant, The SSS, the PM, the DPM, the Community Engagement Specialist (CES) and the Contractor will investigate, attend meetings, address the complaint/feedback, and provide an expedient and effective means of resolution/action. Resolution of complaints should be completed within fifteen (15) working days. Investigation of grievances/feedback may involve site visits and consultation with relevant parties (complainant, contractor, and others as relevant). If necessary, the SSS will convene a meeting(s) with the relevant parties, e.g., the contractor, MFED (KFSU Safeguards) and relevant government ministries such as MELAD (for environmental and land issues), MEHR (for OHS issues), MWYSSA (for social welfare issues), I and others who may have specific responsibility related to the complaint/feedback. Thus, the Plan of Action will be used here for guiding action where the complaint can be consulted and generally to get his or her agreement on the proposed solution for an issue.

viii. The SSS fulfil a secretariat role in the meeting(s) and coordinate, the Community Engagement Specialist (CES) to take meeting minutes, and monitor the execution of the grievances investigation(s), and actions taken. Further investigations may be required based on the meeting(s) outcome(s).

ix. Actions to resolve the complaint/feedback will then be taken. After the investigation and action, the SSS will follow up with the complainant regarding the actions taken to resolve his/her complaint and to ascertain their satisfaction upon resolution of the complaint that has been made.

x. If the complainant is satisfied, the case is considered resolved/closed and the SSS will update the GRM register including details of the grievance/feedback, steps taken and the resolution. If the complainant is not satisfied, the complaint then refers to Level 2.

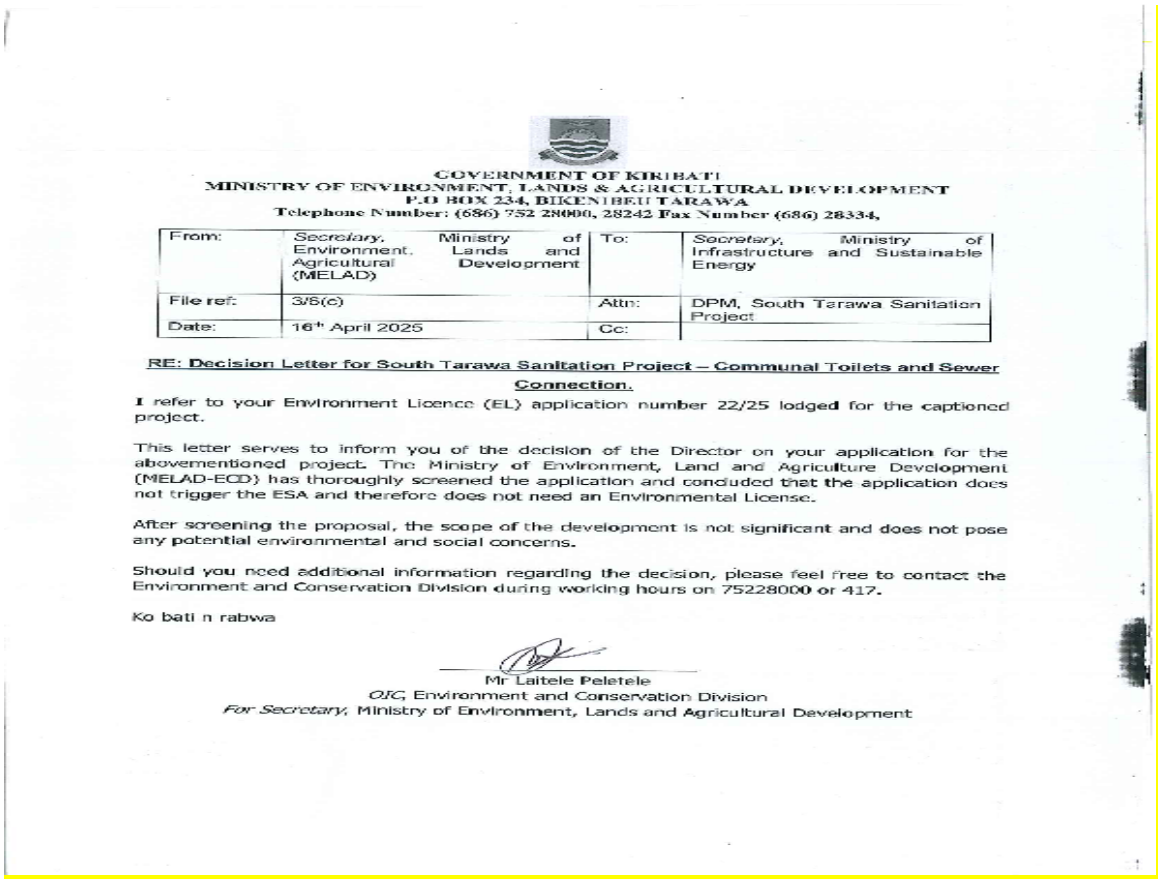
7.3.2 Level 2

xi. If the complainant is still dissatisfied with the action(s) or attempts at resolution made at Level 1, the SSS in close coordination with the PM and/or the Deputy will escalate the matter with the Implementing agency's focal point (Secretary or designate- DES), the WB/Project Task Team Leader (TTL), MFED (Secretary or Director of Engineering Service -DES), and the Office of the Attorney General (OAG) for a resolution to be made but without formal legal proceedings. The Grievance Redress Service (GRS) system of the WB may be initiated as appropriate. The SSS will continue their secretariat roles for meetings at this level. Resolution of complaints/feedback should be completed within thirty (30) working days.

7.3.3 Remaining issues:

xii. If still unresolved, the complainant may opt for judicial/legal proceedings. Meaning, in the event where all avenues have been exhausted within the GRM and GRS system of the WB, and that the complaint remains unresolved without further actions to take, the complaint will be declared closed and referred to the Office of the People's Lawyer (OPL) and that the complainant will be encouraged to take necessary steps for formal legal proceedings in accordance with Kiribati laws and procedures.

ANNEX 1



GOVERNMENT OF KIRIBATI
MINISTRY OF ENVIRONMENT, LANDS & AGRICULTURAL DEVELOPMENT
P.O BOX 234, BIKENIBEU TARAWA
Telephone Number: (686) 752 28000, 28242 Fax Number (686) 28334,

From:	*Secretary*, Ministry of Environment, Lands and Agricultural Development (MELAD)	To:	*Secretary*, Ministry of Infrastructure and Sustainable Energy
File ref:	3/8(c)	Attn:	DPM, South Tarawa Sanitation Project
Date:	16th April 2025	Cc:	

RE: Decision Letter for South Tarawa Sanitation Project – Communal Toilets and Sewer Connection.

I refer to your Environment Licence (EL) application number 22/25 lodged for the captioned project.

This letter serves to inform you of the decision of the Director on your application for the abovementioned project. The Ministry of Environment, Land and Agriculture Development (MELAD-ECD) has thoroughly screened the application and concluded that the application does not trigger the ESA and therefore does not need an Environmental License.

After screening the proposal, the scope of the development is not significant and does not pose any potential environmental and social concerns.

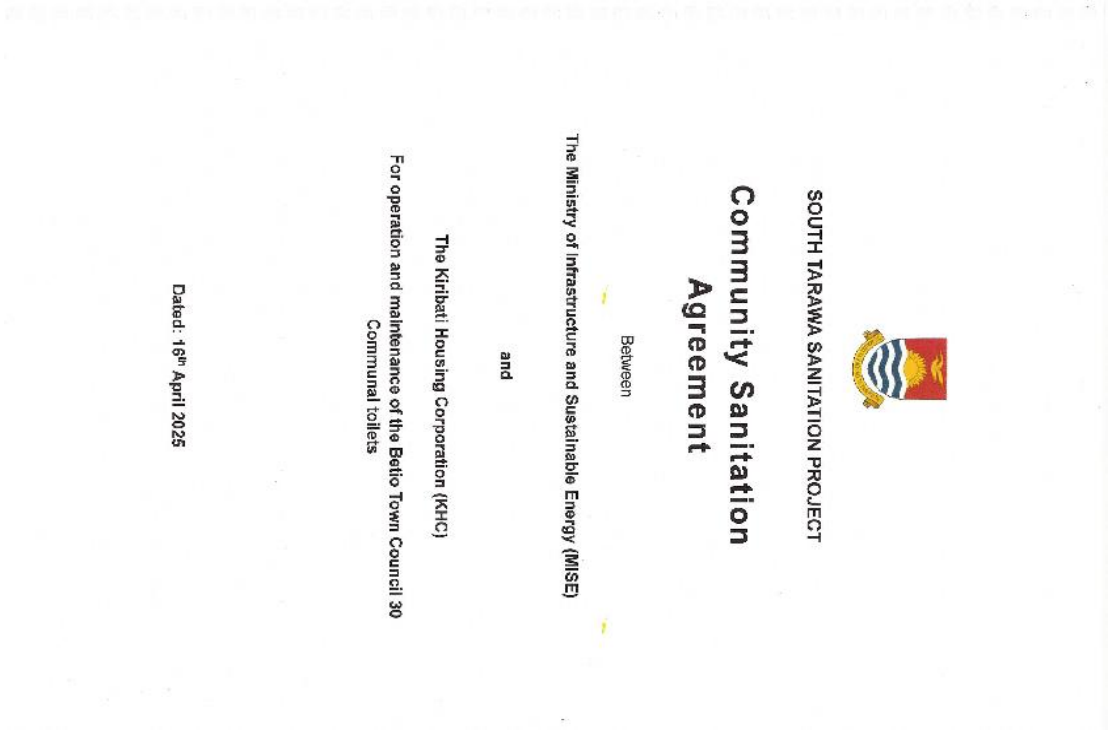
Should you need additional information regarding the decision, please feel free to contact the Environment and Conservation Division during working hours on 75228000 or 417.

Ko bati n rabwa

Mr Laitele Peletele
OIC, Environment and Conservation Division
For Secretary, Ministry of Environment, Lands and Agricultural Development

ANNEX 2

MEMORADUM OF AGREEMENT



SOUTH TARAWA SANITATION PROJECT

Community Sanitation Agreement

Between

The Ministry of Infrastructure and Sustainable Energy (MISE)

and

The Kiribati Housing Corporation (KHC)

For operation and maintenance of the Betio Town Council 30 Communal toilets

Dated: 16th April 2025

ANNEX 3

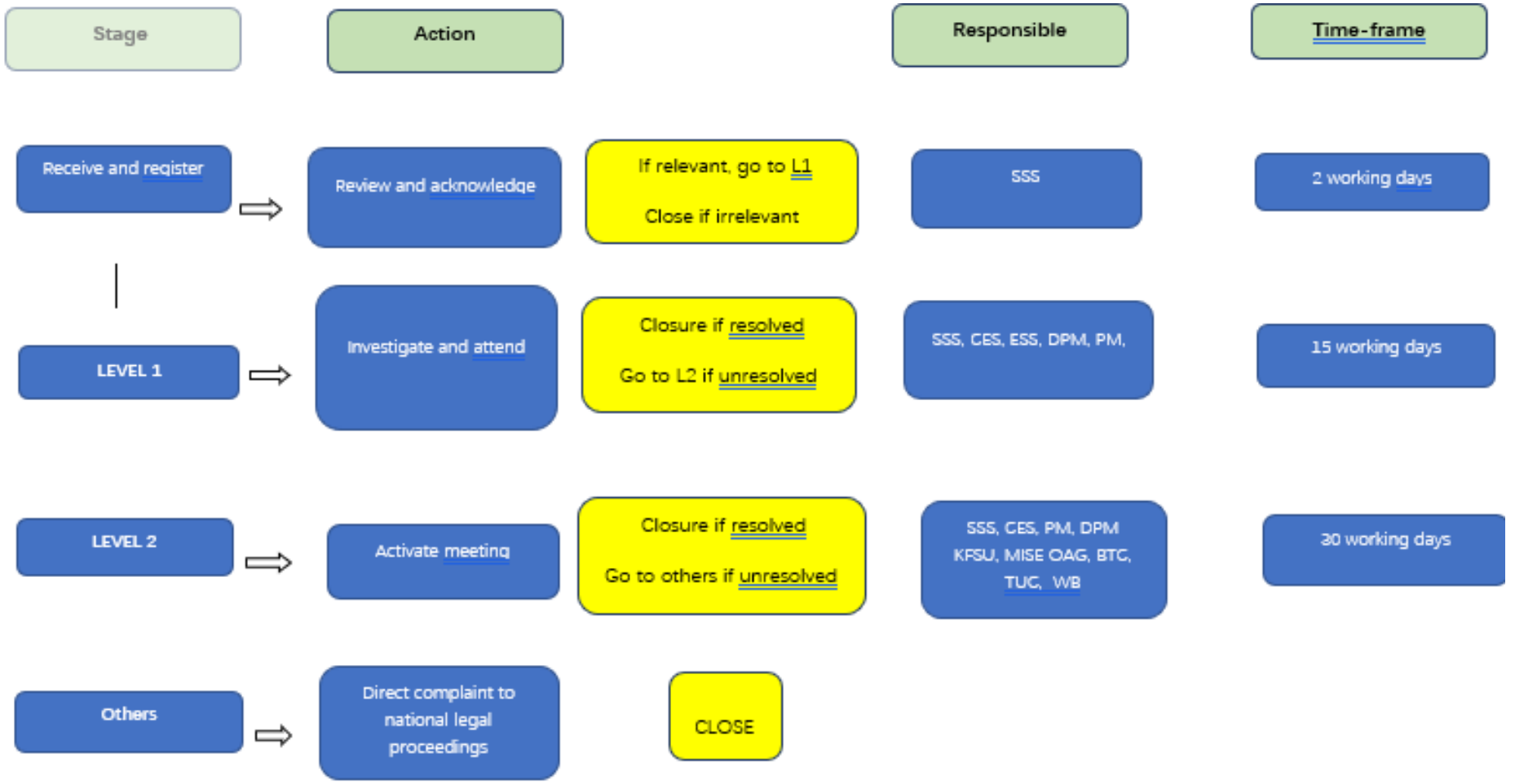
GRIEVANCE REDNESS FORM

Case No.			
Date received		**Receiver**	
COMPLAINANT DETAILS			
Full Name **Gender** ☐ Anonymous			
Phone No		**Email**	
Address			
COMPLAINT/FEEDBACK (C/F)			
Mode	☐Phone ☐Email ☐SMS ☐Letter ☐social media ☐In-person		
C/F Type	☐ A ☐B ☐C		
C/F Details			
RELEVANCY ASSESSMENT			
Relevant	☐Yes ☐ No	**Reason**	
ACTION			

Investigation & Findings				
Action Required				
Action Carried out				
Complainant Satisfied	☐Yes ☐No		**Date**	
Comments				
Closed/ Pending		**Closed/Pending by (name/signature)**		

ANNEX 4

GRM LEVELS FLOWCHART



ANNEX 5

ENTITLEMENT MATRIX

Item	Description	Entity to Identify Item	Ownership	Responsibility for complaints	Agency to instruct tenant	Responsible for action	Type of Compensation	Who Pays	To Whom	Cost AUD $
Pig Pen	Generally, a temporary structure to corral a pig(s)	PMU Safeguard Team	Temporary Structure: - Tenant Land - KHC	PMU / KHC	KHC	Demounting / re locating Pig Pen : Contractor Instructing Action: PMU / PIAC	Moving Pig Pen By Contractor re install Loss of Earning N/A	N/A		* N/A
Vegetable garden	Usually contains a variety of vegetables such as cabbage, spinach, egg plants, pumpkins, and many others	PMU Safeguard Team	KHC tenant or tenant's family or neighbour	PMU / KHC	KHC	Removing vegetable garden and everything inside Responsible: Contractor Instructing Action: PMU / PIAC	Loss of Earning or pro rata loss of buying	MISE / PMU	KHC tenant or tenant's family or neighbour	12 per m^2
Coconut Tree	See Table 2 for more description. Sometimes planted but sometimes self seeded around the government housing facility	PMU Safeguard Team	KHC tenant or tenant's family or neighbour. This will require demonstration of ownership	PMU / KHC	KHC	Cutting down and Removing coconut tree Responsible: Contractor Instructing Action: PMU / PIAC	Loss of livelihood	MISE / PMU	KHC tenant or tenant's family or neighbour	140.28

Item	Description	Entity to Identify Item	Ownership	Responsibility for complaints	Agency to instruct tenant	Responsible for action	Type of Compensation	Who Pays	To Whom	Cost AUD $
Banana tree(s)	Fruit bearing	PMU Safeguard Team	KHC tenant or tenant's family or Neighbour This will require demonstration of ownership	PMU / KHC	KHC	Cutting down and removing banana trees Responsible: Contractor Instructing Action: PMU / PIAC	Loss of livelihood	MISE / PMU	KHC tenant or tenant's family or Neighbour	28.10
Pawpaw tree	Fruit bearing	PMU Safeguard Team	KHC tenant or tenant's family or neighbour	PMU / KHC	KHC	Cutting down and removing pawpaw trees Responsible: Contractor Instructing Action: PMU / PIAC	Loss of livelihood	MISE / PMU	KHC tenant or tenant's family or neighbour	33.95
Breadfruit tree	Fruit bearing	PMU Safeguard Team	KHC tenant or tenant's family or neighbour	PMU / KHC	KHC	Cutting down and removing breadfruit tree Responsible: Contractor Instructing Action: PMU / PIAC:	Loss of livelihood	MISE / PMU	KHC tenant or tenant's family or neighbour	565.45
Te non tree	Fruit bearing	PMU Safeguard Team	KHC tenant or tenant's family or neighbour	PMU / KHC	KHC	Cutting down and removing te non tree	Loss of medicinal plant	MISE / PMU	KHC tenant or tenant's family or	28.10

Item	Description	Entity to Identify Item	Ownership	Responsibility for complaints	Agency to instruct tenant	Responsible for action	Type of Compensation	Who Pays	To Whom	Cost AUD $
						Responsible: Contractor Instructing Action:			neighbour	
Pandanus tree	Fruit bearing	PMU Safeguard Team	KHC tenant or tenant's family or neighbour	PMU / KHC	KHC	Cutting down and removing pandanus tree Responsible: Contractor Instructing Action: PMU / PIAC	Loss of livelihood	MISE / PMU	KHC tenant or tenant's family or neighbour	65.56
Veranda	An extension to the government dwelling usually made of corrugated aluminium Steel-iron sheets	PMU Safeguard Team	KHC tenant or tenant's family or neighbour	PMU / KHC	KHC	Removing veranda Tenant Instructing Action: PMU / PIAC	Loss of covered security	MISE / PMU	KHC tenant or tenant's family or neighbour	140.48
Te buia	Small thatched house on stilts	PMU Safeguard Team	KHC tenant or tenant's family or neighbour	PMU / KHC	KHC	Removing te buia Re locating Responsible: Contractor Instructing Action: PMU / PIAC	Loss of livelihood / security	MISE / PMU	KHC tenant or tenant's family or neighbour	98.33

Item	Description	Entity to Identify Item	Ownership	Responsibility for complaints	Agency to instruct tenant	Responsible for action	Type of Compensation	Who Pays	To Whom	Cost AUD $
Fence	Usually made of mesh or old flattened oil drums / corrugated steel – Iron roofing material	PMU Safeguard Team	KHC tenant or tenant's family or neighbour	PMU / KHC	KHC	Removing fence, storage , Re install post the Works Responsible: Contractor Instructing Action: PMU / PIAC	Loss of livelihood /security	MISE / PMU	KHC tenant or tenant's family or neighbour	-N/A