DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

TRINIDAD AND TOBAGO NATIONAL WATER SECTOR TRANSFORMATION PROGRAM PHASE 2 (TT-L1071)

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TABLE OF CONTENTS

LIST OF FIGURES ..... **IV**

LIST OF TABLES ..... **IV**

ACRONYMS AND ABBREVIATIONS ..... **V**

EXECUTIVE SUMMARY **6**

1 INTRODUCTION **12**

1.1 OBJECTIVES 12
1.2 SCOPE 13

2 PROGRAM DESCRIPTION **14**

2.1 BACKGROUND AND JUSTIFICATION 14
2.1.1 Phase 1: National Water Sector Transformation Program (TT-L1055) *14*
2.1.2 Phase 2: National Water Sector Transformation Program (TT-L1071) *14*
2.2 COMPONENTS OF THIS PROGRAMME (TT-L1071) 15
2.3 COSTS AND FINANCING 15
2.4 IMPLEMENTATION ARRANGEMENTS 17
2.5 PROJECT RATIONALE 18
2.6 EXPECTED BENEFITS 18
2.6.1 Project Results *19*

3 LEGAL AND INSTITUTIONAL FRAMEWORK **21**

3.1 LEGISLATIVE FRAMEWORK 21
3.2 INTERNATIONAL CONVENTIONS AND COMMITMENTS 24

4 IDB ENVIRONMENTAL AND SOCIAL POLICY FRAMEWORK **25**

4.1.1 ESPS 1 – Assessment and Management of Environmental and Social Risks and Impacts *25*
4.1.2 ESPS 2 – Labor and Working Conditions *25*
4.1.3 ESPS 3 – Resource Efficiency and Pollution Prevention *26*
4.1.4 ESPS 4 – Community Health, Safety, and Security *26*
4.1.5 ESPS 5 – Land Acquisition and Involuntary Resettlement *27*
4.1.6 ESPS 6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources *27*
4.1.7 ESPS 7 – Indigenous Peoples *28*
4.1.8 ESPS 8 – Cultural Heritage *28*
4.1.9 ESPS 9 – Gender Equality *28*
4.1.10 ESPS 10 – Stakeholder Engagement and Information Disclosure *29*
4.2 SUMMARY OF COMPLIANCE WITH IDB ENVIRONMENTAL AND SOCIAL POLICY FRAMEWORK 29

5 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK **33**

5.1 INTRODUCTION 33
5.2 PROJECT SCREENING 35
5.2.1 Eligibility Criteria for Projects *35*

5.2.2 Evaluation with IDB's Environmental and Social Performance Standards 36
5.2.3 Exclusion List 37
5.3 Project Assessment and Implementation 38
5.3.1 Role of the IDB 38
5.3.2 Environment and Social Management of the Project Cycle 38
5.4 Project Monitoring 42
5.4.1 Responsibilities 42
5.5 Environmental and Social Management Plan 43
5.5.1 Objectives of the ESMP 44
5.5.2 Scope of the ESMP 44
5.6 Guidelines for conducting Disaster and Climate Risk Assessments 47
5.6.1 Phase 1 Preliminary Hazard Screening 48
5.6.2 Phase 2: Qualitative Risk Assessment 48
5.6.3 Phase 3: Quantitative Risk Assessment 49
5.7 Guidelines for Conducting a Critical Habitat Assessment and Biodiversity Action Plan (BAP) 50
5.8 Stakeholder Engagement Plan and Public Events Outline 51
5.9 Environmental and Social Technical Specifications (ESTS) 51
5.10 Grievance Redress Mechanism 52
5.11 Inspections and Reporting 52
5.11.1 WASA compliance report to the IDB 52
5.11.2 Inspections and Audits 52

6 REFERENCES 53

7 APPENDICES 54

Appendix 1: Environmental and Social Assessment Checklist 54
Appendix 2: Environmental and Social Analysis Guidelines 58
Appendix 3: Environmental and Social Management Plan Guidelines 61
Appendix 4: Indicative Index of the Environmental and Social Management Plan (ESMPc) at the Construction Level and Guidelines for Minimum ESMPc 172
Appendix 5: Grievance Redress Mechanism 195
Appendix 6: Public Events Outline 202
Appendix 7: Code of Conduct 203
Appendix 8: Minimum Contents of a Disaster Risk Management Plan (DRMP) 207

LIST OF FIGURES

Figure 2-1: Benefits of the Program TT-L1071 19
Figure 5-1: Program's general environmental and social management workflow for the ESMF 34
Figure 5-2: Disaster and Climate Risk Assessment Methodology 47

LIST OF TABLES

Table 4-1: Environmental and Social Performance Standards appliable from IDB's Environmental and Social Policy Framework 29
Table 5-1: Project Category and Requirements 39
Table 5-2: Environmental and Social Responsibilities for the program TT-L1071 42
Table 5-3: Non-conformities and Corrective Action Plan Register and Template 53
Table 7-1: General Project Data 54
Table 7-2: Eligibility Criteria Checklist 55
Table 7-3: Determination of Project Category 56
Table 7-4: Screening Checklist against Environmental and Social Performance Standards 57

ACRONYMS AND ABBREVIATIONS

CCLIP	Conditional Credit Line for Investment Projects
CEC	Certificate of Environmental Clearance
EMA	Environmental Management Authority
ESA	Environmental and Social Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESPF	Environmental and Social Policy Framework
ESPS	Environmental and Social Performance Standards
IDB	Inter American Development Bank
IMGD	Imperial Million Gallons per Day
MPU	Ministry of Public Utilities
PLC	Programmable Logic Controller
SCADA	Supervisory Control and Data Acquisition
SESA	Strategic Environmental and Social Assessment
WASA	Water and Sewerage Authority
WHO	World Health Organisation
WRA	Water Resources Agency
WTP	Water Treatment Plan

EXECUTIVE SUMMARY

An Environmental and Social Management Framework (ESMF) has been prepared to guide the identification, assessment, and management of environmental and social risks and impacts associated with the Trinidad and Tobago National Water Sector Transformation Program Phase 2 (TT-L1071), financed by the Inter-American Development Bank (IDB) and implemented by the Water and Sewerage Authority (WASA). The Framework applies specifically to program interventions that are not part of the representative sample of projects for which detailed Environmental and Social Assessments (ESAs) have already been undertaken and establishes a standardized approach to ensure that all future investments under the program are implemented in a manner consistent with national regulatory requirements and international best practice. These other projects (priority 2 interventions) are outlined below.

Component 1

1. Rehabilitation of the Navet Water Treatment Plant, Low Reservoir and High Reservoir
2. Construction of Desalination Plant in Morne Diablo (3 IMGD)
3. Construction of Desalination Plant in Charlotteville Tobago (0.5 IMGD)

Component 2

1. Installation of 9km of 400mm (16") Ductile Iron Pipeline from Hillsborough Water Treatment Facility to Mason Hall (Replacement of existing 12" 300mm (12") high leakage main)
2. Performance Based Co-Management Contract for Consultancy and Implementation of Non-Revenue Water Reduction / Universal Metering in selected areas of Trinidad.
3. Installation of approximately 21.2 Km of 8"-24" DI Pipelines for the interconnection of the Desalination Plants to supply zones for Moruga (24") and Charlotteville (8") Desalination plants.

The objective of the ESMF is the ensure that projects financed under TT-L1071 comply with national regulations and IDB requirements, avoid significant environmental and social harm, and incorporate appropriate mitigation and management measures before implementation begins.

The overarching objective of the program (TT-L1071) is to improve the efficiency, quality, sustainability, and resilience of potable water supply services and strengthen water security in Trinidad and Tobago. This builds upon the achievements and lessons of Phase 1 of the National Water Sector Transformation Program (TT-L1055), which addressed critical deficiencies in water service delivery, including intermittent supply, high levels of non-revenue water, and ageing infrastructure. Despite previous investments, structural challenges persist, including inadequate storage capacity, inefficient water treatment processes, and significant system losses, with non-revenue water estimated at up to 40–60% of production. Phase 2 represents a scaled and integrated response to

these challenges, with a strong focus on long-term sustainability, institutional strengthening, and modernization of infrastructure.

The program, valued at approximately US$235 million, comprises three principal components. The first component focuses on water service improvement and infrastructure upgrades, including the construction and rehabilitation of water treatment plants, desalination facilities, and associated infrastructure to stabilize and enhance water supply. The second component targets network optimization and water loss reduction through pipeline rehabilitation, leak detection, and system-wide efficiency measures aimed at reducing non-revenue water and improving distribution performance. The third component is dedicated to capacity building and strengthening regulatory and governance frameworks, with emphasis on improving operational efficiency, advancing Integrated Water Resources Management (IWRM), and reinforcing institutional oversight.

The program is expected to deliver substantial benefits at both the national and community levels. It will improve the reliability, continuity, and quality of potable water supply for approximately 89,000 residents, while enhancing operational and financial sustainability within WASA. Institutional benefits include improved planning, governance, and regulatory oversight, as well as the adoption of modern technologies and management practices to improve system performance. At a broader level, the program is expected to reduce the demand–supply gap, improve resilience to climate variability, and contribute to the development of a more efficient and sustainable national water sector.

While the program offers significant benefits, it also entails a range of environmental and social risks typical of large-scale infrastructure investments. These include potential impacts on air and water quality, soil stability, biodiversity, and community well-being during construction and operation, as well as risks associated with land acquisition, occupational health and safety, and community health and safety. In addition, Trinidad and Tobago is exposed to multiple natural hazards, including flooding, landslides, hurricanes, droughts, and seismic activity, all of which are expected to be exacerbated by climate change. These factors underscore the importance of integrating disaster risk management and climate resilience considerations into project planning and design.

The ESMF Workflow Process

To address these risks, the ESMF establishes a comprehensive and structured approach to environmental and social management across the entire project cycle, from screening and design through construction, operation, and decommissioning. The Framework is aligned with the IDB Environmental and Social Policy Framework and its ten Environmental and Social Performance Standards (ESPS), as well as the legislative and regulatory framework of Trinidad and Tobago. It provides detailed guidance on project screening and categorization, eligibility criteria, risk assessment methodologies, and the preparation of site-specific Environmental and Social Management Plans (ESMPs) and other required instruments. Importantly, projects classified as having significant, irreversible, or large-scale impacts (Category A) are deemed ineligible for financing under the program, ensuring that only manageable and mitigable risks are undertaken.

The ESMF Workflow process is outlined below

Step 1: Site-Specific Project Review:

Each project intervention and sub-project is first examined in the context of its specific location. Consideration is given to the characteristics of the site, surrounding environmental and social conditions, and any sensitive receptors that may be affected. This ensures that local issues are identified at an early stage.

Step 2: Screening Against IDB Environmental and Social Performance Standards (ESPS):

The project is then assessed against the ten Environmental and Social Performance Standards of the IDB. The screening determines which standards apply and whether additional studies, management plans, or mitigation measures are required. Particular attention is given to issues such as labour and working conditions, pollution prevention, community health and safety, biodiversity conservation, land acquisition, gender equality, and stakeholder engagement.

Step 3: Screening Against Eligibility Criteria:

Projects are evaluated to determine their environmental and social risk category (A, B, or C). The classification considers:

1. The type, location, sensitivity, and scale of the project.
2. The nature and magnitude of potential environmental and social impacts.
3. Climate change and natural hazard risks.
4. WASA's capacity and commitment to manage environmental and social risks.

Projects classified as Category A, meaning those with potentially significant adverse environmental or social impacts or major implications for natural resources, are not eligible for financing under the program.

Step 4: Screening Against WASA Environmental Policies:

The project is reviewed against WASA's environmental management requirements and procedures to ensure consistency with the Authority's environmental commitments and operational standards.

Key Eligibility Considerations

The screening process also evaluates whether a project triggers specific conditions that could affect eligibility or require additional safeguards:

Issue	Screening Requirement
Involuntary Resettlement	Requires a Resettlement Action Plan (RAP) or Livelihood Restoration Plan if displacement occurs.
Indigenous Peoples	Requires Free, Prior and Informed Consent (FPIC) and an Indigenous Peoples Plan where impacts are identified.
Irreversible Adverse Impacts	Projects with significant irreversible impacts may be deemed ineligible.

Critical Habitats	Projects must demonstrate no significant biodiversity loss, complete a Critical Habitat Assessment, and prepare a Biodiversity Action Plan where necessary.
Natural Habitats	Must demonstrate no viable alternatives, stakeholder consultation, mitigation according to the mitigation hierarchy, and achievement of no net loss (or preferably net gain) of biodiversity.

Exclusion List Screening

Projects are also checked against the IDB exclusion list. Activities that are illegal, environmentally harmful, inconsistent with biodiversity protection, involve prohibited substances, military activities, tobacco, gambling, asbestos, radioactive materials, coal mining, or upstream oil and gas development are not eligible for financing.

Screening Outcomes:

The screening process determines the following next steps and provides guidelines to completing these actions.

1. Whether the project is eligible for financing.
2. The environmental and social risk category of the project.
3. The need for Environmental and Social Assessments (ESA) including Disaster and Climate Risk Assessments
4. The need for Environmental and Social Management Plans (ESMPs).
5. Whether specialized plans are required, such as:
    a. Biodiversity Action Plans (BAPs)
    b. Resettlement Action Plans (RAPs)
    c. Livelihood Restoration Plans
    d. Stakeholder Engagement Plans (SEPs)
    e. Disaster Risk Management Plans (DRMPs)
    f. Gender and Labour Management Plans.

The ESMF further defines the institutional arrangements required to ensure effective implementation. The Ministry of Public Utilities serve as the executing agency with primary responsibility for environmental and social management, supported by contractors, independent consultants, and oversight from the IDB. The Framework requires the establishment and operation of an Environmental and Social Management System (ESMS) to ensure continuous monitoring, reporting, and adaptive management. Contractors are required to prepare construction-level ESMPs and comply with environmental and social technical specifications embedded within contractual documents, while regulatory compliance is enforced through mechanisms such as the Certificate of Environmental Clearance issued by the Environmental Management Authority.

A key feature of the Framework is its emphasis on stakeholder engagement, transparency, and social inclusion. All relevant projects will require meaningful consultation with affected communities and stakeholders, supported by a Stakeholder Engagement Plan and a Grievance Redress Mechanism

designed to ensure that concerns are addressed promptly and effectively. The Framework also incorporates specific provisions to promote equitable access to project benefits, including gender equality, local employment opportunities, and the protection of vulnerable groups, thereby enhancing the social sustainability of program interventions.

In addition, the ESMF integrates robust procedures for biodiversity conservation, including requirements for Critical Habitat Assessments and Biodiversity Action Plans where necessary, ensuring that project activities avoid or minimize impacts on ecologically sensitive areas and, where applicable, achieve no net loss in biodiversity or net gains in biodiversity values for critical habitats. The Framework also incorporates detailed guidance on pollution prevention, resource efficiency, occupational health and safety, and community protection, ensuring a comprehensive and precautionary approach to risk management.

The ESMF provides guidance on the development of the all the various management plans that can be applicable to any of the priority 2 interventions to govern construction, operation and decommissioning project activities. The plans include:

Construction Phase

1) Water Quality Monitoring/Management Plan
2) Air Quality and Dust Control Plan
3) Noise and Vibration Management Plan
4) Brine and Marine Management Plan
5) Soil Erosion and Drainage Management Plan
6) Waste Management Plan (including hazardous materials)
7) Hazardous Materials Handling Management Plan
8) Biodiversity Management Plan (including aquatic and coastal habitat management; invasive species management)
9) Disaster Risk Management Plan
10) Emergency Management Plan
11) Local Employment and Gender Inclusion Management Plan (LEGIMP)
12) Worker Health and Safety Management Plan (OHS and labour management)
13) Worker Behaviour and Anti-Harassment Plan
14) Community Health and Safety Management Plan
15) Traffic and Road Safety Management Plan
16) Security Management Plan
17) Cultural Heritage Management Plan (Chance Finds Procedures)
18) Livelihood Restoration Framework (framework approach to a LRP)
19) Involuntary Resettlement Framework (framework approach to a RAP)
20) Land Acquisition Plan
21) Livelihood Protection Plan
22) Stakeholder Engagement Plan, including public consultation events outline
23) Grievance Redress Mechanisms (GRMs).

Operation Phase

1) Water Quality Monitoring/Management Plan
2) Waste Management Plan (including hazardous materials)
3) Hazardous Materials Handling Management Plan
4) Disaster Risk Management Plan
5) Emergency Management Plan
6) Worker Health and Safety Management Plan (OHS and labour management)
7) Worker Behaviour and Anti-Harassment Plan
8) Community Health and Safety Management Plan
9) Stakeholder Engagement Plan, including public consultation events outline
10) Grievance Redress Mechanisms (GRMs).

Decommissioning Phase

1. Decommissioning Plan
2. Waste Management Plan
3. Hazardous Materials Handling Management Plan
4. Worker Health and Safety
5. Disaster Risk Management Plan
6. Emergency Response Plan

In conclusion, the Environmental and Social Management Framework provides a robust, policy-aligned, and operationally practical tool for ensuring that all investments under the National Water Sector Transformation Program Phase 2 are implemented in a manner that safeguards environmental and social sustainability. By establishing clear procedures, responsibilities, and safeguards, the Framework ensures compliance with national regulations and international standards while facilitating the timely and efficient implementation of critical water infrastructure. The program represents a strategic national investment that will significantly strengthen water security, enhance service delivery, and support sustainable socio-economic development, with environmental and social risks that are well understood and effectively manageable within the proposed framework.

1 INTRODUCTION

This Environmental and Social Management Framework (ESMF) has been prepared to guide the environmental and social due diligence for the works under the National Water Sector Transformation Program, Phase 2, that do not form part of the Program's representative sample of projects. These works are to be undertaken by the Water and Sewerage Authority (WASA) with funding support from the Inter-American Development Bank (IDB). This ESMF has been guided by IDB's Environmental and Social Policy Framework and the Environmental and Social Performance Standards (ESPS 1-10). It provides the analytical foundation to identify, predict, and evaluate the potential environmental and social risks and impacts associated with the design, construction, and operation of the various works under the project and provides guidance at a high-level to properly screen project activities and recommended development guidelines to mitigate and minimize potential risks and impacts during project implementation. This ESMF also takes into consideration the national regulatory requirements of the Republic of Trinidad and Tobago which also need to be met prior to and throughout project implementation.

This ESMF was prepared based on the definition of the measures to mitigate the environmental and social impacts and risks identified in the Environmental and Social Analysis of the projects of the Program sample – representative projects of the Multiple Works Program. The overall objective of the program is to improve the efficiency, quality, sustainability, and resilience of potable water supply service and water security in Trinidad and Tobago.

Although the risks, impacts and appropriate mitigation measures identified in the various Environmental and Social Analyses (ESAs) correspond only to the projects in the sample, they are representative of the Program as a whole and, therefore, applicable to other projects to be financed under the operation TT-L1071.

The ESMF also includes the institutional arrangements for the implementation of mitigation measures, and the mechanism for monitoring and supervision of the expected results.

1.1 Objectives

The program objectives are to improve operational and financial sustainability of WASA, reduce non-revenue water through leak detection and pipeline rehabilitation, expand access to potable water in unserved or underserved areas and strengthen governance and regulatory frameworks to enhance oversight and accountability.

The specific objectives of this Environmental and Social Management Framework (ESMF) are outlined below.

1. To provide a methodology and a set of procedures to ensure the socio-environmental sustainability of the projects outside of the sample financed under the Program. The

procedures set out govern all phases of the projects beginning with scoping and design, followed by construction, commissioning, operation, decommissioning, closure and, where applicable, post-closure.

2. To provide guidelines for compliance with applicable national and international environmental and social legislation. Critical to this is the IDB's ESPS and relevant Environmental Management Authority (EMA) requirements for the Certificate of Environmental Clearance (CEC).
3. To establish the guidelines to comply with the IDB Environmental and Social Policy Framework, ensuring that the project contributes to sustainable water sector development while avoiding or minimising adverse impacts on communities and ecosystems.

1.2 Scope

This Framework must be applied by the executing agency, the Water and Sewerage Authority (WASA), the Ministry of Public Utilities serving an oversight role, and its contractors, who are integral in project implementation, in order to ensure social and environmental sustainability in the design and execution of the projects to be financed by operation TT-L1071, which are not part of the program's representative sample.

The Framework will also guide compliance with national environmental legislation and the Environmental and Social Performance Standards of the Inter-American Development Bank applicable to the program.

2 Program Description

This section presents a description of the National Water Sector Transformation Program Phase 2 (TT-L1071), including objectives, components, and costs.

2.1 Background and Justification

2.1.1 Phase 1: National Water Sector Transformation Program (TT-L1055)

In previous years, the National Water Sector Transformation Program (TT-L1055) for Trinidad and Tobago was approved with an aim to enhance the efficiency, reliability, and quality of potable water services. The project was launched because potable water is not supplied to all households in Trinidad and Tobago on a 24/7 basis; only 53% of customers receive water on a 24/7 basis in the wet season and 31% in the dry season (Water and Sanitation Division of the IDB, 2020). There is also a high-rate of non-revenue water (NRW) lost through leaks, inefficient operations of water treatment plants, and metering and billing issues. NRW is as high as 40-50% and in some cases estimated at 60% of total water produced. The lack of infrastructure is some areas limits the ability to take advantage of abundant water resources to meet dry season demand due to WASA's lack of storage capacity and the aging infrastructure and bottlenecks in the network inhibits the transmission of water from water rich areas to water scarce areas.

With the compounding issues and growing population, the Trinidad and Tobago successfully launched and received funding from the Inter-American Development Bank (IDB) through a Conditional Credit Line for Investment Projects (CCLIP) to address some of these major issues. The first operation focused on the North-Western region of Trinidad, including Diego Martin, San Juan/Laventille, and Port of Spain.

The first operation comprised three components:

- Component 1. Water Stabilization and Improvement: (US$44 Million)
- Component 2. Network Optimization: (US$31 Million)
- Component 3. Support for Water Sector Transformation Plan: (US$2.74 Million)

In compliance with IDB safeguards, an Environmental and Social Assessment (ESA) and supporting instruments were prepared, including an Environmental and Social Management Plan (ESMP), Strategic Environmental and Social Assessment (SESA), and Environmental and Social Management Framework (ESMF). Funding was granted for this first loan operation.

2.1.2 Phase 2: National Water Sector Transformation Program (TT-L1071)

This current programme represents Phase 2, which is the second loan operation under the CCLIP TT-O0007 – Trinidad and Tobago National Water Sector Transformation Program with funding of US$235M. This operation is designed to strengthen and build on the objectives and achievements of the first operation, TT-L1055. The General objective of the second operation is to improve the efficiency, quality, sustainability and resilience of potable water supply service and water security in Trinidad and Tobago. This second loan aims to build on the efforts of the first loan operation to ensure long-term sustainability and efficiency in the water sector. The overall objective of the second loan is

to continue improving water services in Trinidad and Tobago. The specific objectives of the second operation are to: (i) enhance the operational efficiency and financial sustainability of WASA; (ii) reduce non-revenue water through targeted investments in pipeline rehabilitation and leak detection; (iii) expand access to potable water services, especially to underserved communities in T&T; and (iv) strengthen regulatory frameworks and governance in the sector.

2.2 Components of this Programme (TT-L1071)

As outlined in the IDB preparation documents provided, the programme components associated with this loan include:

- **Component 1: Water Service Improvement and Infrastructure Upgrade (US$121.2 Million):** This component aims to enhance water service reliability and efficiency through critical infrastructure upgrades. It will finance the development of a comprehensive program to prevent further service decline throughout the country and to ensure access to water, sanitation and hygiene to unserved and underserved households.
- **Component 2: Network Optimisation and Water Loss Reduction (US$42.3 Million):** This component is designed to improve network efficiency by reducing water losses and optimising system performance. Under this component, water loss reduction and monitoring will be improved through (i) the replacement of aged and fragile transmission and distribution networks to reduce water loss and high leakages; and (ii) Continuation of efforts to reduce Non-Revenue Water across Trinidad and Tobago to increase WASA operational efficiency and reliability.
- **Component 3: Capacity Building and Strengthening Regulatory Frameworks (US$18.2 Million):** This component focuses on institutional strengthening to improve the governance, sustainability, and operational efficiency of the water sector. It includes capacity-building programs to modernise utility management practices. Additionally, it will support aspects of regulatory improvements towards strengthening oversight, promoting accountability, and ensuring long-term sector sustainability. In addition, this component will finance the institutional improvements to support the implementation of Integrated Water Resources Management (IWRM) strategies.

The program also involves project management & other costs amounting to US$42.3 Million. This involves, construction supervision; administrative support and staffing; audits, monitoring, evaluation, and communication; implementation of Environmental and Social Management Plan (ESMP); and works cost escalation.

2.3 Costs and Financing

The total cost of the Project is US$235M. This financing will be provided entirely by the Inter-American Development Bank (IDB) loan. The project represents the second individual operation for the National Water Sector Transformation.

The program is structured as a Multiple Works Operations (MWO) investment loan, which will finance a series of similar projects across the country. This approach is chosen because the type of interventions targeted by this program (a wide geographical spread of small-scale investments).

The program will finance several project interventions, the sample projects of the intervention for which specific Environmental and Social Analysis (ESAs) are being conducted are listed as follows:

Component 1

1. Construction of a new 2 IMGD WTP at Hillsborough Reservoir to replace existing facility
2. Construction of new 7 IMGD WTP at Matura
3. Construction of Desalination Plant in Mayaro (3 IMGD)
4. Refurbishment and upgrade of Siparia Water Treatment Plant to treatment capacity of 2 IMGD
5. Refurbishment of Acono WTP to 1 IMGD

Component 2

6. Installation of 14.7 km of 200 mm (8”) PVC along Naparima Mayaro Road from Torrib Tabaquite to San Pedro Roads.
7. Installation of 3.3 km of 200 mm (8") PVC and 600 mm (24") D.I dual pipeline from St Margarets junction along SMR to PETROTRIN compound
8. Installation of 9km of 400mm (16") Ductile Iron Pipeline from Hillsborough Water Treatment Facility to Mason Hall (Replacement of existing 12" 300mm (12") high leakage main).
9. Installation of 2.2 Km of 16" DI Pipelines for the interconnection of the Mayaro Desalination Plant to supply zones
10. Installation of approximately 21.2 Km of 8"-24" DI Pipelines for the interconnection of the Desalination Plants to supply zones for Moruga (24") and Charlotteville (8") Desalination plants

All the interventions that are being funded under Phase 2 TT-L1071 will likely require the conduct of specific ESA’s and ESMPs at some point before implementation. Guidance for the development of these specific ESAs and ESMPs are presented in this ESMF. Other project interventions that will take place under the program are outlined below.

Component 1

1. Rehabilitation of the Navet Water Treatment Plant, Low Reservoir and High Reservoir
2. Construction of Desalination Plant in Morne Diablo (3 IMGD)
3. Construction of Desalination Plant in Charlotteville Tobago (0.5 IMGD)

Component 2

1. Installation of 9km of 400mm (16") Ductile Iron Pipeline from Hillsborough Water Treatment Facility to Mason Hall (Replacement of existing 12" 300mm (12") high leakage main)
2. Performance Based Co-Management Contract for Consultancy and Implementation of Non-Revenue Water Reduction / Universal Metering in selected areas of Trinidad.

2.4 Implementation Arrangements

The Executing Agency for this loan operation will be the Ministry of Public Utilities (MPU), which will be responsible for the overall administration of the proposed operation, including:

- planning, monitoring, evaluating, and supervising the operation;
- conducting procurement for works, goods, consulting and non-consulting services;
- handling loan disbursement requests and maintaining financial records;
- managing work supervision and inspection;
- overseeing environmental and social management;
- preparing documents such as the multiyear execution plan, annual work plan, procurement plan, semi-annual progress reports, audited financial statements, midterm evaluation, and final evaluation;
- monitoring works and service contracts;
- supervising environmental and social aspects; and
- liaising with the IDB.

It is recommended that the Ministry of Public Utilities (MPU) undertake an oversight role for this project, wherein they can play a critical role in monitoring, evaluation and reporting (MER) to the IDB.

Essentially, WASA will implement a project-specific Environmental and Social Management System (ESMS) in accordance with ESPS 1, covering the full lifecycle of the project interventions. The ESMS is a dynamic and continuous process organised around four cycles: Plan, Execute, Verify, and Act.

WASA has been the sub-executing or executing agency for several IDB-funded operations. The most recent of which was the Trinidad and Tobago National Water Sector Transformation Program (TT-L1055) for $80Mn, currently under execution. Previous projects executed by WASA include the Multi-Phase Wastewater Rehabilitation Program (TT-L1026) for $246 Mn and the WASA Modernisation and Wastewater Infrastructure Rehabilitation Program (TT-L1018) for $50 Mn. WASA was a key partner in the recently executed Technical Cooperation, Support for the Preparation of Trinidad and Tobago Water Supply Improvement Program (TT-T1108) for US$800,000.

WASA will also need to procure contractors to execute the construction activities at the various locations who will need to be guided by the Environmental and Social Management Plans (ESMPs) being prepared under this program for each of the sample projects. This is important to ensure that the appropriate environmental and social measures are properly implemented to ensure project sustainability.

Given the extent of WASA's responsibilities for the program, the recommended integration of the MPU in MER activities will improve the efficiency of project execution for this program and serve as an improvement to the institutional structure of the program.

2.5 Project Rationale

Trinidad and Tobago has faced persistent challenges in meeting potable water demand due to ageing infrastructure, seasonal variability, and over-reliance on a few Water Treatment Plants (WTP), which already operate under stress. Several facilities have limited treatment processes, resulting in inconsistent water quality, particularly during high turbidity periods in the rainy season. In other cases, yields have decreased in a number of well fields as well as surface water sources and alternative solutions have to be sought to meet the growing demand for potable water.

The various project interventions align with national priorities to ensure equitable access to safe water, enhance climate resilience, and modernise critical infrastructure in keeping with the national water security agenda and WASA's mandate to supply safe, adequate and potable water service. It also advances the National Development Strategy objectives related to universal access to clean water and sustainable infrastructure development.

2.6 Expected Benefits

The program will benefit the people of Trinidad and Tobago by improving the supply, reliability and quality of potable water, which is a basic need. Specifically, the project will benefit 89,303 residents across Trinidad and Tobago's supply zones. Communities will receive improved water service quality, continuity, and access. Direct service improvements include:

- Stabilization of water supply through network optimization
- Enhanced continuity of service for households
- Reduced water losses via replacement of aging pipelines
- Improved efficiency and quality of water distribution

The institutional beneficiaries for the project will include: WASA, Ministry of Public Utilities (MPU), and the Water Resources Agency (WRA). Institutional strengthening activities include:

- WASA: Better planning and reduction capacity in water loss (technical, operational, commercial)
- MPU: Strengthened regulatory oversight and governance
- WRA: Enhanced capacity for Integrated Water Resources Management (IWRM)

The overall project benefits are illustrated in the Figure 2-1 below.

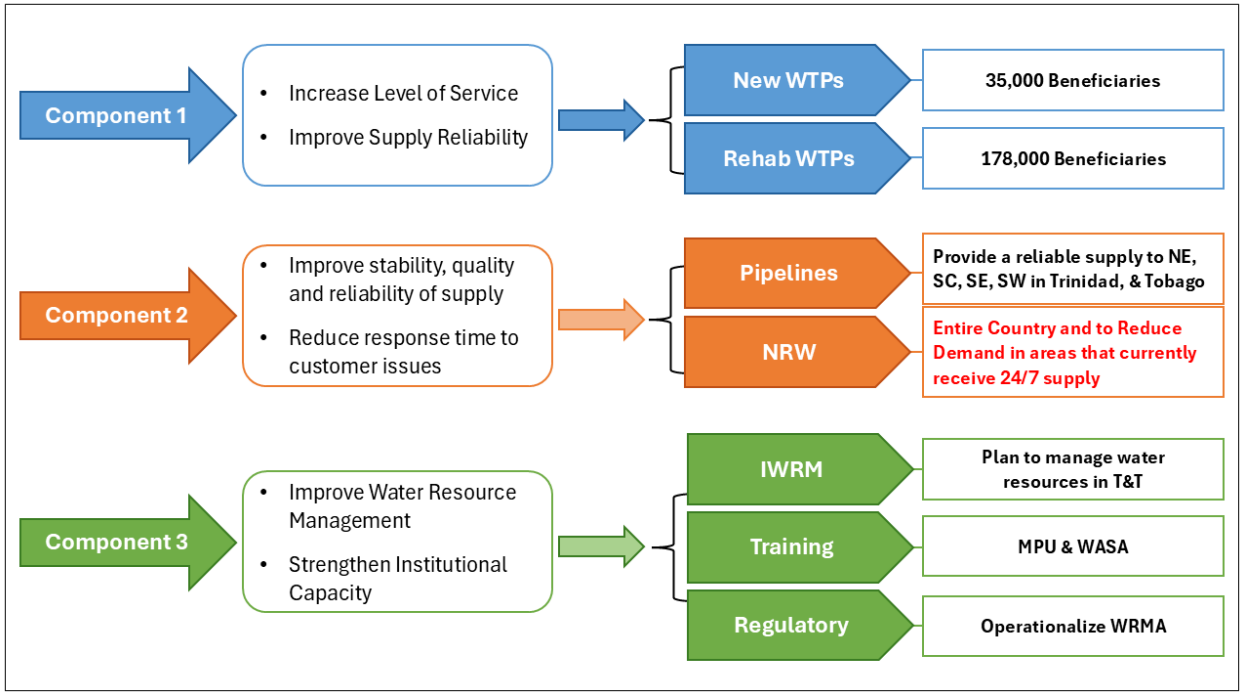

Figure 2-1: Benefits of the Program TT-L1071

2.6.1 Project Results

The strategic goal of the program is to advance Trinidad and Tobago's water sector transformation and build on the achievements of the first loan. The key improvements expected are as follows:

- Enhanced service reliability, operational efficiency, and financial sustainability
- More citizens receiving 24/3 water supply and continuous 24/7 supply in targeted areas
- Significant reduction in Non-Revenue Water (NRW) through pipeline replacements and leak detection
- Improved network efficiency using advanced pressure management and real-time monitoring systems
- Institutional & Technological Strengthening
- Modernized utility management practices at WASA
- Improved sustainability strategies
- Investments in digital infrastructure for faster response times and better service monitoring

The long-term Impacts expected are anticipated to begin within 2 to 3 years of the completion of the project feasibility and detailed engineering design of the various project interventions. This timeline is based on the estimated project schedules provided by WASA for the sample interventions. The long-term impacts include:

- A reduction in demand/supply gap by optimizing water distribution
- A resilient, efficient, and sustainable national water sector

- Lasting benefits for both consumers and the environment

These long-term impacts will be measured as a part of the monitoring and evaluation over the overall programme under the environmental and social management system (ESMS). This ESMS is a separate document prepared for the program and includes Indicators for monitoring and measurement.

3 Legal and Institutional Framework

This section presents the legal, sectoral, and institutional framework of the water sector transformation program (TT-L1071), considering environmental and social areas relevant to the program. The section begins with a description of the relevant laws, regulations and policies of the Republic Trinidad and Tobago, followed by relevant international conventions, which are also applicable to the Program.

3.1 Legislative Framework

Laws and Regulations	Relevance
Environmental Management Act (2000)	Individual projects will need to obtain a Certificate of Environmental Clearance (CEC). All activities must comply with EMA regulations and prescribed mitigation measures.
Certificate of Environmental Clearance (Designated Activities) Order (2001) (as amended)	The construction of new WTP, intake works, desalination plants, refurbishments works and pipeline are all designated activities requiring CEC approval and environmental assessment.
Environmentally Sensitive Areas Rules (2001)	Provides the framework for designation, protection, and management of Environmentally Sensitive Areas under the Environmental Management Act; establishes requirements for conservation, sustainable use, and controlled activities within ESAs. The project interventions that are located within or close to a nationally designated sensitive area will need to carefully consider implementation activities. Activities must avoid negative impacts on sensitive ecosystems, comply with site-specific management requirements, and implement strict mitigation to avoid habitat disturbance and biodiversity loss.
Environmentally Sensitive Species Rules (2001)	Establishes procedures for listing and protecting Environmentally Sensitive Species; prohibits harm, trade, or disturbance to listed species and their habitats; provides penalties for breaches. Several ESS may be associated with the various project locations. The conduct of specific ESAs can identify where these may be relevant. Construction and operation must avoid disturbance, implement biodiversity monitoring, and follow EMA protocols for chance finds or species protection.
Conservation of Wildlife Act (1958), including amendments	Regulates the protection, hunting, capture, and trade of wildlife; prescribes offences and penalties for harming protected fauna. Guides management of wildlife during construction, especially the need to avoid disturbance to forest fauna, nesting species, and protected wildlife in any Environmentally Sensitive Area forests. Also informs fauna relocation procedures and habitat protection.
Water and Sewerage Act (Chapter 54:40)	WASA is both the executing agency and operator. WASA would need to acquire the approval from WRA for abstraction of any surface water or ground water sources to allow for the

Laws and Regulations	Relevance
	sustainability of the resource. Water quality monitoring and compliance with EMA standards would also be necessary.
Water Works and Water Conservation Act (1944)	Provides regulatory control for the abstraction, treatment, distribution, and conservation of water resources; empowers the Government and WASA to manage waterworks, water rights, and water conservation measures. This is central to project operation, as it governs raw water abstraction from rivers or aquifers, pipeline operation, and water treatment processes. Ensures compliance with national water rights, water protection regulations, and operational standards for potable water systems.
Public Health Ordinance (Chapter 12 No. 4)	Requires that potable water meet national public health standards; aligns with WHO Guidelines for Drinking Water Quality.
Occupational Safety and Health Act (OSHA) (2004)	Applies to all phases of construction and operation of all projects; requires health and safety management plans, PPE, and worker training.
Town and Country Planning Act (Ch. 35:01)	Planning permission must be obtained for the construction of the new WTP and associated infrastructure as well as the desalination plants.
State Lands Act (Ch. 57:01)	Some of the projects may involve state land; Access in these cases will require land acquisition.
Forests Act (Ch. 66:01) and Forests (Prohibited Areas) Order	For those interventions located near environmentally sensitive areas, ESAs, ESMPS, permits and buffers are required to prevent encroachment.
National Environmental Policy (2018)	Guides environmental decision-making for the WTP and supports integration of sustainable and climate-resilient practices.
Environmental Impact Assessment (EIA) Guidelines (EMA, 2023)	The ESAs prepared under this loan program were prepared according to the IDB ESPS and may require additional details to be consistent with EMA's current EIA guidelines. For example, EMA will require more detailed coastal assessment to inform any CEC being granted.
Noise Pollution Control Rules (2001)	Construction activities must comply with daytime and nighttime noise limits and mitigation measures.
Air Pollution Rules (2014)	Applies to dust and exhaust emissions during construction; requires dust suppression and monitoring.
Waste Management Rules (2014)	Applies to the management of sludge, construction debris, and chemical waste at the WTP sites and pipeline installation areas.
Water Pollution Rules (2001)	Requires permits and controls for sludge handling and effluent discharge from backwash and process water.
Fisheries Act (Ch. 67:51)	Protects aquatic habitats downstream of the rivers being utilized in specific project interventions; require maintenance of environmental flows.
Planning and Facilitation of Development Act (2014)	Ensures planning permissions are harmonised with EMA environmental clearances.
National Climate Change Policy (2020)	Guides the climate-resilient design and operation of the WTP and pipeline systems.

Laws and Regulations	Relevance
National Forest Policy (2011)	Provides the strategic framework for conservation, sustainable management, and restoration of forest ecosystems. Projects near forested areas; may require adherence to sustainable land clearing, forest conservation, and replanting obligations.
National Integrated Water Resources Management Policy (2005)	Establishes principles for the coordinated development, management, and protection of water resources to ensure sustainability. It can help to guide sustainable abstraction from rivers and aquifers, watershed protection, and long-term water security considerations in WTP operations.
Integrated Solid Waste Management Policy (2014)	Defines national strategy for solid waste reduction, recycling, disposal, and hazardous waste control. Relevance: Informs waste handling during construction (excavated material, packaging, hazardous waste), and operational waste such as sludge and chemicals.
National Trust of Trinidad and Tobago (Act No. 31 of 1999)	The National Trust of Trinidad and Tobago (Act No. 31 of 1999) provides guidance for "preserving, maintaining, repairing and servicing or, arranging for the preservation of property of interest other than land and where such property of interest comprises buildings, augmenting the amenities of such buildings and their surroundings"; and under this Act the National Trust advises the Government on the conservation and preservation of property of interest, where assets of cultural significance is applicable.
Draft National Policy on Gender and Development 2009	The National Policy on Gender and Development provides a framework for including gender perspectives in all activities of government and civil society, thereby promoting the full and equal participation of men and women in the development process. Therefore, the activities of WASA as the project is rolled out should be gender sensitive, accounting fully for and integrating the needs and interests of women and men into project activities.
National Policy on Persons with Disabilities	This National Policy is necessary and critical to fully recognise the rights of all persons with disabilities and to support the organisations that serve them. The execution of this project, the impact assessment and the recommendations provided should take into consideration fair treatment and the inclusion of persons with disabilities.
Labor Law Compliance Guide for Trinidad and Tobago	This outlines the obligations of employers and contractors to guidelines for written employment contracts, job description, salary and adherence to minimum wage rules, benefits, working hours, and conditions for termination. Labor laws in Trinidad and Tobago distinguish between employees and contractors, which need to be adhered to by WASA and its contractors.
The Children (Amendment) Act, 2000	This act speaks to the definition of a 'child' as a person under the age of eighteen years and protects against child labour.
The Equal Opportunity Act, No. 69 of 2000	The Act prohibits discrimination of persons on grounds of sex, race, ethnicity, origin, marital status, religion or disability. Part III of the Act deals specifically with employment discrimination. In respect of persons seeking employment, an employer is

Laws and Regulations	Relevance
	prohibited from refusing or omitting to offer employment to a person based on the above grounds of discrimination.
LAND ACQUISITION ACT (CHAPTER 58:01)	Establishes the legal framework for compulsory acquisition of land for public purposes, including procedures for acquisition, valuation, compensation and dispute resolution.
REAL PROPERTY ACT (CHAPTER 56:02)	Provides the framework for land registration and ownership under the Torrens system. Relevant for verification of land ownership, registered interests and property rights.
MUNICIPAL CORPORATIONS ACT (ACT 21 OF 1990)	Establishes the powers and responsibilities of Municipal Corporations with respect to local infrastructure, roads, drains, public spaces and community services. Relevant where Project activities interface with assets managed by local authorities.

3.2 International Conventions and Commitments

Agreement	Relevance
CONVENTION ON BIOLOGICAL DIVERSITY (CBD)	Obligates conservation of biological diversity, sustainable use and benefit sharing. The project must consider all sensitive habitats within the sphere of influence.
CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES (CITES)	Relevant for protection of listed fauna (if encountered) and for controls on any trade/transfer of protected species or specimens found during works or salvage. Requires notifying authorities and following national wildlife regulations.
CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES (CMS / BONN CONVENTION)	Many birds, sea turtles and other migratory fauna occurring regionally (including leatherbacks and migratory birds) are covered by CMS commitments, relevant to protecting migratory routes, nesting beaches and reducing disturbance.
UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC) & PARIS AGREEMENT	Requires national climate adaptation and mitigation efforts. Relevant to the project's climate-resilient design (flooding, drought), greenhouse gas considerations (generators, energy-efficiency) and inclusion of climate risk considerations.
ROTTERDAM CONVENTION (PRIOR INFORMED CONSENT FOR CERTAIN HAZARDOUS CHEMICALS AND PESTICIDES)	Relevant to import, use and information exchange for pesticides and industrial chemicals. Informs selection, procurement and safe use of chemicals, and national controls on restricted substances.
STOCKHOLM CONVENTION (PERSISTENT ORGANIC POLLUTANTS - POPS)	Relevant where project activities might mobilize or generate POPs (e.g., contaminated soils) and for safe handling/disposal of POP-containing wastes; supports strict hazardous-waste controls and monitoring.

4 IDB Environmental and Social Policy Framework

This section evaluates the relevance of the project components to the Inter-American Development Bank's (IDB) Environmental and Social Performance Standards (ESPS), ensuring compliance with the IDB's Environmental and Social Policy Framework (ESPF).

4.1.1 ESPS 1 – Assessment and Management of Environmental and Social Risks and Impacts

This standard underpins the entire environmental and social due diligence process. The project involves civil works and infrastructure development for new WTPs, desalination plants, refurbishments of plants and pipeline installations. In accordance with ESPS 1, an Environmental and Social Assessment (ESA) should be prepared to systematically identify, assess, and manage potential environmental and social risks throughout the project lifecycle. The standard requires the preparation and implementation of an Environmental and Social Management System (ESMS) and associated management plans (ESMPs). This program will operate under the representative projects of the Multiple Works Operations and as such all projects as a part of the sample will have an ESA and ESMP prepared. The programme also involves the preparation of this ESMF and ESMS to guide project implementation. The environmental and social screening and risk classification process that will be used to evaluate individuals projects is presented in Section 5 of this document.

ESPS 1 also ensures meaningful stakeholder engagement, including consultation with local communities, relevant government agencies, and civil society organizations which are active in the study area. Overall, this standard ensures that environmental and social considerations are integrated into project design, construction, and operation, and that the project achieves compliance with both national legislation and IDB requirements.

4.1.2 ESPS 2 – Labor and Working Conditions

This standard is important as the project will employ construction workers, skilled technicians, and contractors, and will establish temporary work sites and camps during the construction phase. ESPS 2 ensures that the project provides safe, fair, and equitable working conditions consistent with local laws and international labour conventions.

The standard requires the implementation of worker protection measures, including a Worker Health and Safety Management Plan; codes of conduct prohibiting discrimination, child labour, and harassment; grievance mechanisms for workers to report concerns; and measures for emergency preparedness and accident prevention. It will be a required of the project Contractor to develop the labour management procedures that comply with Trinidad and Tobago labour laws and international safeguard requirements prior to construction as a part of their construction environmental and social management plan.

Given the project's proximity to rural communities, ESPS 2 also underscores the need for local hiring and fair labour practices, supporting socioeconomic development in the region. The relevance of this standard is therefore high, as it ensures that the project maintains a safe, productive, and compliant work environment while minimising labour-related risks.

4.1.3 ESPS 3 – Resource Efficiency and Pollution Prevention

ESPS 3 focuses on the project's potential to generate pollutants and waste streams during construction and operation, including wastewater, sludge, chemical residues, noise, and dust. The construction phase will involve the use of heavy equipment, fuel, and lubricants, while the operational phase will use chemicals such as chlorine for water treatment.

In line with this standard, the project is required to implement measures to prevent and control pollution from construction and operational activities; promote efficient use of energy, water, and raw materials; manage solid and hazardous waste in accordance with local regulations; monitor and mitigate air, water, and noise emissions to remain within national and international guidelines; and integrate climate change resilience measures in design and operation. This standard is relevant as the project directly interacts with surface water systems and environmentally sensitive ecosystems that require protection from contamination. As a part of the development of the Construction Environmental and Social Management Plan (ESMPc), indicators will be developed by the Contractor for resource efficiency and pollution prevention measures to be monitored and implemented during both construction and operation. Appended to the ESMF are guidelines for the development of these management plans.

4.1.4 ESPS 4 – Community Health, Safety, and Security

This standard is relevant due to the project's interface with local communities in the surrounding areas of the project interventions. Construction activities may involve increased vehicular movement, noise, dust, and temporary access restrictions, which could affect nearby residents and road users. The presence of construction equipment and storage of hazardous substances also presents potential safety risks to surrounding populations. ESPS 4 requires the project to identify and manage risks to community health and safety throughout all phases; develop and implement relevant plans; design infrastructure to withstand climate-related hazards such as flooding and hurricanes; maintain emergency preparedness and response systems that include community notification protocols; and ensure that security personnel, if engaged, act in a manner consistent with human rights principles. Guidelines for the development of the community health and safety management plan and a security management plan are provided in the Appendix. Steps that will be taken to manage community health and safety risks during construction, including traffic management, pedestrian safety, and access disruptions will need to be developed by the Contractor in their ESMPc following the examples and guidelines provided in this ESMF. The security management plan will outline the various management measures to manage on-site security during construction.

Given that some of the project interventions are located in various areas including ecotourism hubs, residential areas, commercial and industrial areas, and are close to public roads, ESPS 4 ensures that project safety measures extend beyond the site boundary and protect community well-being.

4.1.5 ESPS 5 – Land Acquisition and Involuntary Resettlement

ESPS 5 aims to protect people and communities who may lose land, homes, access to resources, or sources of income because of a development project. The standard recognizes that land acquisition and resettlement can cause hardship, poverty, and social disruption if not managed properly. Therefore, projects must avoid resettlement whenever possible and ensure that affected people are treated fairly and are not left worse off because of the project.

ESPS 5 applies when a project causes physical displacement (people must move from their homes) and/or economic displacement (people lose income, livelihoods, land, or access to resources).

The standard is triggered when projects involve:

- Compulsory acquisition of land through expropriation or other legal procedures.
- Negotiated land purchases where failure to agree could result in expropriation.
- Restrictions on access to natural resources such as forests, fisheries, grazing land, water resources, or communal lands.
- Eviction of people occupying land, even if they do not have formal legal ownership rights.
- Loss of access to economic activities, including impacts on informal businesses, vendors, fishers, farmers, or other livelihood activities.

The project interventions should be screened for this applicability using the steps provided in Section 4. The list of project interventions under this loan do not identify involuntary settlement as applicable. However, land acquisition will be appliable in some instances where the land is not belonging to WASA of the government to facilitate access or purchase. In these cases, the necessary steps need to be undertaken to ensure the appropriate due diligence is executed.

The standard requires projects to first avoid or minimize displacement, compensate affected people at full replacement value, restore livelihoods, provide relocation assistance where needed, consult affected communities throughout the process, protect vulnerable groups, prohibit forced evictions, establish grievance mechanisms, and monitor outcomes until affected people have had their living standards and livelihoods restored or improved.

If any project intervention requires resettlement, a Resettlement Action Plan will be required. If land acquisition is applicable a Land Acquisition Plan needs to be prepared.

4.1.6 ESPS 6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources

This standard is essential because some of the project interventions are located near to Environmental Sensitive Areas and adjacent riparian habitats that support diverse flora and fauna, including endemic and migratory species along rivers. Importantly, rivers flow to the sea and any negative impacts on river systems can negatively impact downstream activities and the mouths of the rivers where these exit on beaches. ESPS 6 requires that the project avoid and minimise impacts on natural habitats and critical biodiversity areas; implement relevant biodiversity plans; establish no-go zones and buffer areas around sensitive habitats; conduct fauna rescue and relocation where

necessary; and achieve no net loss of biodiversity through restoration and monitoring programs. These measures are presented in the Biodiversity Management Plan, which form a part of the Contractor's ESMPc, an example and guidelines are provided in Appendix 3 and 4. This standard has significant relevance given the project's environmental setting and underscores the need for ongoing ecological monitoring and collaboration with the EMA, Forestry Division, and local conservation groups.

Critical habitats are areas with high biodiversity values and according to ESPS 6, borrowers cannot implement any project activities in these areas unless there is I) no other viable alternatives within the region; II) the project does not lead to measurable adverse impacts on the biodiversity values; III) the project does not lead to a net reduction in the global and/or national/regional population of any Critically Endangered or Endangered species over a reasonable period of time; IV) a robust, appropriately designed, and long-term biodiversity monitoring and evaluation program is integrated into the Borrower's management program; and V) the project has complied with all due process required under national or international law for obtaining project approval in, or adjacent to, areas of critical habitat. Once these criteria are met for projects in critical habitats, a mitigation strategy needs to be outlined in a Biodiversity Action Plan to achieve net gains of those biodiversity values for which the critical habitat was designated.

4.1.7 ESPS 7 – Indigenous Peoples

ESPS 7 protects Indigenous Peoples and other traditional peoples recognized under national law who may be affected by a project. The standard recognizes that Indigenous Peoples often have strong cultural, spiritual, and economic connections to their lands, territories, natural resources, traditions, and way of life. Projects must respect their rights, avoid harming their communities, and ensure they can participate meaningfully in decisions that affect them. There are no known indigenous peoples in any of the project intervention areas. This standard is considered not applicable for this program.

4.1.8 ESPS 8 – Cultural Heritage

ESPS 8 focuses on protecting cultural heritage that may be affected by a project. Cultural heritage includes physical items such as archaeological sites, historical buildings, monuments, sacred sites, artifacts, and cultural landscapes, as well as intangible heritage such as traditional knowledge, practices, languages, rituals, and customs. The standard aims to preserve cultural heritage for current and future generations and ensure that communities benefit fairly when their cultural heritage is used commercially. There are no known cultural heritage assets or practices linked to the location of the project interventions. This standard is considered not applicable for this program.

4.1.9 ESPS 9 – Gender Equality

ESPS 9 focuses on gender equality and ensuring that development projects do not create, worsen, or reinforce gender inequalities. The standard recognizes that women, girls, and people of diverse sexual orientations and gender identities may experience project impacts differently and may face greater barriers to accessing project benefits or recovering from negative impacts. The goal is to

identify and address gender-based risks so that all people can participate in and benefit from the project fairly.

The project needs to consider gender equality measures to be integrated in the ESMP for the specific interventions. The measures for these are provided in the guidelines presented in Appendix 3 in the Local Employment and Gender Inclusion Management Plan (LEGIMP). This standard is relevant once people are involved and as such measure to ensure there is gender equality during the stakeholder engagement process, the hiring process, construction and operational working conditions and the grievance mechanisms, will be applicable to all project interventions. Importantly, the development of a code of conduct that will apply to all contractors and workers is necessary under this loan.

4.1.10 ESPS 10 – Stakeholder Engagement and Information Disclosure

This standard is important as the project directly affects local communities, including residents, businesses, and conservation groups in all the project intervention locations. Effective stakeholder engagement is essential for building trust, managing expectations, and addressing concerns related to construction impacts, employment opportunities, and water supply reliability. ESPS 10 requires the development and implementation of a Stakeholder Engagement Plan (SEP), which includes identification and mapping of stakeholders and vulnerable groups; public disclosure of project information in accessible formats and languages; meaningful consultation prior to and during project implementation; and a functioning Grievance Redress Mechanism (GRM) accessible to all affected persons. Grievances if any will be prioritized and addressed during the course of the project according to the guidelines set out in Appendix 5.

This standard ensures continuous two-way communication between WASA, contractors, local communities, and institutional stakeholders, strengthening project transparency and social acceptance.

4.2 Summary of Compliance with IDB Environmental and Social Policy Framework

Table 4-1 below summarise the applicability of each Environmental and Social Performance Standards (ESPS) during the preparation and execution of the projects to be financed under the Program. This is to ensure that compliance is addressed in all applicable cases.

Table 4-1: Environmental and Social Performance Standards appliable from IDB's Environmental and Social Policy Framework

IDB Environmental and Social Performance Standards (ESPS)	Applies (YES/NO)
ESPS 1 – Assessment and Management of Environmental and Social Risks and Impacts The program is being implemented by WASA and its contractors. To meet the requirements of ESPS 1, this Environmental and Social Management Framework (ESMF) includes the environmental and social management	YES

IDB Environmental and Social Performance Standards (ESPS)	Applies (YES/NO)
considerations to address these risks and impacts of projects to be financed under the Program, in accordance with the requirements established in the ESPF, and applicable ESPS.	
ESPS 2 - Labor and Working Conditions Labour and working conditions is applicable in all the project interventions beginning with scoping and design, followed by construction, commissioning, operation, decommissioning, closure and, where applicable, post-closure. The ESMPs for the sample projects include management actions to facilitate fair and healthy labour and working conditions. There are sub-plans specifically geared towards addressing local employment and gender inclusion, worker health and safety and worker behaviour and anti-harassment. The ESMS of the Program also incorporates requirements for ensuring compliance with ESPS 2 related to worker health and safety and working conditions.	YES
ESPS 3 - Resource Efficiency and Pollution Prevention The project sample will include interventions in various environments across Trinidad and Tobago. During the construction phase for WTP as well as pipeline works are localized and temporary and include potentially negative impacts such as: nuisances due to noise, vibrations, dust, emissions, traffic, presence of heavy machinery, businesses and/or public infrastructure, solid and sludge waste pollutions, risk of accidents, and possible conflicts between construction personnel and the communities are all likely if not managed. During the operation phase, negative impacts may likely relate to the management of water resources, such as well yield and surface water abstractions yields given climate change projections for variability and a drying trend. Desalination plants can be impacted by coastal erosion and storm surges, and flooding and earthquake events can result is damage to infrastructure during operations. The ESMPs for the specific sample project present management actions to address these risks and potential impacts identified.	YES
ESPS 4 - Community Health, Safety, and Security The risks and impacts on the people affected by the projects in the Program were assessed for the project sample in the ESAs. The use of hazardous materials, exposure to diseases, and presence of foreign workers were analyzed. The corresponding management plans were proposed in the SMP. During the execution of the works there are risks for the security of the community related	YES

IDB Environmental and Social Performance Standards (ESPS)	Applies (YES/NO)
to the circulation of vehicles and machinery; exposure to hazardous materials; and presence of security personnel, among others. The overall disaster risk assessment of the Program has been identified as moderate due to natural hazard exposure to flooding and earthquakes, which can cause damage to infrastructure, property, and endanger workers. The ESAs included a simplified qualitative risk analysis for the works in the Program and the ESMPs outline a Disaster Risk Management Plan to address the risks and potential impacts identified.	
ESPS 5 - Land Acquisition and Involuntary Resettlement The project interventions may involve involuntary resettlement of people or livelihoods, even though this is typically avoided in WASA projects. In the case of involuntary resettlement of people, the development of a resettlement framework and action will need to be development to ensure that the requirements of the IDB's Environmental and Social Policy Framework (ESPF) are met. In the case of livelihood displacement, a livelihood restoration plan would need to be developed to facilitate adherence to the Bank's ESPF. Based on the review of the project intervention, acquisition of land from private landowners or state lands may apply to facilitate easement of pipelines as well s the construction of new water treatment plants or desalination plants. ESMPs specific to these areas will need to provide management action to prevent or minimize potentially negative impacts and land acquisition clear procedures in compliance with Bank's policies.	YES
ESPS 6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources Some of the project intervention may be near environmentally sensitive areas and as such biodiversity considerations should be outlined in the ESMPs for the projects outside of the sample. This includes reference to the protection of ecologically sensitive species, where relevant. Further, the removal of trees will be minimal to the footprint of the development and access that is necessary. Impacts and risks on biodiversity areas are considered and Management measures have been included. Non endemic or invasive species will not b utilised where revegetation activities are needed.	YES
ESPS 7 - Indigenous Peoples This ESPS is not applicable to the loan program.	NO
ESPS 8 - Cultural Heritage This ESPS is not deemed applicable to the loan program. However, a chance find procedure has been included in this Framework and will need to be	NO

IDB Environmental and Social Performance Standards (ESPS)	Applies (YES/NO)
included in the ESMPs for project interventions to facilitate the identification and protection of any asset of cultural or archaeological significance, that may be recovered during the construction period.	
ESPS 9 – Gender Equality The presence of contractors in the communities during the execution of the projects can be at risk of gender inequality, gender-based discrimination, unequal access to project benefits, sexual and Gender-Based Violence (SGBV), risks that disproportionately affect women, girls, or sexual and gender minorities, and barriers to participation in project activities and decision-making. To mitigate this possible risk the projects the ESMPs will elaborate on implement actions to reduce identified gender risks, such as: gender-sensitive project design, awareness and training programs, develop and implement codes of conduct for workers and contractors, establish safe working and community environments and develop measures to improve participation of women and vulnerable groups.	YES
ESMPS 10 - Stakeholder Engagement and Information Disclosure The ESA/ESMP of the sample projects includes a Stakeholder Engagement Plan (SEP), which includes the mapping of stakeholders, community relations processes, the complaints, and claims response mechanism, as well as what is pertinent to the consultation process. This SEP will be updated for future projects to be financed under the Program and include a Consultation event outline. During the preparation of the Program, a consultation process will be developed to present to affected and interested groups: the project, the environmental and social impacts, the mitigation measures, and the grievance response mechanism. The consultations will be conducted by WASA, and their results will be considered in the preparation of the final environmental and social documents of the operation.	YES

5 Environmental and Social Management Framework

The correct design and environmental and social management of the projects to be financed under the National Water Sector Transformation Program Phase 2 (TT-L1071) is directly related to the mitigation of impacts beginning with scoping and design, followed by construction, commissioning, operation, decommissioning, closure and, where applicable, post-closure.

The incorporation of environmental, social, and occupational health and safety aspects throughout the project cycle is fundamental the adequate management of project risks and the potential impacts identified.

5.1 Introduction

To comply with the applicable regulations presented in Section 3 and the IDB ESPS in Section 4 the development of an environmental and social management system (ESMS) and an ESMF are essential. The ESMS and ESMF defines the eligible projects, procedures, roles, and activities required according to the phase of the project cycle. The ESMS and ESMF procedures govern all infrastructure works included in the Program.

The IDB is committed to the objective of “do no harm” to people and the environment in all of its funded projects. As a result, IDB will only support projects that meet the ESPF’s standards in a manner and timeframe that is acceptable to the IDB. The environmental and social risk management integrated into this framework seeks to protects people and the environment and is harmonized with international best practices.

Figure 5-1 presents the Program's general environmental and social management workflow for the framework.

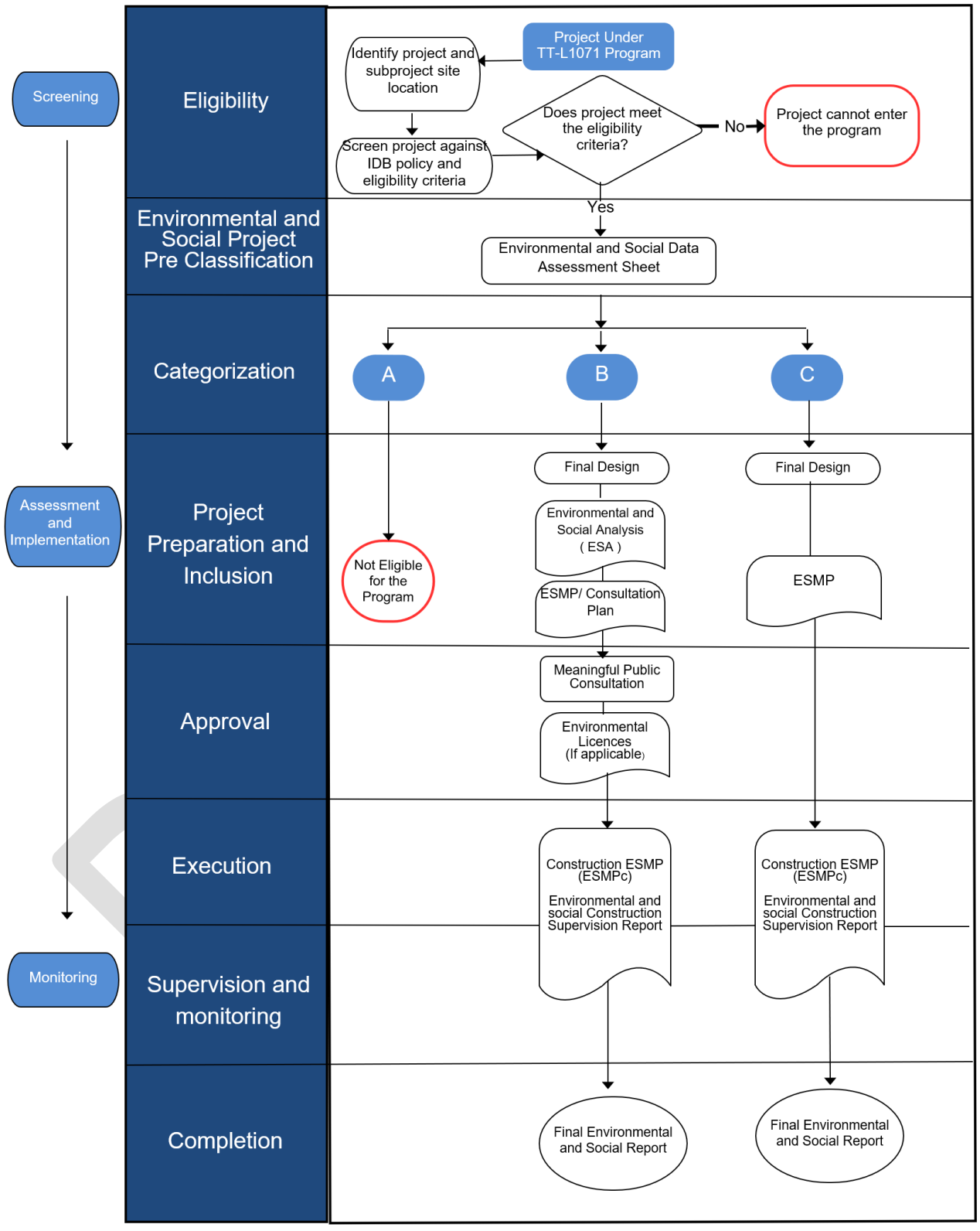

Figure 5-1: Program's general environmental and social management workflow for the ESMF

The workflow of the framework can be summarised in three general phases, project screening, assessment and implementation, and monitoring. The steps in each phase are presented in Sections 5.2 to 5.5 below.

5.2 Project Screening

All project activities should be reviewed and screened for environmental and social risk prior to implementation.

Step 1 – Each project intervention and sub-project of the intervention is examined within the context of the site location.

Step 2 – The project is screened against the IDB ESPF

Step 3 – The project is the screened against the eligibility criteria

Step 4 – The project is then screened against WASA's environmental policy.

Screening will determine the need for further assessments as well as the development of the applicable set of management plans to guide the specific activity. The environmental and social management and guidelines can be developed and applied to more than one applicable activity, but it is necessary to refine/revise necessary steps or roles and responsibilities to be fit for purpose. The screening procedure should assist this process. All interventions under this program TT-L1071 will be screened once then have been properly developed using these procedures.

5.2.1 Eligibility Criteria for Projects

When examining the projects their impact classification needs to be determined as: A, B, or C. In determining the appropriate impact classification, key aspects include the examination of the project type, location, sensitivity, and scale of the project; the nature and magnitude of the potential environmental and social risks and impacts, including those related to natural hazards and climate change; and the commitment, capacity, and track record of the Borrower to manage the environmental and social impacts in a manner consistent with the ESPSs.

Projects that have impacts and risks corresponding to Category A, according to the IDB's Environmental and Social Policy Framework, will be considered ineligible to be financed with Program resources.

A project is defined as Category A if it has "the potential to cause significant negative environmental impacts and associated social effects" or has " significant implications that affect natural resources". In order to determine this, the project description and locational features will need to be examined against IDB's policy framework to determine the likely risks to arise from the project. The evaluator can utilise the screening checklist in Appendix 1 to assist with this process. The project should also be reviewed against the guidelines presented in Section 5.2.2 and 5.2.3 below to determine the project category.

5.2.2 Evaluation with IDB's Environmental and Social Performance Standards

Based on the evaluation of the project against the IDB ESPS, the following circumstances can result in ineligibility of a project for an IDB loan.

1. Involuntary Resettlement: projects that generate physical resettlement of people will require that the borrower prepare a Resettlement Action Plan (RAP) or Livelihood Restoration Plan as a condition of financing. Physical displacement needs to be explicitly anticipated and managed under a project intervention in order for the project to be financed.
2. Indigenous Peoples or Ethnic Minorities: projects that cause differentiated negative impacts (direct, indirect, or cumulative) to indigenous populations or their individual or collective rights or property will require Free, Prior and Informed Consent (FPIC) and the development of a specific Indigenous Peoples Plan when differentiated impacts are identified as management requirement in order for such a project to be financed.
3. Irreversible adverse impacts: projects that require a significant period of time to reverse the negative effects. In this context, significant must be analysed and determined in each case.
4. Critical Habitats: Projects that involve significant conversion or degradation of critical habitats, measurable adverse or moderate impacts on the biodiversity values or ecological functions for which the critical habitat was designated, a net reduction in the population of any globally, nationally, or regionally threatened or endangered species, or that cannot demonstrate compliance with the requirements of ESPS 6 for activities in critical habitat, shall be considered ineligible for financing.

   Projects located within, or likely to affect, critical habitats may only be eligible for financing if the project complies with the following requirements:

   - No other viable alternatives within the region exist for development of the project on modified or natural habitats that are not critical.
   - A Critical Habitat Assessment determines that the project's activities do not lead to measurable adverse or moderate impacts on those biodiversity values for which the critical habitat was designated or on the ecological processes supporting those biodiversity values and there is no net reduction in the global and/or national/regional population of any Critically Endangered or Endangered species over a reasonable period of time.The project has complied with all due process required under national or international law for obtaining project approval in, or adjacent to, areas of critical habitat.
   - A Biodiversity Action Plan is designed to achieve net gains of those biodiversity values for which the critical habitat was designated.
5. Natural Habitats: Projects involving significant conversion or degradation of natural habitats shall only be eligible where it can be demonstrated that: (i) No other viable

alternatives within the region exist for development of the project on modified habitat; (ii) Consultation has established the views of stakeholders, including the project-affected people, with respect to the extent of conversion and degradation (iii) Any conversion or degradation is mitigated according to the mitigation hierarchy and (iv) mitigation measures will be designed to achieve no net loss, and where feasible a net gain in biodiversity.

5.2.3 Exclusion List

According to Annex 1 of the IDB's Environment and Social Policy Framework projects that have at least one of the following characteristics will not be eligible for financing with Program funds:

1. Activities that are illegal under host country laws, regulations or ratified international conventions and agreements, or subject to international phase out or bans.
    - Polychlorinated biphenyl compounds (PCBs).
    - Pharmaceuticals, pesticides/herbicides, and other hazardous substances subject to phase-out or bans at the international level.
    - Persistent organic pollutants (POPs).
    - Substances harmful to the ozone layer subject to international phase-out.
    - Wild flora and fauna or related products regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.
    - Transboundary trade in waste or waste products, except for non-hazardous waste destined for recycling.
    - Lead paint or coatings in the construction of structures and roads.
2. Activities that are illegal under host country laws, regulations, or ratified international conventions and agreements relating to the protection of biodiversity resources or cultural heritage.
3. Activities that, although consistent with a country's legal and/or regulatory framework, may generate particularly significant adverse impacts on people and/or the environment. E.g.
    - Weapons, ammunitions, and other military goods/technology.
    - Tobacco
    - Gambling, casinos, and equivalent enterprises.
    - Radioactive materials.
    - Unbonded asbestos fibers or asbestos containing products.
    - Drift net fishing in the marine environment using nets in excess of 2.5 km in length.
4. Activities that are inconsistent with the IDB's commitments to address the challenges of climate change and promote environmental and social sustainability. E.g.
    - Thermal coal mining or coal-fired power generation and associated facilities.
    - Upstream oil exploration and development projects.
    - Upstream gas exploration and development projects.

- Under exceptional circumstances and on a case-by-case basis, consideration will be given to financing upstream gas infrastructure where there is a clear benefit in terms of energy access for the poor and where GHG emissions are minimized, projects are consistent with national goals on climate change, and risks of stranded assets are properly analysed.

In recognition that desalination plants are high energy users, greenhouse gas emissions may be calculated using IPCC default emission factors for natural gas combustion for the national electricity grid for carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

Greenhouse Gas	Natural Gas Emissions Factors (kg/TJ)
CO_2	56,100.00
CH_4	1.00
N_2O	0.10

The electricity consumption for operating the desalination plant may be estimated from the manufacturer specifications in MWh and then monitored using energy monitoring equipment or the electric utility bill for the facility. Using a natural gas-based grid emission factor from the IPCC and the system heat rate in kJ/kWh for Trinidad and Tobago Electricity Company (T&TEC), the estimated weekly emissions may be computed.

5.3 Project Assessment and Implementation

5.3.1 Role of the IDB

The IDB will monitor and ensure the implementation of the environmental and social management system by WASA. This includes the evaluation and No Objection of the Environmental and Social Analyses (for category B projects) prior to the works Bidding, of the ESMP guidelines, and of the compliance with the Environmental and Social Action Plan. For Category C projects, compliance with the ESMP developed will be monitored.

IDB will also evaluate the ESMP and ESMPc implementation, and level of compliance with the environmental and social mitigation measures established within. This is to monitor for compliance with the Environmental and Social Policy Framework during the project execution. This includes the review and issuing of a 'no-objection' for environmental and social compliance reports submitted to WASA, as well as conduct environmental and social monitoring missions. This monitoring is performed at all phases of the project cycle.

5.3.2 Environment and Social Management of the Project Cycle

5.3.2.1 Design

Environmental and social management is essential for scoping and design, construction, commissioning, operation, decommissioning, closure and, where applicable, post-closure of all project interventions.

During the interventions design phase, WASA, as the Program's Executing Agency (EA), will develop the final project design for each work to be financed under the Program.

WASA will then apply the "**Environmental and Social Assessment Checklist"** presented in Appendix 1 of this ESMF. This Checklist is a quick environmental and social categorization of the project (screening), detailing the main impacts and mitigation measures to be applied, and determine any additional studies or plans that may be necessary to determine the socio-environmental eligibility of the project. Following the completion of the checklist, any project, for which significant risks are flagged that cannot be mitigated, avoided or minimised should be categorised as a Category A project. Table Table 5-1below should be used after the screening to categorise the project based on the screening results and the category defined.

According to the project category and identified impacts, the socio-environmental assessment requirements are detailed in Table 5-1.

Table 5-1: Project Category and Requirements

Project Category	Category Defined	Environmental and Social Management Instruments
Category A	Operations that can potentially cause significant negative environmental or social impacts or have profound implications affecting natural resources.	Not eligible
Category B	Operations that have the potential to cause mostly local and short-term negative environmental or social impacts and for which effective mitigation measures are known and readily available.	Environmental and Social Analysis Environmental and Social Management Plan Meaningful Public Consultation Plan and Meaningful Public Consultation Socio-Cultural Analysis (if applicable) Critical Habitat Assessment and Biodiversity Action Plan (if applicable) Resettlement Action Plan (if applicable) Livelihood Restoration Plan (if applicable)

Project Category	Category Defined	Environmental and Social Management Instruments
		Land Acquisition Plan (if applicable) Environmental and Social Technical Specifications in tender documents
Category C	Operations that can cause minimal or no negative environmental or social impacts.	Environmental and Social Management Plan Environmental and Social Technical Specifications in tender documents

After the assessment using the Checklist those projects that are classified as category B, will develop an Environmental and Social Analysis, as per the IDB's Environmental and Social Policy Framework and the regulatory requirements of the EMA and Water Resources Authority (WRA). The minimum contents required in an ESA are presented in Appendix 2.

WASA will be responsible for verifying that the proposed interventions comply with the Project's Operating Regulations. Category B projects also require the public consultations. WASA will plan and conduct the required public consultation as per the requirements of the IDB ESPF Environmental and Social Performance Standard 10, and the guidelines of the Stakeholder Engagement Plan.

WASA, through the IDB can engage an Independent Environmental and Social Consultant to prepare the ESA and supporting Environmental and Social Management Plan (ESMP) for each of the category B interventions and facilitate the public consultations required. The ESA must include a project specific Disaster Risk and Climate Change Analysis, following IDB's methodology.

The ESA, ESMP, and Meaningful Public Consultation Reports completed for the projects should be submitted for the Bank's No Objection prior to the start of the bidding process. They should also be published on WASA and IDB's website as a means to be accessible to the public. WASA will prepare the Bidding documents for works and those handed over to the contractors should incorporate the necessary environmental, social, and occupational health and safety clauses and requirements, both general and specific to the projects that arise from the environmental and social analysis and the development of the ESMP detailed. Periodic monitoring, evaluation and reporting are also essential during scoping and design, construction, commissioning, operation, decommissioning, closure and, where applicable, post-closure of all category B projects.

Category C projects will only require the development of an ESMP and a public consultation is not a requirement.

Bidding documents and those for the contract should include the following:

- Environmental and Social Technical Specifications.
- The minimum content of the Environmental and Social Management Plan to guide construction, with the explicit incorporation (in the bidding offers) of environmental and social management actions in the cost calculation.

Tender responses must have a budget that includes the cost of implementing and complying with the environmental, social, and occupational health and safety mitigation measures required by the project to ensure compliance with the IDB's ESMF and the requirements of the EMA and WRA.

5.3.2.2 Construction

Before the project can begin, WASA needs to ensure that the projects have all the licences and permits in place to start activities (Certificate of Environmental Clearance (CEC) from the EMA for the specific project intervention). This is especially important for the new water treatment plants, the desalination plant and the new pipeline installation. Furthermore, given the nature of this loan, WRA approvals are necessary to be obtained prior to any abstraction of water from wells or surface water systems. These abstraction approvals need to be guided by the necessary hydrological or hydrogeological assessment studies conducted during assessment and design.

Appropriate land acquisition will also be necessary to utilise private lands or state lands for project purposes, whether for development or for access to support pipeline installation. WASA's contractor will be responsible for implementing the activities in the Environmental and Social Management Plan (ESMP). Guidance for the development of an ESMP is presented in Appendix 3. The ESMP will need to be reflected in the Environmental and Social Technical Specifications of the Bidding documents.

The Contractor will be responsible for preparing and implementing the construction-level Environmental and Social Management Plan (ESMPc), providing the necessary means to implement the Programs formulated within its framework. Prior to project start-up, the Contractor shall submit to the EA for approval the ESMPc. This ESMPc shall contain, at a minimum, the programs and subprograms detailed in Appendix 4 of this ESMF, together with the specific recommendations arising from the project analysis, and as reflected in the Environmental and Social Technical Specifications of the Bidding documents. Appendix 4 presents the indicative constructive ESMPc index.

The Contractor must have an environmental and social representative and health and safety personnel, who will be responsible for implementing the ESMP during construction. Likewise, the contractor must comply and enforce compliance by operators and subcontractors with all the provisions contained in the Plan, national and local environmental legislation, and the IDB's Environmental and Social Policy Framework, during all stages of execution of the works. The Contractor will prepare monthly reports to WASA, detailing the actions and results of the ESMP implementation.

The incorporation of the ESMP in the technical specifications for the contractor inclusive of guidance for supervision, control and monitoring activities will be conducted by WASA. WASA will need to conduct inspection visits, prepare internal use reports for the Project, and determine and impose corrective measures based on the terms of the tender documentation.

The EMA may also conduct site inspections in accordance with the CEC issued by them for the specific project intervention.

At project construction closure, the Contractor must submit a Final Environmental and Social Report, which incorporates the information corresponding to the implementation of the ESMP, including records of implementation of plans and programs, and a report on compliance with the environmental and social indicators considered in the different stages of the project cycle.

5.3.2.3 Operation

During the operational phase, each WASA office will be responsible for the operation and maintenance of the infrastructure executed under the Program, in accordance with WASA's environmental policy.

5.4 Project Monitoring

5.4.1 Responsibilities

Table 5-2 summarizes the environmental and social management responsibilities of the entities involved in the different phases of the Program.

Table 5-2: Environmental and Social Responsibilities for the program TT-L1071

Project Phase	Activity	Responsibility	Monitoring	Oversight
Design	Grievance Redress Mechanism (for the duration of the Program)	WASA	MPU	IDB
	Final Project Design / Engineering Design	Independent Contractors	WASA	IDB
	Environmental and Social Assessment	Independent Consultants	WASA	IDB
	Public Consultation	WASA	MPU	IDB
	Preparation of E&S Technical Specifications for Bidding Documents	WASA	MPU	IDB
	Environmental Permits (when applicable)	WASA	MPU	MPU
Construction	ESMPc: Preparation and implementation	Contractors	WASA	IDB
	Environmental and Social compliance during construction	Contractor	WASA	IDB

Project Phase	Activity	Responsibility	Monitoring	Oversight
	Monthly E&S Progress Report	Contractor	WASA	MPU
	Semi-annual E&S Progress Reports	WASA		IDB
	Final E&S Report	Contractor	WASA	MPU
	Final E&S Report	WASA		IDB
Operation	Operation and maintenance of the new installed infrastructure	Each WASA plant	MPU	IDB (initial period of 3 years after work completion)
Decomissioning	Decommissioning of older water treatment plants being replaced will be application to some project interventions. The Decommissioning Plan developed in the ESMP and ESMPc should be implemented.	Contractor	WASA	MPU

5.5 Environmental and Social Management Plan

The Environmental and Social Management Plan (ESMP) developed under this program provides key guidelines necessary to manage the Project's environmental and social risks and impacts. Included in the ESMP are the:

- the various environmental and social plans or programs that will comply with the environmental, social and health and safety requirements that are necessary to carry out the activities of the project works, complying with the policies and regulations of both the IDB and the national government,
- institutional obligations and responsibilities for the elaboration and implementation of the required measures,
- a description of the environmental and social monitoring plan in the construction and operation stages of the project, identifying the expected results, the parameters to be measured, the places of measurement, the methods and tools to be used and the periods/frequency in which the measurements will be made, along with the responsible institutions,
- an implementation schedule of each of the proposed measures and defined responsibilities.

5.5.1 Objectives of the ESMP

The ESMP provides the framework for managing, monitoring, and mitigating all environmental and social risks and impacts associated with the design, construction, operation, and decommissioning all project interventions. The ESMP serves as the practical implementation tool of the mitigation measures identified through the Environmental and Social Assessment (ESA) process and ensures full compliance with both national regulatory requirements and the Inter-American Development Bank's Environmental and Social Policy Framework (ESPF).

The primary objectives of the ESMP are to:

1. Translate the ESA findings into actionable management measures by detailing specific mitigation, monitoring, and enhancement activities for each potential environmental or social risk identified.
2. Ensure compliance with relevant legislation and standards, including the Environmental Management Act (2000), the Certificate of Environmental Clearance (CEC) Rules (2001), and all applicable regulations of the Environmental Management Authority (EMA), as well as the IDB Environmental and Social Performance Standards.
3. Provide an operational framework for environmental and social risk management throughout all phases of the project, ensuring that mitigation commitments are systematically implemented and monitored.
4. Establish clear roles, responsibilities, and accountability mechanisms among the Water and Sewerage Authority (WASA), contractors, supervising engineers, and regulatory agencies, so that all environmental and social aspects are managed consistently and effectively.
5. Facilitate adaptive management and continuous improvement, allowing project managers and decision-makers to revise and strengthen management measures based on ongoing monitoring results, lessons learned, and stakeholder feedback.
6. Promote transparency and stakeholder engagement through proactive communication, disclosure of monitoring outcomes, and inclusion of affected communities and local authorities in the project's environmental and social oversight framework.
7. Ensure the protection of sensitive environmental receptors, and downstream habitats, by maintaining ecological integrity and minimizing adverse effects on biodiversity.
8. Maximize social benefits and community well-being, including employment generation, skill development, gender equality, and improvement of public health and water security across the project region.

5.5.2 Scope of the ESMP

The ESMP applies to all activities, facilities, and operations associated with all the project interventions and their supporting activities. Its scope covers the following key thematic areas:

1. Environmental Management – addressing impacts on air quality, noise, water quality, soil, biodiversity, landscape, and waste management through targeted mitigation and monitoring programs.
2. Social Management – encompassing worker hiring practices, labour management, community engagement, health and safety, worker behaviour, gender equity, and grievance handling mechanisms, ensuring that local communities benefit from the project while minimising social risks.
3. Health and Safety Management – ensuring safe working conditions for all employees and contractors, and safeguarding community health and safety throughout construction and operation.
4. Biodiversity Conservation – protecting sensitive terrestrial, riparian, and aquatic ecosystems, and ensuring compliance with IDB ESPS 6 on biodiversity conservation and sustainable management of living natural resources.
5. Pollution Prevention and Resource Efficiency – controlling emissions, discharges, and waste generation, and promoting efficient use of energy, water, and raw materials in line with ESPS 3.
6. Stakeholder Engagement and Grievance Management – ensuring continuous consultation and information disclosure to affected communities and other stakeholders, in accordance with ESPS 10.
7. Climate Resilience and Energy Efficiency – integrating climate adaptation measures, energy-efficient technologies, and resilient design standards to strengthen the long-term sustainability of the project.
8. Monitoring, Reporting, and Adaptive Management – establishing procedures for environmental and social performance tracking, periodic audits, and submission of monitoring reports to the EMA, IDB, and other relevant authorities.

The ESMP also defines the institutional arrangements for its implementation, including the designation of a WASA team to oversee compliance, supported by contracted environmental officers, independent monitoring consultants, and regulatory oversight by the EMA. The proposed indicative content index for the ESMP can be found in Appendix 3.

Furthermore, the ESMP incorporates a capacity-building component to enhance the technical competence of WASA staff and contractors in implementing the prescribed management plans, ensuring that all environmental and social obligations are effectively fulfilled. Guidelines for these plans are presented in Appendix 3.

Construction Phase

1) Water Quality Monitoring/Management Plan
2) Air Quality and Dust Control Plan
3) Noise and Vibration Management Plan

4) Brine and Marine Management Plan
5) Soil Erosion and Drainage Management Plan
6) Waste Management Plan (including hazardous materials)
7) Hazardous Materials Handling Management Plan
8) Biodiversity Management Plan (including aquatic and coastal habitat management; invasive species management)
9) Disaster Risk Management Plan
10) Emergency Management Plan
11) Local Employment and Gender Inclusion Management Plan (LEGIMP)
12) Worker Health and Safety Management Plan (OHS and labour management)
13) Worker Behaviour and Anti-Harassment Plan
14) Community Health and Safety Management Plan
15) Traffic and Road Safety Management Plan
16) Security Management Plan
17) Cultural Heritage Management Plan (Chance Finds Procedures)
18) Livelihood Restoration Framework (framework approach to a LRP)
19) Involuntary Resettlement Framework (framework approach to a RAP)
20) Land Acquisition Plan
21) Livelihood Protection Plan
22) Stakeholder Engagement Plan, including public consultation events outline
23) Grievance Redress Mechanisms (GRMs).

Operation Phase

1) Water Quality Monitoring/Management Plan
2) Waste Management Plan (including hazardous materials)
3) Hazardous Materials Handling Management Plan
4) Disaster Risk Management Plan
5) Emergency Management Plan
6) Worker Health and Safety Management Plan (OHS and labour management)
7) Worker Behaviour and Anti-Harassment Plan
8) Community Health and Safety Management Plan
9) Stakeholder Engagement Plan, including public consultation events outline
10) Grievance Redress Mechanisms (GRMs).

Decommissioning Phase

1. Decommissioning Plan
2. Waste Management Plan
3. Hazardous Materials Handling Management Plan
4. Worker Health and Safety

5. Disaster Risk Management Plan
6. Emergency Response Plan

5.6 Guidelines for conducting Disaster and Climate Risk Assessments

Project interventions need to assess disaster and climate risk using the IDB methodology as illustrated in Figure 5-2. This assessment is needed to ensure that projects remain safe, resilient, economically viable, and capable of achieving their intended objectives despite natural hazards and climate change impacts.

The methodology considers three key elements of risk as follows:

- **Hazard** – events such as floods, hurricanes, droughts, earthquakes, landslides, wildfires, and sea-level rise.
- **Exposure** – people, infrastructure, services, or assets located in hazard-prone areas.
- **Vulnerability** – how susceptible those people, assets, or systems are to damage or disruption.

Risk exists when all three elements occur together.

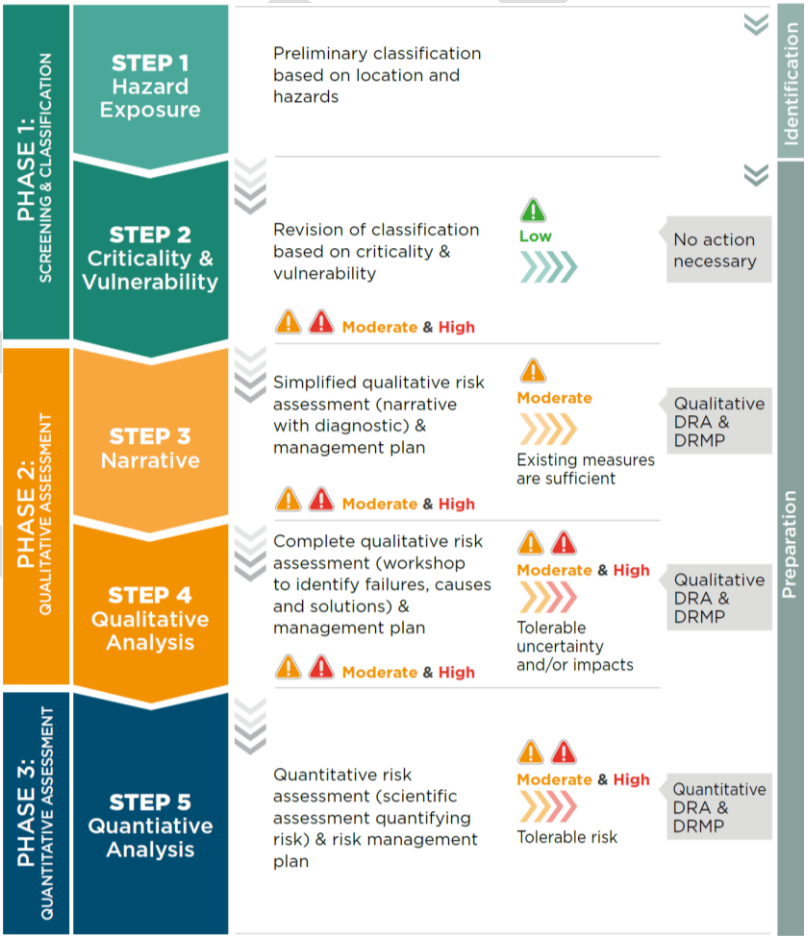

Figure 5-2: Disaster and Climate Risk Assessment Methodology

(Source: Barandiarán, M., Esquivel, M., Lacambra Ayuso, S., Suarez, G., & Zuloaga, D. (2019). Disaster and Climate Change Risk Assessment Methodology for IDB Projects: A Technical Reference Document for IDB Project Teams. https://doi.org/10.18235/0002041)

5.6.1 Phase 1 Preliminary Hazard Screening

The first phase of the methodology involved screening and classification, and it applies to all projects. The first step under this phase is preliminary hazard screening.

Step 1: Preliminary Hazard Screening

The project location is screened to identify natural hazards and climate-related threats that may affect it.

This includes assessing exposure to: flooding, hurricanes and storms, drought, landslides, earthquakes, wildfires, tsunamis, sea-level rise, heatwaves, and climate change projections. It involves the assessment and initial classification of a project as low risk, moderate risk and high risk.

The output for this screening is the initial disaster and climate risk classification.

Step 2: Review Criticality and Vulnerability

The second step involves the refinement of the preliminary classification by examining criticality. Criticality is how important the project is to society and the economy. Examples include hospitals, water supply systems, major highways and energy infrastructure.

After this vulnerability is assessment. Vulnerability is how likely the project is to be damaged if a hazard occurs. This may include the assessment of, for example, weak structures, poor design standards, sensitive environmental conditions and lack of redundancy or backup systems. This step helps determine the likely consequences if the project fails.

The output for this step is the final risk classification, which may be low risk, moderate risk or high risk. Projects classified as low risk generally require no further assessment. Moderate- and high-risk projects move to Phase 2.

5.6.2 Phase 2: Qualitative Risk Assessment

The second phase of the assessment applies to moderate- and high-risk projects. It involves step 3 and step 4 as presented below.

Step 3: Risk Narrative and Preliminary Risk Management Plan

Step 3 is the conduct of a simplified qualitative assessment. Available information is gathered on previous hazard studies, climate studies, geological investigations, hydrological assessments, existing risk assessments, design standards, emergency response arrangements and business continuity measures.

The assessment seeks answers to the following questions:

- What hazards threaten the project?
- Have these hazards already been studied?
- Has climate change been considered?
- What risk reduction measures are already included?
- What gaps remain?

The output for this assessment is a written risk narrative that describes identified hazards, summarizes existing studies, identifies current mitigation measures and highlights remaining risks and information gaps.

Some moderate-risk projects may stop at this stage if sufficient evidence shows risks are already adequately managed.

Step 4: Complete Qualitative Risk Assessment

Step 4 continues for higher-risk projects and includes a more detailed assessment. This typically involves workshops with Engineers, Sector specialists, Disaster risk experts, Climate experts and Local stakeholders.

This assessment identifies possible ways the project could fail, causes of failure, consequences of failure, impacts on communities, services, and the environment, and the potential risk reduction measures.

Methods for completion of these assessments include failure mode analysis, expert workshops, risk matrices and Delphi expert consultations.

The output for this assessment is a detailed qualitative risk assessment and a draft Disaster Risk Management Plan.

If risks appear significant enough to threaten project viability, the project moves to Phase 3.

5.6.3 Phase 3: Quantitative Risk Assessment

This phase involves the final step, step 5, which is a quantitative risk assessment.

Step 5: Quantitative Risk Assessment

This step is undertaken when qualitative analysis shows that more detailed investigation is required. The assessment uses scientific and engineering methods to estimate probability of hazard occurrence, potential damage, economic losses, service disruption, environmental impacts and potential for injuries and fatalities.

This assessment may use data from hazard modelling, flood modelling, earthquake analysis, vulnerability analysis, cost-benefit analysis, climate projections, scenario analysis and Robust Decision Making (RDM) approaches for uncertain future conditions.

The output from this step is a quantitative risk assessment and a final Disaster Risk Management Plan (DRMP).

The results are used to determine whether risks are acceptable and whether the project remains technically and economically viable. The minimum content to be included in a DRMP is presented in Appendix 8.

5.7 Guidelines for Conducting a Critical Habitat Assessment and Biodiversity Action Plan (BAP)

Under the IDB Environmental and Social Policy Framework (ESPF), a Critical Habitat Assessment (CHA) is required when a project may affect areas with high biodiversity value. Critical habitats include areas important for threatened, endemic, migratory, or congregatory species; unique or highly threatened ecosystems; key evolutionary processes; and legally protected or internationally recognized biodiversity areas.

Critical Habitat Assessment (CHA)

The purpose of a CHA is to determine whether critical habitat exists within the project's area of influence and whether project activities could affect the biodiversity values for which the habitat is important. The assessment should:

1. Use qualified biodiversity specialists and field-based investigations rather than relying only on online mapping tools. Many critical habitats are not formally mapped.
2. Identify and delineate critical habitats based on ecological characteristics and biodiversity importance, not simply on the project footprint.
3. Establish biodiversity baseline conditions, including species, habitats, ecological processes, and conservation status.
4. Assess potential impacts on biodiversity values and supporting ecological processes using the mitigation hierarchy (avoid, minimize, restore, and compensate where applicable).
5. Demonstrate that:
    a. No feasible alternative location exists outside critical habitat.
    b. The project will not cause measurable adverse impacts on biodiversity values or ecological processes.
    c. The project will not cause a net reduction in populations of Endangered or Critically Endangered species.
    d. Long-term biodiversity monitoring is incorporated into project management.
    e. All national and international approval requirements are met.
6. Use independent experts where critical habitat is present. Biodiversity offsets are not permitted as a mitigation measure for biodiversity values that qualify an area as critical habitat.

Biodiversity Action Plan (BAP)

If a project is allowed to proceed in critical habitat, a Biodiversity Action Plan must be prepared. The BAP describes how the project will achieve net gains in the biodiversity values for which the critical habitat was designated.

A BAP should include:

1. A summary of the project and alternatives considered.
2. Biodiversity baseline information.
3. Results of the Critical Habitat Assessment.
4. Biodiversity impact assessment findings.
5. Justification for the selected mitigation measures.
6. A clear demonstration of how net biodiversity gains will be achieved.
7. Time-bound actions, responsibilities, performance indicators, monitoring requirements, and sufficient budget for implementation throughout the life of the plan.

Typical BAP measures may include habitat enhancement, reduction of existing threats, community conservation programs, improved land and water management, wildlife crossing structures, strengthened protected-area management, and biodiversity education initiatives. Biodiversity offsets cannot be used to achieve net gains in critical habitat.

In summary, the CHA determines whether critical habitat is present and whether impacts can be avoided or minimized to acceptable levels, while the BAP provides the long-term actions, monitoring, and resources needed to protect biodiversity and achieve measurable conservation gains.

5.8 Stakeholder Engagement Plan and Public Events Outline

Category B projects to be funded under the Program will require a consultation process, based on the Environmental and Social Performance Standard 10 of the Environmental and Social Policy Framework.

This consultation process should be conducted in accordance with the IDB Consultation Guide (available in Meaningful Stakeholder Consultation). The process should ensure that, prior to consultation, information is presented to ensure understanding of the environmental and social risks and impacts, and the proposed mitigation measures for the projects and related construction processes.

Once the consultations have been conducted, a consultation report should be attached to the final version of the Environmental and Social Analyses for all the sample representative project interventions.

The guidelines for the Public Consultation events of the projects to be financed under the Program is presented in Appendix 6.

5.9 Environmental and Social Technical Specifications (ESTS)

The Environmental and Social Technical Specifications (ESTS) will be part of the Bidding Documents. The ESTS will define the obligations of the Contractor in environmental and social matters and will include the ESMP prepared for the Project.

The Contractor shall prepare a monthly written report to WASA, describing the status of all environmental and social actions of the project. Monitoring reports will b provided to the EMA in

accordance with the terms and conditions of the CEC issued by the EMA for the specific project development.

At the end of the works, the contractor shall submit a final environmental and social report incorporating all the information corresponding to the implementation of the ESMP, including the implementation records of plans and programs, and an evaluation report of the environmental and social indicators considered in the different phases of the project cycle.

5.10 Grievance Redress Mechanism

The grievance redress management aims to arbitrate the means and mechanisms to facilitate the reception of concerns (inquiries, claims, complaints, suggestions) from the stakeholders and respond to them to solve them and anticipate potential conflicts.

In cases where it is not possible to avoid conflicts, it should promote negotiation and strive to achieve its resolution, so that all the stakeholders (including the Program) benefit from the solution.

The Grievance Redress Mechanism shall be in operation throughout the Program. The complainant and grievance management procedure shall cover the process of receiving and managing the complainant and the documented closure of the complainant.

The details of the GRM are included in Appendix 5 of this framework document.

5.11 Inspections and Reporting

5.11.1 WASA compliance report to the IDB

WASA will inform the IDB through a semi-annual report of the environmental, social, and occupational health and safety monitoring parameters of the projects included in the Program, as well as the status of compliance with IDB environmental and social performance standards and the national legal framework.

5.11.2 Inspections and Audits

To verify environmental and social performance, WASA, the IDB, and the Environmental Management Authority may conduct inspections and compliance audits of the Environmental and Social Management System. The frequency of such inspections shall be defined by each entity.

The contractor, through its environmental and social personnel, will conduct daily inspections to monitor the environmental and social compliance defined in the project's ESMP.

The inspections will be conducted based on objective evidence that proves compliance with the provisions of the ESMP and ESMPc i.e., not considering what is planned or about to be resolved - and a list will be drawn up of all nonconformities to the standard.

Each inspection will be documented by means of a report which will include:

- The detected non-conformities description, referring to the ESMP program, national, local or IDB performance standard or legislation to which the non-conformity is non-

compliant. It shall be accompanied by a photographic and documentary record in the annex, together with the non-conformity detection date.

- Corrective action to be implemented to resolve the nonconformity. It is the contractor's responsibility to implement the corrective actions to resolve the detected nonconformities.
- The date on which the defined action must be fulfilled, and the person or role responsible for the implementation.
- The indicator of compliance with the action taken: when it is considered that the nonconformity will be closed.
- The non-conformity status (open or closed).

Table 5-3: Non-conformities and Corrective Action Plan Register and Template

Project	Identified Nonconformity (with ESMP, national legislation or IDB performance standard) and date	Action	Responsible	Date of execution	Compliance Indicator (when the nonconformity is considered closed)	State

The effectiveness of the corrective actions will be verified based on the compliance indicator and the non-repetition of the same non-compliance in the project.

6 References

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7 Appendices

Appendix 1: Environmental and Social Assessment Checklist

Table 7-1: General Project Data

General Project Data
Project: (title)
Objectives

Main project components
Expected project results
Map of the Project's Area of Influence
Map with traces, and area delimitation of direct and indirect influence of the project.
Characterization of new infrastructure locations
Relevant characteristics of the physical and biological environment. Relevant characteristics of the socioeconomic environment. Photographic record of the Project Direct Influence Area (in annex).
Public consultation
Did the Project have a Public Consultation Process: Yes/No Are there records: Yes/No (if yes, attach them) Does it comply with IDB requirements: Yes/No (perform a gap analysis, using the Public Consultation guidelines included in Annex 1 of the Program's ESA/ESMP)

Table 7-2: Eligibility Criteria Checklist

ESMF Eligibility Criteria Checklist	Yes/No	Standard or Criteria Triggered
Significant Impacts Does the project have the potential to cause significant negative impacts? A significant negative impact occurs if: i) it extends over a wide geographical area, ii) it is permanent or occurs over a wide period, and iii) it is of high intensity or magnitude.	[ ] Yes [ ] No	(If the answer is positive, the project is not eligible to be funded by the Program)
Critical Natural Habitats Does the project involve critical natural habitats? Does the project have the potential to cause significant negative impacts on natural habitats and/or critical natural habitats (protected or planned protected areas, or areas of high biological diversity – wetlands, habitats of endemic or endangered species, mangroves)?	[ ] Yes [ ] No	(If the answer is positive, projects need to comply with ESPS 6 requirements. These are explained in the eligibility criteria above.)

ESMF Eligibility Criteria Checklist	Yes/No	Standard or Criteria Triggered
Critical Cultural Heritage and/or Sites Does the project have the potential to cause significant impacts on property or cultural property (e.g., religious, archaeological, paleontological sites, among others)?	[ ] Yes [ ] No	(If the answer is positive, Chance Finds procedures are put in place, for the protection of cultural and archaeological assets found in project area)
Involuntary Resettlement Does the project generate resettlement of families or loss of homes? Does the project generate impacts on livelihoods or economic activities?	[ ] Yes [ ] No	(Projects requiring people resettlement will require the development of a Resettlement Action Framework and the development of Resettlement Action Plan and in the case of livelihood displacement the development of a Livelihood Restoration Plan)
Indigenous Peoples or Ethnic Minorities: Does the project cause negative impacts (direct, indirect, or cumulative) to indigenous peoples or their individual or collective rights or property?	[ ] Yes [ ] No	(Projects that cause differentiated negative impacts to indigenous populations or their individual or collective rights or property will require Free, Prior and Informed Consent (FPIC) and the development of a specific Indigenous Peoples Plan when differentiated impacts are identified as management requirement in order for such a project to be financed)
Impact on livelihoods Does the project result in the loss of people's livelihoods for a significant number of people?	[ ] Yes [ ] No	(Projects that cause significant negative impacts to livelihoods will require the development of a Livelihood Restoration Plan and will need to be included as a contractual clause)

Table 7-3: Determination of Project Category

Eligibility and Additional Studies	
Project Category according to IDB ESPS	Justify the category assigned, based on expected impacts and sensitivity of the environment.

Eligibility and Additional Studies	
	If the project is Category A (responds positively to any of the points in Table 7-2 of this Appendix) it is not eligible for financing under this Program.
Study/Plan requirements according to ESMF requirements: Establish whether the Project requires an ESA.	
Public Consultation Requirements: Determine, based on the above analysis, whether a Public Consultation instance with affected parties and stakeholders is necessary, in accordance with the guidelines of the IDB's ESPS. • Category B Projects require a Public Consultation with concerned stakeholders. • Category C Projects do not require a Public Consultation.	
Completed:	Revised:
Date:	Date:

Table 7-4: Screening Checklist against Environmental and Social Performance Standards

ESMF Screening Checklist Criteria	Yes/No	Applicable Environmental and Social Performance Standard Triggered (1-10)
Will project involve land excavation?	[ ] Yes [ ] No	
Will project involve modification of habitats (mangrove forests, coral reefs, seagrass, beaches)?	[ ] Yes [ ] No	
Will project contribute to habitat degradation?	[ ] Yes [ ] No	
Will project generate solid wastes, including toxic wastes?	[ ] Yes [ ] No	
Does project generate effluents?	[ ] Yes [ ] No	
Will project contribute to sedimentation of waterbodies?	[ ] Yes [ ] No	
Does project generate air emissions?	[ ] Yes [ ] No	
Will project result in resettlement of individuals or families?	[ ] Yes [ ] No	
Will project involve hazardous materials?	[ ] Yes [ ] No	
Is project located in or near sensitive areas?	[ ] Yes [ ] No	
Will project cause underground or surface water pollution?	[ ] Yes [ ] No	
Will project impact or involve modification of mangrove or terrestrial forests?	[ ] Yes [ ] No	
Will the sub-project potentially impact areas of known local, regional or national cultural heritage significance?	[ ] Yes [ ] No	

ESMF Screening Checklist Criteria	Yes/No	Applicable Environmental and Social Performance Standard Triggered (1-10)
Will project involve introduction of alien species?	[ ] Yes [ ] No	
Will the project be impacted by natural or manmade hazards?	[ ] Yes [ ] No	
Will the project result in aggravated impacts associated with natural or manmade hazards?	[ ] Yes [ ] No	
Does the project involve the supply of, access to or governance of water and sanitation, electricity, natural gas, solid waste, and telecommunications services?	[ ] Yes [ ] No	
Will the project result in a gender biased workforce?	[ ] Yes [ ] No	
Will the project result in the temporary or permanent property, loss of crops, fruit trees and household infrastructure (such as granaries, outside toilets and kitchens, etc.)?	[ ] Yes [ ] No	
Does project impact or involve indigenous persons?	[ ] Yes [ ] No	
Will the project require the disclosure of information to stakeholders?	[ ] Yes [ ] No	
Are easements or expropriations required for the project implementation?	[ ] Yes [ ] No	
Other relevant risks and impacts	[ ] Yes [ ] No	
Other observations/comments	[ ] Yes [ ] No	
Does project have or will it require a valid operating permit, licenses, approvals, etc?	[ ] Yes [ ] No	
Does project meet all Trinidad and Tobago environmental regulations regarding air, water and solid waste management?	[ ] Yes [ ] No	
Does project have any significant outstanding environmental fees, fines or penalties or any other environmental liabilities?	[ ] Yes [ ] No	

Appendix 2: Environmental and Social Analysis Guidelines

The following is a list of the minimum contents to be developed in the Environmental and Social Analyses of the projects to be financed within the Program framework:

1. SECTION 1: INTRODUCTION. Identify the project to be evaluated and explain the execution arrangements.

2. SECTION 2: BACKGROUND: Program Description, Objectives. Project Description, Proposed Works, and Alternatives Analysis.

It should include a brief description of the main components of the proposed project, a statement of the need for the project and the objectives it will seek to achieve, the implementing agency, a brief history of the project (including alternatives considered), the status and schedule, and identification of any other related projects. Also include a description of other project preparation activities (e.g., legal analysis, institutional analysis, economic analysis, social assessment, baseline studies).

Provide a brief description of the relevant parts of the project, using maps (at an appropriate scale)where necessary, and including, among other things, the following information: location; generaldesign; size, capacity, etc.; pre-construction activities; construction activities; schedule; staffing and support; facilities and services; operation and maintenance activities; required off-site investments; and lifetime.

3. SECTION 3: LEGAL AND INSTITUTIONAL FRAMEWORK: Applicable National and local Legal Framework. Environmental and Social Policy Framework of the Inter-American Development Bank. Institutional Framework.

   Describe relevant laws, regulations and standards governing environmental quality, health and safety, protection of sensitive areas, protection of threatened species and their habitats, sites, land use control, aspects of social management, etc., at the national and local levels, and applicable IDB environmental and social performance standards. The description should highlight its applicability in the project.

4. SECTION 4: ENVIRONMENTAL AND SOCIAL BASELINE: Description of the Natural Environment, Description of the Social Environment, General characteristics of the project direct and indirect influence area, Sociodemographic characteristics, Socio-environmental conflicts in the project direct influence area.

   The study area boundaries for assessment and any adjacent or possibly affected areas to be considered with respect to impacts should be specified. This delimitation will then be the basis for defining the scope of the project direct and indirect influence areas.

   Collect, evaluate, and present baseline information on the relevant environmental characteristics of the study area. Include information about any anticipated changes before the project begins. This information must refer to the project influence area. For information with a broader spatial scope, it is encouraged that it is only used in direct relation to the project. It is suggested to avoid general information or statistics not connected to the study object.

   a. Physical environment: geology; topography, soils; climate; ambient air quality; surface and groundwater; hydrology; existing sources of air emissions; existing polluted water discharges; and water quality.

b. Biological environment: type of habitat (critical, natural or modified), flora; fauna; rare or threatened species; sensitive habitats, including parks and reserves; natural sites with conservation importance, etc.; species of commercial importance; and species with the potential to cause nuisance, vectors, or hazards.
c. Socioeconomic environment: population; land use; planned development activities; community structure; employment; distribution of income, goods, and services; recreation; public health; cultural heritage; indigenous/tribal peoples; and customs, aspirations and attitudes. For projects located in critical habitats that meet the requirements of ESPS 6 for development in such areas, a Critical Habitat Assessment (CHA) and a Biodiversity Action Plan (BAP) shall be prepared and implemented.

5. SECTION 5: IDENTIFICATION AND ASSESSMENT OF PROJECT RISKS AND IMPACTS. Risk and Impact Assessment, Matrix of Risks and Impacts Associated with the Project, Description of the impacts associated with the Project.

   In this analysis, all significant potential impacts of the project will be described and analyzed, distinguishing between negative and positive, direct, and indirect, cumulative, and immediate and long-term impacts, including potential impacts to protected areas and KBAs. Impacts that are inevitable or irreversible will be identified. Whenever possible, describe impacts quantitatively, in terms of environmental costs and benefits, assigning economic values where feasible. Characterize the scope and quality of available data, explaining significant information gaps and any uncertainties associated with impact predictions. Perform a risk analysis according to the IDB's methodology.

   IDB's disaster and climate change risk assessment methodology should be used to assess the project's disaster risk.

6. SECTION 6: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN. ESMP Context and objectives, roles and responsibilities in the socio-environmental project management, mitigation programs and measures. Development of the Environmental and Social Management Plan (ESMP) to mitigate Negative Impacts and Enhance Positive Impacts. Recommend feasible and cost-effective measures to prevent or reduce significant negative impacts to acceptable levels and enhance positive impacts.

   Estimate the impacts and costs of such measures, and the institutional and training requirements to implement them. Detail the ESMP guidelines to be developed in detail by the contractor, including proposed work programs, budget estimates, schedules, staffing and training requirements, and other support services necessary to implement the mitigation measures. Explain how the project will comply with the Bank's requirements and with the environmental and social requirements of the applicable environmental and social performance standards, where relevant.

The ESMP should also detail the grievance management and citizen participation mechanism. Finally, it must detail the reporting requirements by the contractor company, and the guidelines for inspections by the executor.

7. SECTION 7: PUBLIC CONSULTATION: Socialization Background, Socialization within the project framework, Events to be held, Recipients, Presentation date and venue, Event Characteristics, Activity record, Responsible. Assist in Inter-Agency Coordination and Public Participation/NGOs. Assist in coordinating the ESA with other government agencies, to gain insight from local NGOs and affected groups, and in maintaining a file of meetings and other activities, communications, and comments and their availability on the project.
8. SECTION 8: CONCLUSION. Conclusion. Project Environmental and social viability.
9. SECTION 9: REFERENCES
   ANNEXES

Appendix 3: Environmental and Social Management Plan Guidelines

The ESMP outlines the following programs that address environmental and social aspects that need to be properly developed for all Category B and C project interventions.

Construction Phase

1) Water Quality Monitoring/Management Plan
2) Air Quality and Dust Control Plan
3) Noise and Vibration Management Plan
4) Brine and Marine Management Plan
5) Soil Erosion and Drainage Management Plan
6) Waste Management Plan (including hazardous materials)
7) Hazardous Materials Handling Management Plan
8) Biodiversity Management Plan (including aquatic and coastal habitat management; invasive species management)
9) Disaster Risk Management Plan
10) Emergency Management Plan
11) Local Employment and Gender Inclusion Management Plan (LEGIMP)
12) Worker Health and Safety Management Plan (OHS and labour management)
13) Worker Behaviour and Anti-Harassment Plan
14) Community Health and Safety Management Plan
15) Traffic and Road Safety Management Plan
16) Cultural Heritage Management Plan (Chance Finds Procedures)
17) Livelihood Restoration Framework (framework approach to a LRP)
18) Involuntary Resettlement Framework (framework approach to a RAP)

19) Land Acquisition Plan
20) Livelihood Protection Plan
21) Stakeholder Engagement Plan, including public consultation events outline
22) Grievance Redress Mechanisms (GRMs).

Operation Phase

1) Water Quality Monitoring/Management Plan
2) Waste Management Plan (including hazardous materials)
3) Hazardous Materials Handling Management Plan
4) Disaster Risk Management Plan
5) Emergency Management Plan
6) Worker Health and Safety Management Plan (OHS and labour management)
7) Worker Behaviour and Anti-Harassment Plan
8) Community Health and Safety Management Plan
9) Stakeholder Engagement Plan, including public consultation events outline
10) Grievance Redress Mechanisms (GRMs).

Decommissioning Phase

1. Decommissioning Plan
2. Waste Management Plan
3. Hazardous Materials Handling Management Plan
4. Worker Health and Safety
5. Disaster Risk Management Plan
6. Emergency Response Plan

Water Quality Management Plan

The proposed construction and operation of the water treatment plants will involve extensive construction activities. These activities have the potential to adversely affect both source water and treated water quality.

The parameters to be monitored during land preparation and operation to ensure the protection of the aquatic environment will be stipulated by EMA National standards. The Table below is the parameters deemed to have the highest potential to contaminate water sources and deteriorate the quality of treated water.

Table: Trinidad and Tobago National Ambient Water Quality Standards – Freshwater (EMA)

Parameters (units)	Standard Range

Total Dissolved Solids (mg/L)	≤ 600
pH (pH units)	6.5-8.5
Total Alkalinity	≤ 20
Conductivity (µS)	≤2500
Chloride (mg /L)	≤ 250
Magnesium (mg Mg/L)	3.6 - 27.0
Nitrate (mg NO_3^-/L)	≤ 10
Sodium (mg /L)	≤ 200
Sulphate (mg SO_4^{2-}/L)	3.0 – 10.0
Hardness (mg $CaCO_3$/L)	As Ca: 100-300; As $CaCO_3$: 200-300
Silica (mg SiO_2/L)	≤ 80
Turbidity (NTU)	≤ 5
Metals: **1.** Iron (µg/L) **2.** Manganese (mg/L) **3.** Lead (µg/L) **4.** Copper (µg/L) **5.** Zinc (µg/L) **6.** Cadmium (µg/L) **7.** Arsenic (µg/L) **8.** Mercury (µg/L)	 1. ≤300 2. ≤0.5 3. ≤10 4. ≤1000 5. ≤5000 6. ≤2 7. ≤10 8. ≤1

Monitoring Equipment, Stations, and Frequency

Monitoring should be carried out by an entity approved for regulatory sampling and testing. The recommended guidelines are as follows:

- One random monthly sampling is done each month for the first year of the project.

- After the first 2-3 months of sampling, general trends can be deduced and mitigative measures implemented for outlying parameters.
- Following the 12 months of sampling, trends will be deduced and dictate measures to be taken.
- If parameters are in line with the range of standards, testing can be reduced to being done at quarterly intervals to ensure that parameters stay in check,
- For constantly outlying parameters, testing must be continued monthly along with the mitigative measures.
- Intermediary physical tests should also be done to fully grasp the state of the water quality in the project area.
- Once parameters are determined to be non-compliant with the regulatory stipulations or process requirements, corrective actions should be taken to bring the parameters back into compliance. Investigations into the cause(s) of the non-compliance should be done as soon as possible once results are obtained to ensure swift and adequate corrective measures are implemented.

Management Measures

Water Pollution Prevention

- Include environmental clauses in all contractor agreements to hold them accountable for spills and contamination.
- Store fuel, lubricants, and chemicals in bunded containment areas at least 50 m from watercourses.
- Prohibit direct discharge of wastewater or stormwater into rivers.
- Provide spill kits and train personnel in spill response procedures.
- Maintain stormwater drains and sediment control devices throughout construction.
- Conduct regular inspections during rainfall events to ensure effectiveness of erosion control measures.

Monitoring and Compliance

Water quality monitoring will comply with the Environmental Management (Water Pollution) Rules, 2019, and IDB Environmental and Social Performance Standard 3 (Resource Efficiency and Pollution Prevention).

As the project abstracts and treats raw water from the relevant Rivers, special emphasis will be placed on maintaining water quality during construction (to prevent sedimentation and contamination) and operation (to ensure sustainable intake quality).

Monitoring Frequency

Monitoring will be conducted by the Contractor, supported by a qualified environmental specialist and supervised by WASA.

- Pre-construction: Establish baseline parameters for turbidity, total suspended solids (TSS), pH, conductivity, and dissolved oxygen (DO).
- Construction: Weekly monitoring at river intakes and downstream points (or in accordance with frequency stipulated by the EMA).
- Operation Phase: Quarterly sampling for raw and treated water to verify ongoing water quality (or in accordance with frequency stipulated by the EMA).

4. Indicators

The following KPIs have been selected in order to evaluate the effectiveness of the water quality management program.

Table: Key Performance Indicators (KPI) for Water Quality Management

Key Performance Indicators	How Will It Be Monitored and Measured	Responsibility
Sediment traps installed and maintained	Site inspections and photographs	Contractor / EHS Officer
Work halted during heavy rainfall	Logbook entries and supervisor reports	Contractor
Turbidity and TSS levels within limits	Certified laboratory test results	Contractor / WASA
Spill containment maintained	Inspection records	EHS Officer
Riverbank vegetation restored	Field verification	Contractor/ WASA

Roles and Responsibilities

It is the responsibility of the Contractor to ensure that the management and mitigation measures for water quality are clearly understood by all workers and that they are carried out and relevant monitoring reports are prepared.

WASA is responsible for monitoring the contractor to ensure that monitoring is being undertaken and mitigation measures are being enforced.

Air Quality and Dust Control Plan

The Air Quality and Dust Control Management Plan (AQDCMP) provide a structured framework to prevent, monitor, and mitigate adverse impacts on ambient air quality resulting from construction and operational activities associated with Water Treatment Plant, Refurbishment or Pipeline Projects. The plan emphasizes proactive measures to minimize fugitive dust emissions, equipment exhaust, and particulate matter dispersion that could affect nearby communities and sensitive ecological receptors.

The plan seeks to:

1. Protect ambient air quality within and surrounding the project areas, ensuring that emissions from construction and operation remain within acceptable limits established under the Environmental Management (Air Pollution Control) Rules, 2014 and the World Health Organization (WHO) Air Quality Guidelines (2021).
2. Prevent nuisance dust and particulate pollution from construction activities such as excavation, hauling, stockpiling, and material handling through effective site management and dust suppression techniques. These may include:
    - Routine wetting, mainly during active construction
    - Physical barriers including dust screens, fences or vegetative buffers
    - Coverage of loose materials
3. Control exhaust emissions from generators, vehicles, and heavy machinery through routine maintenance, use of compliant equipment, and restriction of unnecessary idling.
4. Safeguard worker health and community well-being by implementing appropriate personal protective equipment (PPE) requirements and maintaining safe air quality levels at work zones and receptor sites.
5. Establish a monitoring and reporting framework to measure particulate matter (PM_{10}, $PM_{2.5}$, and TSP, applicable only for in high dust impact projects) levels and evaluate the effectiveness of mitigation measures, allowing for adaptive management and continuous improvement in environmental performance.

Monitoring Equipment, Stations, and Frequency

Monitoring should be carried out by an entity approved for regulatory sampling and testing. The recommended guidelines are as follows:

1. One random monthly sampling is done each month for the first year of the project.

- After the first 2-3 months of sampling, general trends can be deduced and mitigative measures implemented for outlying parameters.
- Following the 12 months of sampling, trends will be deduced and dictate measures to be taken.

2. If parameters are in line with the range of standards, testing can be reduced to being done at quarterly intervals to ensure that parameters stay in check.

Management Measures

In addition to the monitoring procedures, the Contractor will ensure that these measures are followed:

General measures

- Effective implementation, monitoring and enforcement of any guidelines or action provided by the Environmental Management Authority (EMA)
- Record complaints and relevant responses

Fugitive dust control measures

- Cover haulage vehicles transporting aggregate, soil and cement.
- Cover and/or wet onsite stockpiles of aggregate, soil etc., especially during windy and dry conditions
- Locate sources of dust away from sensitive receptors
- Ensure proper stock piling/storage and disposal of solid waste.
- Wet cleared land areas regularly
- Wet dust suppression methods on unsealed roads must be implemented to prevent generation of nuisance dust.
- Provide workers with the necessary PPE e.g. dust masks, and ensure that they are worn correctly
- There must be strict speed limits on dust roads to prevent dust entrainment into the atmosphere.
- Restrict the dropping of material from height during loading and unloading.
- Revegetate cleared areas immediately following construction to prevent loose soil from being blown away.

Emissions control measures

- Use low-emission machinery and maintain all equipment regularly.
- Prohibit unnecessary idling of vehicles and generators.
- Ensure all generators, compressors, and construction vehicles meet manufacturer emissions standards.
- Implement strict maintenance logs for heavy equipment.

Monitoring and Compliance

Ambient air quality monitoring will be conducted in accordance with the World Health Organization (WHO) Guidelines for Air Quality (2021) and the Environmental Management (Air Pollution Control) Rules, 2014 under the Environmental Management Act of Trinidad and Tobago.

Baseline data will be obtained from the nearest EMA monitoring stations and verified by project-specific baseline sampling prior to construction. Parameters will include PM_{10}, $PM_{2.5}$, and Total Suspended Particulates (TSP), which are of particular concern during site preparation, earthworks, and construction that are taking place in areas close to populated areas.

Table: WHO and EMA Ambient Air Quality Guidelines for PM2.5 and PM10

Parameter	Averaging Time	WHO 2021 (µg/m^3)	EMA Standards (µg/m^3)
$PM_{2.5}$	24-hour mean	15	65
$PM_{2.5}$	Annual mean	5	15
PM_{10}	24-hour mean	45	75
PM_{10}	Annual mean	15	50

Indicators

A The following KPIs have been selected to evaluate the effectiveness of the air quality monitoring system.

Table: Key Performance Indicators (KPI) for Air Quality and Dust Management

Key Performance Indicators	How Will It Be Monitored and Measured	Responsibility
Equipment maintenance logs updated	Review of maintenance documentation	Contractor / EHS Officer

Stakeholder notifications and complaints addressed	Review of stakeholder communications	Contractor / WASA
Air quality parameters within WHO/EMA limits	Review of lab certificates	Contractor
Frequency of dust suppression (wetting)	Site logs	Contractor
Worker PPE usage compliance	Site inspection reports	EHS Officer

Roles and Responsibilities

It is the responsibility of the Contractor to ensure that all mitigation measures are carried out and that monitoring reports are prepared. The Contractor should ensure that an Environmental Health and Safety (EHS) Manager is employed to oversee the specific requirements of this plan.

WASA is responsible for monitoring the contractor to ensure that monitoring is being undertaken and mitigation measures are being enforced.

Noise and Vibration Management Plan

The Noise and Vibration Management Plan (NVMP) establish a systematic approach to identify, monitor, and mitigate noise and vibration impacts associated with the construction and operational phases of the Project. The plan aims to ensure that project activities are conducted in a manner that protects community health, worker safety, and the integrity of nearby structures and ecosystems.

The plan seeks to:

1. Ensure compliance with the Environmental Management (Noise Pollution Control) Rules, 2001 and relevant World Health Organization (WHO) Environmental Noise Guidelines, maintaining noise and vibration levels within acceptable limits for residential and environmentally sensitive areas.
2. Minimize noise and vibration emissions from construction equipment, vehicle movement, and material handling using low-noise machinery, proper equipment maintenance, and scheduling of high-noise activities during daytime hours.
3. Prevent nuisance and health effects on nearby communities, workers, and wildlife in the region by maintaining effective buffer zones and implementing temporary barriers or enclosures where appropriate.

4. Monitor and evaluate noise and vibration levels at key receptor sites to ensure adherence to regulatory thresholds and facilitate adaptive management when exceedances are detected.
5. Promote awareness and accountability among construction personnel and contractors through training on noise mitigation procedures and community engagement to address complaints promptly and effectively.

Management Measures

In addition to the monitoring procedures, the Contractor will ensure the following noise reduction options are implemented where necessary:

- Provide workers with the necessary PPE (e.g., noise-cancelling headphones) and ensure that they are worn. Specialised hearing protection tailored to filter high-frequency sounds typical of electrical systems is also recommended.
- Consult with and sensitise residents in the area to the types of activities that will take place ahead of the works and assign a liaison person (recommend that a Community Liaison Officer be hired) with whom the residents can relate.
- Maintain all equipment in proper working order to avoid excessive noise generation and the simultaneous use of multiple noisy machines in proximity to each other.
- If noise complaints are received from residents, consider installing partial screening around the noisiest activities and/or mufflers on noisy equipment. In case of complaints, they should be recorded, and appropriate action should be taken via the Grievance Redress Mechanism.
- Limit the implementation of noisy work simultaneously. As well, limit noisy activities to daytime hours, adhering to local noise ordinances.
- Implement a rotating roster of personnel who are employed for noisy work – rotate workers involved in noisy activities to minimise fatigue-related errors and prolonged exposure.
- Work around key events, peak usage times, or high-traffic periods (e.g., avoid work during school hours in educational buildings or peak visiting hours in public offices and health centres). Prioritise performing the noisiest tasks during times when targeted public buildings are unoccupied, such as evenings, weekends, or holidays.
- Train workers on the importance of minimising noise during construction. This includes proper equipment use, the scheduling of noisy activities, and following best practices for equipment maintenance.

Monitoring and Compliance

The ambient noise standards in Trinidad and Tobago are regulated by the Noise Pollution Control Rules, 2001 (as amended) and enforced by the Environmental Management Authority (EMA). The standards vary zonally and are displayed in the table below:

Table: Noise Standards as outlined by the Noise Pollution Control Rules, 2001 (As amended)

Zone Category	Time Period	Equivalent Continuous Sound Pressure Level (dBA)	Instantaneous Unweighted Peak Sound Pressure Level (dB peak)
Industrial Zone (Zone I)	Any time	75 dBA	130 dB
Environmentally Sensitive Areas (Zone II)	Daytime	Max 60 dBA, or 3 dBA above background level	120 dB
Environmentally Sensitive Areas (Zone II)	Nighttime	Max 60 dBA, or 3 dBA above background level	115 dB
General Area (Zone III)	Daytime (8AM-8PM)	Max 80 dBA, or 5 dBA above background level	120 dB
General Area (Zone III)	Nighttime (8PM-8AM)	Max 65 dBA, or 3 dBA above background level	115 dB

Indicators

The following KPIs have been selected to evaluate the effectiveness of the noise monitoring system.

Table: Key Performance Indicators for Noise Management

KEY PERFORMANCE INDICATORS	HOW WILL IT BE MONITORED AND MEASURED	FREQUENCY	RESPONSBILITY
Notice given to stakeholders in advance of scheduled works	Review and inspection of documentation	Twice per month or as stipulated by the EMA	WASA and/or Contractor; Results to be presented by the EHS Officer to the WASA Technical Leads for the Project and the EMA
Noise parameters within EMA standards	Results Certificate provided by EMA and the staff member responsible for EHS		
Log of complaints	Review and inspection of documentation		
Use of personal protective equipment gear (specialised hearing protection included)	Review and inspection of documentation		

Roles and Responsibilities

It is the responsibility of WASA and all contractors and subcontractors to ensure that all mitigation measures are carried out and that monitoring reports are prepared. The Contractor should ensure that an Environmental Health and Safety (EHS) Officer is employed to oversee the specific requirements of this plan.

WASA is responsible for ensuring the contractor understands the importance of monitoring and will support them in undertaking this task as often as is required and for implementing the mitigation measures necessary. The site and the surrounding environment will be monitored, and negative impacts caused by the construction works will be recorded. This should be included in the contract arrangements.

The sampled noise data will be compared to the standards outlined in the table above, as well as the baseline data, and the analysis will be included in the environmental monitoring report prepared and submitted to the EMA. If there are any exceedances, this will be reported immediately to the EHS Officer to allow for the implementation of corrective measures or adjustments in management strategies based on the results and, where practicable, to the operations.

4. Soil Erosion and Drainage Management Plan

The Stormwater and Drainage Management Plan (SDMP) provide a structured framework for managing surface runoff, minimizing flood risk, and preventing erosion or sedimentation impacts throughout all phases of the Water Treatment Plant, Refurbishment or Pipeline Project. The plan outlines strategies to maintain natural drainage patterns, reduce stormwater contamination, and enhance the site's climate resilience in accordance with national standards and IDB environmental safeguard requirements.

The plan seeks to:

1. Prevent flooding and uncontrolled runoff within and downstream of the relevant catchments by implementing engineered drainage systems, retention basins, and permeable surfaces that support effective water management during high-intensity rainfall events.
2. Protect water quality and sensitive ecosystems by preventing sediment, debris, and contaminants from entering the applicable Rivers, which serve as critical water supply sources and support ecologically sensitive habitats.
3. Ensure compliance with the Environmental Management (Water Pollution) Rules, 2019, the Drainage Policy for Trinidad and Tobago, and best practices for stormwater design and flood mitigation recommended by the Ministry of Works and Transport, Drainage Division.

4. Incorporate climate-resilient design features that account for projected increases in rainfall intensity and sea level rise, ensuring the long-term performance of drainage infrastructure under changing climatic conditions.

5. Establish a monitoring and maintenance regime for stormwater control structures, including culverts, drains, and sediment traps, to ensure continued functionality and to allow for timely corrective action during the project's operational phase.

Management Measures

The Contractor will ensure that these measures are followed:

- Minimise the Project activities' disturbance area. Demarcate the boundaries within which Project activities will occur. All activities will strictly occur within the designated work zone, ensuring that the work scope is confined to this specific area.
- Restrict vehicular movements to designated roads and trails to reduce the possibility of off-road incidents with residents, golf carts or bicycles.
- Constant monitoring and inspection of sites is necessary to assess the effectiveness of sediment control mechanisms implemented.
- Minimise vegetation removal to reduce disturbance to the soil (and sensitive wetland/mangrove environment) and maintain natural water infiltration rates. Maintain buffer strips of native vegetation along drainage channels to filter runoff and stabilise soil.
- Keep construction activities and equipment away from water channels and flow paths. If impossible, create temporary channels to redirect water around the zone of works while maintaining the natural flow direction.
- Limit the area of exposed soil by working on small sections at a time, allowing for immediate stabilisation post-completion.
- Avoid the excessive compaction of soil, which can reduce permeability and alter runoff patterns. Soil compaction is contributed to by construction activities that include:
- The repeated trips of construction equipment over the soil
- Soil excavation
- Soil mixing
- The use of heavy machinery on wet soil

Monitoring and Compliance

Daily inspections of the work site will be conducted by WASA and contractors. Sediment controls will be assessed during site inspections and following significant rainfall events (defined as more than

10mm of rainfall within 24 hours, leading to site runoff), or as stipulated by the EMA. The assessment will also encompass the removal of any accumulated sediments as needed. This is especially important, given the nature of the limestone substrate within the project area and the extensive impact this can have on nearby coastal and marine environments.

Indicators

The following KPIs have been selected to evaluate the effectiveness of the erosion control management systems.

Table: Key Performance Indicators for Erosion Control Management

KEY PERFORMANCE INDICATOR	HOW WILL IT BE MONITORED AND MEASURED	FREQUENCY	RESPONSIBILITY
Absence of Substantial Sediment Deposition in waterways and marine environment	Site Inspection	Daily	WASA and/or Contractor; Results to be presented to the EMA

Roles and Responsibilities

It is the responsibility of the Contractor to ensure that all mitigation measures are carried out and that monitoring reports are prepared. The Contractor should ensure that an Environmental Health and Safety (EHS) Officer is employed to oversee the specific requirements of this plan.

WASA is responsible for assigning the contractor as the responsible party for undertaking the monitoring required and for implementing the mitigation measures necessary. The site and surrounding environment will be monitored by the contractor for negative impacts caused by the construction Works.

Waste Management Plan (incl. Hazardous Materials)

The Waste Management Plan (WMP) provides a systematic framework for the proper handling, segregation, storage, transportation, treatment, and disposal of all waste streams generated during the construction and operation phases of the project.

The main purpose of the plan is to prevent environmental contamination and safeguard human health by ensuring that all waste is managed responsibly, in full compliance with EMA regulations and IDB environmental safeguards.

Objectives:

1. Identify and categorize all waste streams likely to be generated during construction and operation (solid, liquid, hazardous, and non-hazardous).
2. Prevent and minimize waste generation through design optimization, reuse, and recycling where feasible.
3. Ensure safe handling and storage of all waste materials, preventing leaching, spills, or unauthorized dumping.
4. Establish waste segregation protocols for recyclable, reusable, and disposable materials.
5. Ensure compliance with the EMA Waste Management Rules and all applicable CEC conditions.
6. Promote resource efficiency and environmental awareness among workers and contractors.
7. Provide monitoring and reporting mechanisms to track waste generation, movement, and disposal.

Waste streams expected during project implementation include:

- Non-hazardous solid waste: Construction debris (concrete, wood, packaging, scrap metal), domestic waste, paper, plastics.
- Hazardous waste: Used oil, lubricants, fuel-contaminated materials, paint cans, chemical containers, oily rags, and spent filters.
- Liquid waste: Concrete wash water, wastewater from site sanitation facilities, process backwash water (during operation).
- Biological waste: Organic matter from cleared vegetation.

Waste Hierarchy Approach:

The project shall apply the internationally accepted waste management hierarchy in order of priority:

1. Avoid / Minimize: Reduce waste generation at the source through efficient material use.
2. Reuse: Recover and reuse materials such as timber or metal parts.
3. Recycle: Segregate recyclable materials (metal, paper, plastic) for collection by approved recycling entities.
4. Recover: Utilize organic waste for composting where feasible.
5. Dispose: Safely dispose of non-recyclable, non-recoverable waste at EMA-approved facilities.

Management Measures

Segregation and Storage

- Provide clearly labelled bins for each waste category.
- Locate waste collection areas away from drains, watercourses, and sensitive habitats.
- Store hazardous waste in impermeable, bunded, and ventilated containment areas with spill containment.
- Maintain an up-to-date Waste Register detailing quantities, categories, and disposal destinations.
- Inspect storage areas weekly for integrity and cleanliness.

Transportation and Disposal

- Only EMA-licensed waste haulers shall be used for transporting waste offsite.
- All hazardous waste must be accompanied by a Waste Tracking Manifest, signed at each transfer stage.
- Non-hazardous solid waste shall be sent to the Forres Park Landfill or other EMA-approved disposal facility.
- Hazardous waste (e.g., used oil, chemicals) shall be disposed of through certified waste treatment or recovery companies (e.g., SWMCOL or other licensed operators).
- Maintain receipts and manifests for verification during audits.

Indicators

The following KPIs have been selected to evaluate the effectiveness of the waste management measures.

Table: Key Performance Indicators for Waste Management

Indicator	Target / Performance Standard	Frequency	Means of Verification	Responsible Party
No construction waste deposited in the Environment	0	Daily	Site Inspection	Contractor / WASA
Volume of hazardous waste disposed via licensed hauler	100% compliance	Per event	EMA permits and disposal receipts	WASA Environmental Unit
Number of waste-related incidents	0	Ongoing	Incident logs	Contractor / WASA

(spills, illegal dumping, leaks)

Roles and Responsibilities

It is the responsibility of the WASA and all contractors to ensure that all mitigation measures are carried out and that monitoring reports are prepared. The Contractor should ensure that an Environmental Health and Safety (EHS) Officer is employed to oversee the specific requirements of this plan.

WASA is responsible for assigning contractors as the responsible parties for undertaking the monitoring required and for implementing the mitigation measures necessary. The Site and surrounding environment will be monitored by WASA and contractors for negative impacts caused by the construction works.

Table: Roles and Responsibilities for Waste Management

ENTITY / ROLE	KEY RESPONSIBILITIES
WASA Environmental Unit	Oversee implementation of the WMP; ensure compliance with EMA and IDB requirements; review monthly waste reports; liaise with EMA.
Contractor / HSE Officer	Implement waste management measures onsite; maintain segregation and storage; prepare monthly waste tracking reports; ensure worker training.
WASA On-Site Operators (Operational Phase)	Manage sludge, residuals, and backwash waste during WTP operation; maintain effluent and sludge disposal records.
EMA (Regulatory Authority)	Review waste management documentation; issue permits and conduct site inspections; enforce compliance under Waste Management Rules.
Waste Hauling Contractors (Licensed)	Transport waste safely to approved facilities; maintain manifest records; ensure vehicles are labelled and spill-proof.
Workers and Subcontractors	Comply with waste segregation, labelling, and disposal procedures; immediately report any spills or improper disposal.

Hazardous Materials Handling Management Plan

The WASA personnel responsible for the water treatment plant is primarily responsible for the handling, storage and disposal of hazardous materials.

The IDB Guidelines for Community Health, Safety and Security (ESPS 4) outlines that hazardous materials and substances may include: explosives; compressed gases, including toxic or flammable gases; flammable liquids; flammable solids; oxidizing substances; toxic materials; radioactive material; corrosive substances; chemical fertilizers; soil amendments; chemicals, oils, and other hydrocarbons; paints; pesticides; herbicides; fungicides; asbestos; hospital and pharmaceutical waste; used batteries; radioactive medical waste; some types of fluorescent light bulbs and ballasts; and polychlorinated biphenyls (PCBs) in electrical equipment, among others. These all present a risk to human health, community, and the environment due to their physical, chemical, or biological characteristics. The best way to mitigate against the effects of hazardous waste is to refrain from the use of hazardous materials.

Monitoring Frequency

In the anticipation that the monitoring of hazardous materials handling, storage and disposal should be done weekly to ensure that all measures are being implemented and followed.

Management and Mitigation Measures

The Contractor will ensure that every effort is made to abide by the following mitigation measures during construction or operations in order to lessen the potential negative effects of inappropriate handling of hazardous materials:

Spill Prevention and Hazardous Waste Management

- Environmental conditions must be included in any construction contracts, thereby making contractors accountable for preventing accidental spillages
- Effective implementation, monitoring and enforcement of National Environmental Policy, and the National Pollution Rules and action by the Environmental Authority
- Conduct preventive maintenance for vehicles and machinery to ensure integrity and reliability and reduce/avoid leaks
- Conduct any on site repairs on impervious surfaces.
- Ensure proper handling, use and storage of all chemical and hazardous waste according to best practices:
    - Safety Data Sheets ought to be kept on site. In case of an accident on site, there should be first aid supplies on hand and clear signage with the emergency numbers of nearby medical centres
    - Provide spill containment and cleanup equipment on site

- Personnel handling chemicals and hazardous substances must be trained in the use of spill prevention measures
- Personnel handling chemicals and hazardous substance including chlorine and heavy fuel oils must be trained in the correct use of the appropriate Personal Protective Equipment (PPE)
- Utilise the proper dispensing equipment
- Storage areas must be well marked with appropriate signage.
- All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110 % of the total volume of materials stored at any given time.
- Fuel and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation. There shall be no storage fuel on the project site. Fuel must be brought to the project site each day that Work is performed.
- Clean up any spills (including existing spills) immediately, through containment and removal of product and appropriate rehabilitation or disposal of contaminated soils
- All hazardous waste must be disposed of at a registered hazardous waste disposal facility, which is under the Trinidad and Tobago Solid Waste Management Company (SWMCOL) or stored in designated, lined and bunded areas as approved by the Environmental Management Authority
- Handling and disposal of hazardous waste is only conducted by trained personnel wearing the correct PPE
- Any spilling incidents must be reported as soon as possible
- Chlorine is a corrosive that is irritating to the eyes and to the respiratory system. Storage of chlorine away from heat and in a well-ventilated area. Personnel handling chlorine should wear the appropriate PPE including hazardous resistant gloves, sleeved clothing to protect from skin irritation. Respirators would be needed if handling for long periods and in an area that is not well ventilated.

- Ensure proper handling and disposal of asbestos material:
  - Asbestos material, such as can be found in old pipelines, is a deadly carcinogen that should only be handled by licensed asbestos abatement professionals.

- When handling asbestos trained personnel must seal off the work area with plastic sheeting to prevent contamination outside. Surfaces that do not need abating must be covered in plastic sheeting.
- Warning signs must be posted to alert others that an asbestos project is underway.
- Wear Personal Protective Equipment such as an N-100 or P-100 respirator and protective clothing to prevent asbestos exposure.
- Asbestos-containing materials should be wetted prior to any removal efforts. Once removed it should be double bagged in 6-millimeter plastic bags and enclosed in a plastic, leak-tight container with a lid and proper labelling. It can only be disposed of in an appropriate way at the designated landfill as advised by the Sanitation Service Authority.
- Decontamination enclosure areas must be provided to allow workers to remove contaminated clothing, shoes and tools.

Key Performance Indicators

The following Key Performance Indicators (KPIs) have been selected in order to evaluate the effectiveness of the hazardous materials handling.

Table: Key Performance Indicators for Hazardous Materials Handling

KEY PERFORMANCE INDICATOR	HOW WILL IT BE MONITORED AND MEASURED	RESPONSIBILITY	FREQUENCY
No leakages or spills	Monitor possible spills Inspection of site by Contractor	Contractor; Results to be presented to the Implementing Agency	Twice per month
Incident Logs	Reporting of all incidents associated with hazardous materials	WASA personnel	

Roles and Responsibilities

It is the responsibility of the Contractor to ensure that all mitigation measures are carried out and that monitoring reports are prepared. The Contractor should ensure that an Environmental Health and Safety (EHS) Manager is employed to oversee the specific requirements of this plan.

The Implementing Agency is responsible for assigning the ENGINEER as the responsible parties for undertaking the monitoring required and for implementing the mitigation measures necessary.

Data Analysis and Reporting

If there are any exceedances, this will be reported immediately to the EHS Manager to allow for management strategies to be changed according to the results.

Biodiversity Management Plan

The Biodiversity Management Plan provides the framework for conserving and managing the ecological integrity of the project area and surrounding environs during the design, construction, and operation of the project.

The primary objectives of the plan are to:

1. Protect terrestrial, aquatic, and riparian habitats within and adjacent to the project areas, including areas linked to any Environmentally Sensitive Area.
2. Prevent or minimize direct and indirect biodiversity impacts arising from vegetation clearance, noise, lighting, sedimentation, and chemical contamination.
3. Maintain ecological connectivity by ensuring riparian buffers and wildlife corridors remain intact (where feasible) and functional.
4. Enhance environmental awareness among project staff and local communities to promote stewardship and sustainable coexistence.
5. Comply with national environmental laws and international biodiversity conservation principles, including EMA CEC conditions, the Convention on Biological Diversity (CBD), and IDB ESPS 6, particularly for conducting critical habitat assessment in identified Key Biodiversity Areas that intersect with the project area and development of a Biodiversity Action Plan.

Management Measures

- Integrate biodiversity protection clauses in all construction contracts and site environmental procedures.
- Review the results of pre-construction ecological surveys along proposed pipeline routes, particularly the location of sensitive habitats, fauna nesting sites, and a list of rare species within the footprint.

- Clearly demarcate no-go areas (e.g., avoidable riparian zones that are intact, pristine forest patches) prior to mobilisation.
- Limit clearing strictly to the approved project footprint and use existing access routes where possible (e.g., T&TEC utility corridor, roadways).
- Prohibit collection, hunting, or disturbance of wildlife by any project personnel.
- Schedule high-noise activities during daylight hours only and as best as possible outside sensitive breeding seasons (March–July).
- Biodiversity awareness training prior to commencing work for all workers. Training shall include identification of sensitive habitats and protected species, vegetation clearing restrictions, wildlife encounter procedures, aquatic ecosystem protection measures, prohibited activities (e.g., hunting, fishing, collection of flora and fauna), and biodiversity incident reporting requirements. Refresher training shall be conducted at least annually and prior to activities with elevated biodiversity risks.

Terrestrial Habitat Management

- Retain and mark vegetation buffers (minimum 20–50 m) for applicable projects with activities located along rivers.
- Preserve mature trees (>25cm DBH) where feasible, especially those offering nesting or shade functions.
- Identification and protection of large, mature, or protected trees.

Riparian and Aquatic Habitat Protection (Where Applicable)

- Maintain riparian vegetation continuity and stabilise banks using suitable bioengineering methods.
- Prohibit machinery access within 10 m of watercourses unless explicitly authorised and controlled.
- Conduct in-stream works during low-flow (dry) season and use silt curtains or cofferdams where necessary.
- Install sediment traps and turbidity curtains downstream of construction zones.
- Regularly monitor turbidity, dissolved oxygen, and TSS upstream and downstream of work sites.
- Establishment of environmental flow requirements.
- Monitoring of abstraction volumes for WTP.
- Screening of intake structures to prevent fish entrainment.
- Avoidance of in-stream works during sensitive breeding or migration periods.

Faunal Protection Measures

- Restrict clearing and noisy works during bird and reptile breeding seasons.
- Use downward-directed lighting and low-wattage LEDs to minimize light spill if used.
- Cover all open trenches at the end of each workday and install escape ramps for small animals.
- Ensure waste is securely stored to prevent attraction of wildlife.

Invasive Species Control

- Inspect all fill and topsoil sources for invasive species.
- Clean all construction equipment and vehicles before entering the site.
- Conduct quarterly monitoring for invasive species colonization and implement manual or mechanical removal if detected

Post-Construction Habitat Restoration (Where native species were removed)

- Restore disturbed areas using native ground cover and native species.
- Conduct survival assessments at 3, 6, and 12 months post-planting.
- Replace any non-surviving plants to maintain target density.
- Engage local environmental NGOs and other groups in replanting and post-restoration monitoring.

Monitoring and Compliance

Biodiversity and habitat monitoring is designed to ensure that the mitigation and management measures outlined in the BHMP are effectively implemented and that they achieve their intended objectives. Monitoring provides the evidence base for adaptive management, allowing for corrective action if unforeseen impacts occur, and demonstrating regulatory compliance with the EMA's Certificate of Environmental Clearance (CEC) conditions and IDB safeguard requirements.

Monitoring is an ongoing process that evaluates:

1. The effectiveness of biodiversity conservation and habitat protection measures;
2. The recovery and stability of rehabilitated habitats;
3. The status and health of key flora and fauna populations; and
4. Compliance with national environmental regulations and international biodiversity protection obligations.

Indicators

The following KPIs have been selected to evaluate the effectiveness of the noise monitoring system.

Table: Key Performance Indicators for Biodiversity and Habitat Management

Indicator	Target / Performance Standard	Frequency	Means of Verification	Responsible Party
Riparian vegetation cover (%)	≥90% baseline maintained	Quarterly	Biodiversity Monitoring Report	WASA Env. Officer (via Independent Ecologist)
Turbidity and TSS	≤10% above baseline	Weekly (construction)	Water Quality Report	WASA Env. Officer (via Independent Lab)
Presence of protected species	No disturbance incidents	Biannual	Biodiversity Monitoring Report	WASA Env. Officer (via Independent Ecologist)
Fauna sightings or mortality	0 mortality due to works	Weekly (construction)	Biodiversity Monitoring Report	Contractor / WASA
Replanted vegetation survival (%)	≥80% survival rate	3, 6, and 12 months post-planting	Biodiversity Monitoring Report	Forestry Division/WASA
Invasive species presence	0 new invasive species established	Quarterly	Biodiversity Monitoring Report	WASA Env. Officer (via Independent Ecologist)
Downstream Sedimentation	No significant increase in fine sediment	Weekly	Water Quality Report	WASA Env. Officer (via Independent Lab)

Roles and Responsibilities

It is the responsibility of WASA and all contractors to ensure that all mitigation measures are carried out and that monitoring reports are prepared. The Contractor hired should be supported by the WASA Environmental Officer to oversee the specific requirements of this plan.

Any contractor assigned by the WASA assumes joint responsibility of undertaking the monitoring required and implementing the mitigation measures necessary. The site and surrounding environment will be monitored by the contractor, independent ecologists, and the WASA Environmental Officer for negative impacts caused by the works.

If there are any violations, this will be reported immediately to WASA's Environmental Officer to allow for management strategies to be changed according to the results.

Table: Roles and Responsibilities for Ecosystem/Biodiversity Management

ENTITY / ROLE	KEY RESPONSIBILITIES

WASA Environmental Officer	Oversee implementation of biodiversity measures, ensure contractor compliance, and prepare quarterly monitoring reports.
Contractor / HSE Officer	Implement all mitigation and monitoring measures; employ an Environmental Officer to manage site biodiversity controls.
Forestry Division (Ministry of Agriculture, Land and Fisheries)	Provide technical guidance for flora/fauna management and approve relocation and replanting programmes.
EMA	Regulatory oversight; review compliance reports and conduct periodic inspections.
IDB	Review environmental performance as part of project supervision and safeguard compliance verification.

Disaster Risk Management Plan

The Disaster Risk Management (DRM) Plan provides a comprehensive framework for identifying, assessing, and mitigating natural and human-induced hazards that may affect the Water Treatment Plant, Refurbishment or Pipeline Projects during construction and operation. The plan ensures that the facility, its personnel, and surrounding communities are adequately prepared to respond to and recover from extreme events, thereby supporting climate resilience, public safety, and service continuity.

The plan seeks to:

1. Safeguard critical water infrastructure by integrating disaster-resilient design features that reduce vulnerability to natural hazards such as flooding, landslides, earthquakes, and tropical storms common to the project region.
2. Enhance preparedness and response capacity of WASA personnel, contractors, and local stakeholders through clear emergency protocols, communication channels, and coordination with national disaster agencies, including the Office of Disaster Preparedness and Management (ODPM).
3. Ensure compliance with the Inter-American Development Bank (IDB) Environmental and Social Performance Standard 4 (Community Health, Safety, and Security), as well as the National Disaster Risk Management Policy of Trinidad and Tobago.
4. Reduce downtime and service disruption by establishing proactive risk reduction, rapid response, and recovery mechanisms to maintain the continuous delivery of potable water during and after disaster events.

5. Promote adaptive and climate-resilient operations by incorporating lessons learned from monitoring, simulations, and periodic reviews into the ongoing management of the WTP and its supporting infrastructure.

Management Measures

The Contractor and WASA will jointly ensure that the following measures are implemented for effective emergency response and disaster risk reduction, with clearly identified first responders and visible emergency contact information on-site:

- Elevate key plant structures above the 1-in-100-year flood level plus additional freeboard for projected sea-level rise.
- In the absence of a unified National Building Code for Construction, design structures to withstand Category 4 hurricane wind loads, consistent with the Caribbean Uniform Building Code (CUBiC).
- Flood-proof critical infrastructure through elevated electrical panels, sealed clearwells, watertight doors, and reinforced retaining walls.
- Employ corrosion-resistant materials due to the proximity to the fluvial environment.
- Incorporate engineered foundations and controlled compaction to reduce risks of soil settlement or liquefaction during seismic activity.
- Implement graded site drainage channels, retention basins, and vegetated swales to divert and control stormwater runoff.
- Pre-wire for future renewable energy integration (e.g., solar backup for telemetry and SCADA systems).
- Maintain active liaison with regional emergency services (Fire Service, ODPM, and TTPS) to coordinate emergency response and establish a clear chain of command and communication protocols.
- Conduct regular training programs on disaster preparedness, including:
- Basic first aid and emergency communications;
- Fire prevention and response;
- Evacuation and shelter procedures;
- Handling of hazardous materials (chlorine, coagulants, etc.); and
- Flood, earthquake, and marine environment risks.
- Maintain Standard Operating Procedures (SOPs) for:

- Pre-storm shutdown and protective measures;
- Backup generator operation and fuel management;
- Post-event inspection, cleanup, and reactivation procedures.
- Conduct community engagement sessions in the project area to raise public awareness of emergency measures and ensure coordination in the event of a disaster.
- Implement quarterly emergency simulation exercises with WASA personnel, local communities, and regional authorities to test and improve the DRM Plan.
- Adhere to hazard-specific plans, the management measures of which are outlined below:

Hurricanes and Tropical Storms

- Design plant infrastructure to withstand high winds, storm surges, and heavy rainfall. This may include using friction pylons and deep foundations that can withstand hurricane winds.
- Stay informed about hurricane forecasts and warnings.
- Store loose materials, equipment, and debris in a secure location or tie them down.
- Develop and communicate a hurricane/Tropical Storm Emergency plan for all workers.
- Ensure there are first aid supplies, communication equipment, and emergency power sources available on-site.
- Have a clear plan for the cessation of Project activities in advance of a hurricane's arrival; ensure workers are informed of the plan and evacuation routes.
- Have a plan for interim treatment and/or removal should operations be impacted for more than 24 hours.
- Develop a protocol for rapid damage assessment after a hurricane to evaluate the impact on all associated critical infrastructure related to the system.
- Establish a priority restoration plan to quickly restore plant operations and services to users.

Fires

- There should be strict procedures for monitoring fire risks, maintaining and servicing equipment, and the handling, storage and removal of flammable materials from work sites.
- Maintain regular inspections and servicing of electrical equipment to detect early signs of overheating, leakage, or malfunction.

- In the event of a fire, there should be sufficient, available and well-maintained firefighting equipment (e.g., fire extinguishers). All workers should be trained in the use of firefighting equipment and evacuation procedures.
- If the fire escalates, the local fire brigade/service shall be called to extinguish it. The contact information for the fire department on the island should be displayed in a location where it is visible to all workers.

Heavy Rainfall and Flood Prevention

- Suspend construction or outdoor maintenance during severe rainfall alerts.
- Secure all chemicals, equipment, and materials away from drains and riverbanks.
- Use bioengineering techniques (e.g., vetiver grass and native vegetation) to stabilize disturbed slopes.
- Install silt fences, sediment basins, and check dams during construction to reduce sediment runoff.
- Conduct drainage performance reviews annually or after each major storm.

Earthquakes

- Apply seismic-resistant design in line with CUBiC Building Code for moderate seismic zones.
- Use deep pile foundations and anchored tanks to minimize risk of differential settlement or movement.
- Conduct structural integrity assessments following any felt seismic event.
- Provide earthquake awareness sessions for staff and communities, including safe evacuation and assembly areas.

Monitoring and Compliance

Monitoring of the project work site will be conducted daily by the Water and Sewerage Authority (WASA) to ensure full compliance with the national building codes, environmental and disaster preparedness regulations of Trinidad and Tobago, and IDB Environmental and Social Performance Standard (ESPS) 4 – Community Health, Safety, and Security. The various projects have been designed as a climate-resilient facility, integrating structural and operational safeguards against tropical storms, drought, flooding, and earthquakes. Given its critical role in supplying potable water to many customers, the risk level is classified as high.

Indicators

The following KPIs have been selected to evaluate the effectiveness of the emergency response measures.

Key Performance Indicators (KPIs)	Monitoring and Measurement	Frequency	Responsibility
Log of Safety and Emergency Equipment (serviced)	Review and inspection of maintenance records	Monthly	WASA and/or Contractor; Results to be presented by the EHS Officer to the WASA Technical Leads for the Project
Hazard-Specific Plans (Hurricanes, Floods, Fire, Earthquake)	Documentation review and updates	Annual	
Worker Training on Emergency and Hazard Plans	Verification of training logs	Semi-Annual	
Emergency Drills Conducted	Participation record and performance evaluation	Quarterly	
Post-Event Damage Assessments Completed	Review of inspection reports	After each major event	

Roles and Responsibilities

It is the responsibility of the WASA and contractors to ensure that the emergency response measures are clearly understood by all workers and that all management and mitigation measures are carried out and that monitoring reports are prepared.

Emergency Management Plan

The Emergency Management Plan establishes protocols to prepare for, respond to, and recover from emergencies affecting the project areas and activities. It aligns with international and national standards, for example, it fulfills IDB ESPS4 requirements for community safety, and follows the all-hazards approach advocated by CDEMA and the Trinidad & Tobago Disaster Management Policy. The plan outlines clear responsibilities, communication channels, preparedness measures, and procedures to ensure continuity of safe water service and protection of personnel and infrastructure during disasters.

This plan seeks to:

- Protect Infrastructure and Operations: Reinforce and prepare plant facilities to withstand hazards (flooding, storms, earthquakes, fire) so critical treatment capacity is maintained.

- Ensure Personnel and Community Safety: Establish evacuation plans, safety training, and liaison with emergency services to safeguard workers and nearby residents.
- Maintain Continuity of Water Service: Minimize downtime by having backup power, alternate water sources, and rapid repair protocols to quickly restore operations.
- Enhance Preparedness and Coordination: Conduct regular drills and training on emergency response, and coordinate with ODPM, Fire Service, Police, and local governments.
- Comply with Standards and Policies: Implement measures required by IDB's Environmental and Social Performance Standard 4 on health and safety and by national disaster management policies.
- Promote Adaptive Learning: Incorporate lessons from exercises and actual events into updated procedures to improve resilience over time.
- Preparedness and Mitigation Measures

Emergency Organization Structure and Roles and Responsibilities

The first activity in implementing the ERP is to designate responsibilities for action before, during and after an emergency incident via establishing an Incident Command System. The other general responsibilities of the committee include the following:

- To designate and clearly demarcate emergency exits.
- To update the emergency contact list at least yearly.
- To ensure that ALL members of staff are familiar with the evacuation plan by conducting regular simulation exercises.
- To ensure that all equipment and buildings are fully insured against all natural disasters.
- To arrange off-site emergency shelters and assembly points in the case of unpredictable disasters. These arrangements should be confirmed with memoranda of understanding from each establishment.
- To advise staff and suppliers of the status and operating capabilities at all stages of an emergency.
- To establish procedures for communication with all staff and suppliers.
- To ensure that the equipment and physical structure meet occupational health and safety standards.
- To procure a full complement of equipment to control emergency situations such as:
    - Protective clothing against harmful chemicals
    - Fire extinguishers
    - fully equipped decontamination unit
    - First aid kit

The Incident Command System (ICS) is the model tool used for command, control, and coordination of an emergency response and provides a means to coordinate the efforts of first responders as they work toward the common goal of stabilizing a major event and protecting life, property, and the environment. The ICS uses a simple yet well-defined command structure in order to specify roles and responsibilities for responding to emergencies. The main contact person and decision-maker is the Incident Commander. The EOC will be designated the role of Incident Commander (IC), unless the incident is of such significance that local or national officials take over the command.

Table: Roles of Key Personnel in Incident Command Structure

Role	Task
Incident Commander (IC)	The incident commander will be the EOC as appointed by the SHE Committee and responsible for management of incidents that may affect ESL (office and laboratory); coordinating all emergency response activities among the staff and between response agencies.
Project Manager	Develops and presents an action plan for sustaining operations given the disaster scenario at 4, 8, 24, and 48 hours from the time of the incident. Tracks expenditures for cost recovery and to ensure that funds can be allocated for special purchases essential to disaster response.
Safety Officer	The general safety of responders will be the responsibility of the safety officer.
Liaison Officer	Establishes contact and works with external agencies responding to the emergency.
Chief Executive Officer	Provides official information to the media and will disseminate public information.
Security Officer	Organizes and enforces scene/facility security by restricting building and grounds access and directing traffic.
All Staff and Workers	During an emergency situation all staff and workers are expected to cease operation and comply with response actions.

Notification and communication procedures

Appropriate and timely communication is vital to effective emergency response. An effective communication based on hierarchical notification for reporting threat warnings and other critical information to appropriate individuals at each stage of the response will be implemented at the facility.

Internal Contact List

In general, communications during an emergency response will proceed along the chain of command of the ICS. The employee who discovers an emergency situation that may affect the operation of the facility will report it to his/her supervisor immediately. The supervisor will notify the Incident Commander. If appropriate after consultation with key personnel, the IC will initiate the emergency response plan and notify the paging operator to issue an overhead or group page and instructions. Essential off-duty staff will also be notified if necessary.

In general, communications during an emergency response will proceed along the chain of command of the ICS. The employee/worker who discovers an emergency situation that may affect the operation of the facility will report it to his/her supervisor immediately. The supervisor will notify the Incident Commander. If appropriate after consultation with key personnel, the IC will initiate the emergency response plan and notify the paging operator to issue an overhead or group page and instructions. Essential off-duty staff will also be notified if necessary.

Communication channels such as: telephone (land lines and cellular lines), pagers and two-way radios whenever possible will be used to communicate vital information during an emergency. If established communication channels are unavailable, the Incident Commander will establish a runner/courier system to communicate critical information throughout the facility. The critical internal contact list is as follows in the table below (*To be completed by Contractor*).

Table: Incident Command System Contact List

Name	Title/Role	Contact Number/s
	Emergency Operations Coordinator	
	Alternate Emergency Operations Coordinator	
	Project Manager	
	General Equipment Supply Officer	
	Safety Officer	
	First Responder	
	Security Officer	
	Admin/ Liaison Officer	
	Planning and Financial Chief	

Emergency contacts and Coordination with Local Emergency Authorities

It is the responsibility of the Project Manager to notify the responsible Government of the Republic of Trinidad and Tobago authorities. Once the internal response system has been initiated, the Liaison Officer or EOC will establish and maintain necessary communication with the external agencies. The Office of Disaster Preparedness and Management (ODPM) have responsibility for implementation of the National Disaster Plan and overall coordination of the response activities and countermeasures in the event of an emergency. An external contact list of appropriate first responders is in the Table below. The Contractor shall modify and add any additional contact deemed useful in the event of an emergency

Table: External Emergency Contact List

Responsible Persons/Agency	Contact Numbers
Trinidad and Tobago Fire Service (TTFS) **1b Wrightson Rd, Port of Spain, Trinidad & Tobago**	Emergency Number-990 Phone: +1 868-226-8837 226-TTFS (8837)
Office of Disaster Preparedness (ODPM) **4A Orange Grove Road, Trincity, Tacarigua**	ODPM Emergency – 511
Trinidad and Tobago Defence Force **#1 Airways Road, Chaguaramas**	1 (868) 634-4013/ 634-4554
Trinidad and Tobago Meteorological Service **Rawinsonde Building, Piarco International Airport, Golden Grove Rd, Trinidad & Tobago**	1 868-669-5465
Environmental, Health and Safety Unit **#42 Chootoo Road,El Socorro Extension South, Aranguez Trinidad**	(868) 225-3532
Police Rapid Response	999
Global Medical Response of Trinidad and Tobago – GMRTT	811
National Ambulance Service	811 OR 1 (868)-217-4MOH (4664)

Responsible Persons/Agency	Contact Numbers
Crime Stoppers	800 TIPS (8477)

Each emergency response plan will be reviewed carefully with all employees and workers and posted in an area where all will have access to it. The written plans will be available to the employees/workers and kept on site.

Practice evacuation drills will be conducted at least twice per year to allow employees to become familiar with the emergency procedures, their evacuation routes, and assembly locations, so that if an actual emergency should occur, they will respond properly. Outside resources, such as fire and police departments will be included in these drills when possible. After each drill management and employees will evaluate the effectiveness of the drill and identify the strengths and weaknesses of the plan and work to improve it.

Operations and personnel may change over the project lifetime and an out-dated plan will be of little use in an emergency. The ERP will be reviewed at least annually and updated whenever someone's emergency actions or responsibilities change, or when there is a change in the layout or design of the facility, new equipment, hazardous materials, or processes are introduced that affect evacuation routes, or introduce new hazards that require special actions.

Management Measures

The following measures will be implemented before and during operations to reduce risks and improve response readiness. This includes both engineered resilience features and operational procedures:

- Corrosion and Material Durability: Given proximity to water and humidity, materials and coatings resistant to corrosion will be used for tanks, piping, and infrastructure. Equipment sensitive to moisture will be sealed or located inside protected shelters.
- Seismic Safety: Foundations will be engineered (e.g. compacted fill, deep piles) to minimize differential settlement or tipping during an earthquake. Tanks and heavy equipment (e.g. generators) will be anchored. Structural design follows the Caribbean earthquake-resistant guidelines. Post-earthquake, the plant supervisor will conduct immediate visual inspections of structures, piping, and tanks for damage.
- Backup Power and Energy: To address power outages, an on-site backup generator (or multiple generators) will be installed with enough fuel for at least 72 hours of continuous operation. Generator and critical electrical equipment will be located above potential flood levels. The electrical system will be pre-wired to allow integration of future renewable backup (e.g. solar panels for SCADA/telemetry).

- Alternate Water Supply: The plan will identify alternate water sources for emergency use (for example interconnection with neighboring systems, tanker-truck supply, bottled water programs) and establish mutual aid agreements with nearby utilities. These agreements ensure sharing of water, equipment, or personnel if any plant is offline.
- Communications and Command: A clear chain of command is established for emergency response. Primary and backup emergency contact information (ODPM, Fire Service, Police, hospital, WASA leadership) will be posted prominently at each site. An emergency operations center (EOC) or incident command post protocol will be set up for major events, with designated roles (incident commander, safety officer, communications officer, etc.).
- Training and Exercises: All staff and contractors will receive regular training on emergency procedures. This includes first aid and CPR; firefighting and extinguisher use; evacuation routes; handling of hazardous materials (e.g. chlorine leaks); and hazards specific to the plants (flood, storm, earthquake safety). Annual drills (tabletop and field exercises) involving on-site personnel, community representatives, and regional responders (ODPM, TTPS, Fire Service) will be conducted to test and refine the Emergency Plan.
- Standard Operating Procedures (SOPs): Written SOPs will guide actions before, during, and after emergencies, including:
    - *Pre-Event Shutdown:* Steps to secure the site and equipment when a storm or hazard is imminent (e.g. safely halt pumping, isolate chemical processes, remove or tie down loose objects).
    - *Generator and Fuel Management:* Procedures for starting and switching to backup power and managing fuel inventory and refueling during prolonged outages.
    - *Post-Event Inspection:* Inspection checklists for structural integrity, equipment function, water quality, and environmental hazards (e.g. chemical spills, debris) following a disaster.
    - *Recovery and Restart:* Steps to de-water flooded areas, clear debris, flush and disinfect pipelines, and gradually bring the plant back online, prioritizing safety checks.
- Fire Safety: The site will have fire risk controls including proper storage of flammables (e.g. fuels, solvents) in approved cabinets, regular maintenance of electrical panels (thermography or inspections), and no-smoking areas. Fire extinguishers and hoses will be provided at multiple locations, and personnel will be trained in their use. In a fire emergency, staff will immediately begin on-site firefighting (if safe) and evacuate according to the plan, while alerting the island's Fire Service. Contact details for the local fire station will be displayed.
- Community Engagement: WASA will hold outreach sessions to inform nearby communities about the emergency plan: how to receive alerts about water supply issues, where to find

emergency potable water if needed, and what to do (e.g. boil-water advisories). This includes coordinating with local authorities on evacuation sheltering or water distribution points.

Monitoring and Compliance

WASA's Environmental Health & Safety (EHS) Officer will conduct ongoing monitoring to ensure all emergency measures are current and effective. This includes:

- Reviewing and updating the Emergency Plan and hazard protocols at least annually or after any significant event.
- Tracking key indicators, such as maintenance logs for emergency equipment (generators, pumps, fire gear), checked monthly; training records (first aid, evacuation) every six months; and drill reports (quarterly) to evaluate performance.
- Performing audits of structural safeguards and compliance with building and safety codes.
- After any incident, a formal after-action review will identify lessons learned, and corrective actions will be implemented.

Results of these monitoring activities will be reported to WASA project leadership and shared with stakeholders as appropriate. The goal is continual improvement: the plan will be revised based on new guidance, technological advances, and lessons from exercises and real emergencies.

Indicators

The following KPIs have been selected to evaluate the effectiveness of the emergency response measures.

Key Performance Indicators (KPIs)	Monitoring and Measurement	Frequency	Responsibility
Emergency Response Readiness Score (availability and condition of emergency equipment, PPE, first-aid kits, communication devices)	Inspection of equipment readiness checklist; verification that minimum readiness thresholds are met	Monthly	WASA Site Supervisor / EHS Officer
Emergency Comms & Alert System Functionality	Testing and validation of communication systems and posted emergency contacts	Monthly	EHS Officer / Plant Operations Lead
Evacuation Route & Assembly Point Compliance	Inspection of signage, access routes, lighting, and obstruction-free pathways	Quarterly	EHS Officer

Emergency Response Team (ERT) Activation Capability	Review of roster updates, availability confirmation, and contact accuracy	Quarterly	WASA Emergency Manager
First-Aid & Emergency Skills Certification (number and percentage of staff currently certified)	Review of valid certifications and training records	Semi-Annual	EHS Officer
Emergency Response Time (time from incident detection to action taken during drills)	Measurement during simulation exercises and drills	Quarterly	EHS Officer / Drill Coordinator
Backup Power System Reliability (generators, UPS, fuel supply)	Functional testing and review of generator logs; verification of fuel inventory	Monthly	Mechanical/Operations Supervisor
Post-Event Review and After-Action Reports Completed	Review of documented incidents, corrective actions, and lessons learned	After each major incident	EHS Officer / Incident Commander
Corrective Actions Closed Out on Time	Track number of corrective actions implemented vs. pending	Quarterly	WASA Project Manager
Emergency Water Supply & Distribution Readiness	Inspection of emergency supply systems and verification of contingency logistics	Semi-Annual	WASA Operations Division

Roles and Responsibilities

- WASA Management (Project Lead & EHS Officer): Ultimate responsibility for the Emergency Plan. They ensure resources are available (equipment, training, drills) and that all staff and contractors know and follow the procedures. The EHS Officer documents compliance and coordinates reporting to IDB and authorities.
- WASA Personnel and Contractors: All on-site staff must understand and execute emergency procedures (evacuation, shutdown, firefighting). Designated emergency team members (e.g. Incident Commander, Safety Officer) have specific duties during a crisis. They must maintain communications with off-site emergency agencies as needed.
- Emergency Services (ODPM, Fire Service, Police): WASA will maintain active liaison with these agencies. In an emergency, they support the response (e.g. firefighting, security, medical aid). Roles of these first responders and communication protocols are pre-arranged.

Brine Management Plan

1. PURPOSE

This Brine Management Plan (BMP) establishes the measures required to manage reverse osmosis concentrate (brine) generated by the proposed Desalination Plants in a manner that protects marine water quality and ecological integrity while maintaining compliance with applicable regulatory requirements and international good practice (IDB, 2020a; IDB, 2020b; IFC, 2007).

The Plan provides the framework for brine discharge management, environmental monitoring, compliance verification, corrective action and continual improvement throughout the operational life of the facility.

The BMP shall be implemented as part of the Project Environmental and Social Management Plan (ESMP) and Environmental and Social Management System (ESMS).

2. MANAGEMENT MEASURES

2.1 Brine Discharge Management

Brine shall be discharged through a purpose-designed marine outfall system incorporating appropriate mixing and dispersion provisions to facilitate rapid dilution within the receiving marine environment consistent with international good practice for desalination facilities (UNEP, 2008; IFC, 2007).

The outfall and associated discharge infrastructure shall be maintained in accordance with approved operational and maintenance procedures to ensure continued performance and reliability.

Discharge conditions shall remain consistent with applicable permit requirements, environmental commitments and design assumptions used in the environmental assessment.

Periodic inspections shall be undertaken to verify the integrity and performance of the marine outfall system.

2.2 Brine Minimization and Operational Control

Brine generation shall be minimized through optimization of plant recovery rates, treatment efficiency and membrane performance.

Operational controls shall be maintained to ensure stable concentrate quality and discharge conditions.

The use of treatment chemicals shall be optimized to minimize residual concentrations in the concentrate stream while maintaining operational effectiveness.

The discharge of fuels, oils, hazardous substances or untreated chemical wastes through the brine discharge system shall be prohibited.

Records of feedwater abstraction, permeate production, recovery rates and concentrate discharge volumes shall be maintained and made available for environmental compliance purposes.

2.3 Brine Dispersion Verification

Prior to commissioning and during initial operation, the Project shall verify that the marine outfall system achieves the dilution and dispersion performance assumed during design.

Verification may include salinity profiling, marine water quality monitoring, hydraulic assessments, field observations and other appropriate methods.

Where monitoring indicates that predicted performance is not being achieved, corrective measures shall be implemented.

2.4 Climate and Operational Resilience

The performance of the brine management system shall be periodically reviewed in relation to coastal flooding, storm surge, sea-level rise, extreme rainfall events, prolonged drought conditions, changes in source water quality and other climate-related factors that may influence environmental performance.

Operational and environmental management measures shall be updated where necessary to maintain compliance and environmental protection objectives in accordance with national climate adaptation priorities (Government of Trinidad and Tobago, 2023).

3. MONITORING AND COMPLIANCE

3.1 Monitoring Objectives

Monitoring shall be undertaken to:

- verify the effectiveness of brine management measures;
- assess compliance with applicable environmental requirements;
- identify changes in marine water quality attributable to Project operations;
- detect emerging environmental risks; and
- support adaptive management and continual improvement.

The monitoring programme has been designed in accordance with international environmental management principles and desalination industry good practice (IFC, 2007; UNEP, 2008).

3.2 Monitoring Parameters

Operational Monitoring

- Brine discharge flow rate

- Brine salinity
- Brine temperature
- Recovery efficiency
- pH

Marine Water Quality Monitoring

- Salinity
- Temperature
- Dissolved oxygen
- pH
- Turbidity
- Conductivity
- Residual chlorine (where applicable)

3.3 Monitoring Locations

Monitoring shall be undertaken at:

- the discharge point;
- the near-field mixing zone;
- an intermediate monitoring location;
- a far-field reference location; and
- a control location outside the influence of the discharge.

3.4 Monitoring Frequency

Parameter	Frequency
Operational parameters	Continuous
Brine salinity and discharge characteristics	Daily
Near-field marine water quality	Monthly during Year 1; Quarterly thereafter
Far-field marine water quality	Quarterly during Year 1; Semi-annually thereafter
Environmental performance review	Quarterly
Environmental compliance audit	Annually

3.5 Action Levels

An investigation shall be initiated and corrective measures implemented where monitoring identifies:

- non-compliance with applicable discharge requirements;
- sustained increases in salinity outside the approved mixing zone;
- evidence of unexpected marine ecological stress attributable to the discharge;
- deterioration in diffuser or outfall performance; or
- adverse environmental trends inconsistent with the findings of the environmental assessment.

4. PERFORMANCE INDICATORS

Performance indicators have been selected to provide measurable and auditable evidence of the effectiveness of brine management measures and compliance with environmental protection objectives.

Indicators	Performance Target
Compliance with applicable discharge requirements	100%
Completion of scheduled monitoring activities	≥95%
Marine salinity increase outside approved mixing zone attributable to Project operations	None
Significant adverse marine ecological impacts attributable to brine discharge beyond predicted impact levels	None
Unplanned brine discharge incidents	Zero
Corrective actions implemented within agreed timeframe	≥90%
Annual environmental compliance audit completed	100%
Verified outfall and diffuser performance maintained	100%

5. ROLES AND RESPONSIBILITIES

Plant Manager

Responsible for:

- overall implementation of the Brine Management Plan;
- ensuring adequate resources for monitoring and compliance activities;
- review of environmental performance reports; and
- approval of corrective actions.

Environmental Officer

Responsible for:

- implementation of the monitoring programme;
- coordination of environmental sampling and laboratory analyses;
- maintenance of monitoring records;
- compliance assessment;
- preparation of environmental reports; and
- initiation of corrective actions where required.

Operations Supervisor

Responsible for:

- day-to-day operational monitoring;
- maintenance of discharge system performance;
- reporting operational anomalies;
- implementation of corrective measures; and
- maintenance of operational records.

6. DATA MANAGEMENT, ANALYSIS AND REPORTING

Monitoring data shall be maintained within the Project environmental management system and retained in accordance with regulatory and Project requirements.

Monitoring results shall be analysed to:

- identify trends in marine water quality;
- assess the effectiveness of brine management measures;

- verify compliance with environmental requirements;
- identify emerging environmental risks; and
- support adaptive management decisions.

Quarterly environmental performance reviews shall summarize monitoring results, compliance status, exceedances, corrective actions and recommendations for improvement.

Annual environmental compliance reports shall provide a consolidated assessment of environmental performance and Plan effectiveness.

7. CORRECTIVE ACTIONS, ADAPTIVE MANAGEMENT AND PLAN REVIEW

Where monitoring identifies non-compliance, unexpected environmental effects or adverse environmental trends associated with brine discharge, the cause shall be investigated and appropriate corrective measures implemented.

Corrective actions may include operational adjustments, infrastructure maintenance, increased monitoring, additional investigations or modification of management measures.

Adaptive management principles shall be applied to ensure that management measures remain effective and responsive to monitoring results, operational experience and changing environmental conditions.

This Plan shall be reviewed:

- prior to commencement of operations;
- following significant modifications to the desalination facility or marine outfall system;
- following significant environmental incidents;
- where monitoring identifies sustained adverse environmental trends; and
- at intervals not exceeding three years.

The review process shall evaluate Plan effectiveness, monitoring outcomes, compliance performance and opportunities for continual improvement consistent with international good practice and applicable lender requirements.

Local Employment and Gender Inclusion Management Plan (LEGIMP)

Introduction and Objectives

This Local Employment and Gender Inclusion Management Plan outlines the commitments and measures to ensure equitable access to employment opportunities for residents of the project

corridor and promote fair, inclusive labour practices in the implementation of the Water Treatment Plant and Transmission Pipeline Project.

The objectives of the Plan are to:

- Promote local employment, prioritising suitably qualified residents living along the project corridor.
- Ensure gender-inclusive hiring practices, with specific attention to reducing barriers faced by women in the construction sector.
- Establish transparent, fair, and accessible recruitment procedures.
- Strengthen community trust and reduce grievances related to "locals being bypassed."
- Support decent work conditions in accordance with national labour laws and international standards.
- Ensure safe, respectful working environments for women and vulnerable groups, aligned with the Worker Code of Conduct (CoC) (See Appendix 1).
- Build local capacity where feasible through training and skills transfer.

The Plan supports the OHS and Labour Management Plan, Worker Behaviour and Anti-Harassment Plan, Worker CoC, Stakeholder Engagement Plan (SEP), and the Grievance Redress Mechanism (GRM).

Management Measures

The Plan establishes local hiring commitments and takes into consideration gender inclusion measures, the reduction of barriers for women,

1. *Local Hiring Commitments*

- Prioritise the hiring of residents in the project area.
- Maintain a Local Employment Registry managed jointly by the Contractor and Community Liaison Officer (CLO).
- Advertise vacancies early within affected communities through community boards, WhatsApp groups, leaders, and local organisations.
- Ensure transparency in job criteria, required skills, and application processes.
- Provide feedback to unsuccessful candidates when feasible.

2. *Gender Inclusion Measures*

- Actively encourage women to apply for positions in:

- traffic control,
- administrative roles,
- site support roles,
- environmental and social roles, and
- skilled and unskilled labour where feasible.

- Include a gender-friendly recruitment statement in all job notices.
- Avoid biased job descriptions or discriminatory selection practices.
- Schedule work activities in ways that accommodate women's safety needs.
- Provide safe sanitation facilities for women and men separately.

3. *Reducing Barriers for Women*

- Provide awareness sessions on gender equality for male workers and supervisors as part of worker induction and training.
- Integrate women's needs into the OHS plan (PPE sizing, safety considerations, toilet facilities).

4. *Recruitment and Employment Processes*

- Transparent, merit-based hiring with documented decision-making.
- Maintain a record of:
  - applicants,
  - hired workers, and
  - reasons for non-selection.
- Prohibit fees, coercion, or nepotism in hiring.
- Encourage the Contractor to include local subcontractors and workers where possible.

5. *Equal Opportunity and Non-Discrimination*

- No discrimination based on gender, pregnancy, disability, ethnicity, age, or religion.
- Ensure women are not concentrated only in low-paying roles.
- Prohibit dismissing or penalising women for pregnancy or caregiving responsibilities.
- Consider the recruitment of workers with disabilities where possible.

6. *Worker Conduct and Community Interaction*

In line with the Worker CoC, workers must:

- Treat fellow workforce and community members respectfully.
- Avoid sexual harassment, intimidation, or inappropriate behaviour.
- Interact professionally, especially when working near homes, schools, clinics, and shops.
- Report any inappropriate conduct immediately to supervisors or the CLO.

7. *Worker Grievance Mechanism (Labour GRM)*

- Maintain a dedicated grievance system for labour concerns such as:
  - Discrimination,
  - Unfair treatment,
  - Harassment,
  - Unsafe conditions, and
  - Wage issues
- Ensure anonymous reporting options for women.
- Integrate gender-sensitive handling procedures.

Monitoring and Compliance

Monitoring ensures that local hiring and gender-inclusion commitments are consistently implemented and verifiable.

Monitoring Activities

- Weekly tracking of workforce composition by:
  - gender,
  - community of origin,
  - job category.
- Monthly audits of recruitment processes.
- Review of worker GRM entries to identify patterns of exclusion or discrimination.
- Regular supervision of work areas to ensure safe conditions for women.
- Verification of job advertisements and engagement records.

Compliance Mechanisms

- Non-compliance triggers Corrective Action Plans issued by WASA or the Supervisory Consultant.
- Persistent failure to prioritise local hiring may result in contractual penalties.
- GBVH violations result in immediate disciplinary action or removal from project.
- Progress reported monthly as part of the ESMP compliance dashboard.

Indicators (KPIs)

The project's progress will be tracked through the following indicators.

KPI	Monitoring Method	Frequency	Responsibility
Percentage of workforce from local communities	Worker registry; HR records	Weekly	Contractor
Number and percentage of female workers hired	HR records; gender disaggregation	Weekly/ Monthly	Contractor; WASA
% of job advertisements circulated within communities	Communication logs	Weekly	Contractor (CLO)
Number of women applying versus hired	Application records	Monthly	Contractor
Number of labour-related grievances	Worker GRM	Weekly/ Monthly	Contractor; WASA
Induction and training sessions conducted for employed workers (including women)	Training logs	Monthly	Contractor
Incidents of discrimination/ harassment reported & resolved	HR & GBVH log	Monthly	Contractor; WASA

Roles and Responsibilities

Although these principles are well established, it remains important to clearly define roles and responsibilities to support fair employment practices, advance gender inclusion, and maintain transparent labour processes throughout the project. This clarity helps the Contractor and WASA to work collaboratively with community representatives and remain aligned in meeting the project's commitments.

ENTITY / ROLE	KEY RESPONSIBILITIES

WASA	Oversight of local hiring and gender inclusion; monitor compliance; review HR records; ensure equal opportunity standards; lead corrective measures where needed.
Contractor	Implement transparent hiring; advertise jobs locally; track workforce data; enforce non-discrimination; create safe environments for women; provide training; manage labour GRM.
Contractor's Community Liaison Officer	Maintain Local Employment Registry; ensure community access to job information; support women applicants; facilitate communication; document outreach.
Supervisory Consultant	Verify hiring processes; review workforce composition; ensure gender inclusion measures are applied; report non-compliance to WASA.
Contractor HSQ Manager/Officer	Ensure worksites are safe for male and female workers; monitor behaviour; enforce Worker CoC.
Project Workers	Comply with workplace rules; uphold respectful behaviour; report unfair treatment or safety concerns.

Worker Health and Safety Management Plan (Occupational Health and Safety and Labour Management)

Introduction and Objectives

The Worker Health and Safety Management Plan (OHS & Labour Management Plan) outlines the measures required to protect the wellbeing, rights, and working conditions of all personnel involved in the project intervention, including subcontractors, temporary workers, and site-based staff.

The objectives of this Plan are to:

- Ensure safe and healthy working conditions throughout construction activities, particularly trenching, installation of pipelines, operation of heavy equipment, and project-related reinstatement works along the Main Road.
- Establish clear labour management practices that comply with Trinidad and Tobago labour laws and international safeguard requirements.
- Prevent workplace injuries, accidents, and occupational diseases.
- Promote responsible worker conduct in communities, including compliance with the Worker CoC.
- Ensure fair, transparent, and non-discriminatory procedures working hours, grievance management, and worker rights.

- Strengthen coordination between the Contractor, WASA, HSQ team, the Supervisory Consultant, and emergency responders.

The Plan complements the LEGIMP, the Community Health and Safety Management Plan (CHSMP), Worker Code of Conduct (Worker Behaviour Anti-Harassment Plan) (Appendix 10), Traffic and Road Safety Management Plan, SEP, and GRMs.

2. Management Measures

1. Compliance with National Legislation and Standards

All construction and labour practices will comply with:

- Occupational Safety and Health Act of Trinidad and Tobago
- Minimum Wages and Employment Rights legislation
- International Labour Organization (ILO) Core Standards
- WASA and CDB/IDB/IFC Environmental and Social Safeguards
- Contractor's CESMP and HSQ systems

2. Worker Recruitment and Labour Conditions

- Transparent recruitment processes, favouring local employment where possible
- Equal opportunity for male and female workers; no discrimination on the basis of gender, age, ethnicity, disability, or political affiliation.
- Written contracts for all workers outlining terms, benefits, and rights.
- Clear working hours, overtime rules, and rest periods communicated upon hiring.
- Prohibition of child labour and forced labour. No worker under the age of 18 years will be hired as per the Children (Amendment) Act 2000
- Site access controlled by sign-in logs and worker identification.

3. Worker Induction and Training

Mandatory induction for all workers covering:

- OHS requirements and site-specific hazards;
- Safe trenching practices;
- Heavy equipment operation rules;
- Traffic safety and roadside works;
- Emergency response procedures;

- Use of Personal Protective Equipment (PPE);
- Environmental protection;
- Worker Code of Conduct (Appendix 7) and expected respectful behaviour toward other project-related personnel and affected communities; and
- Grievance reporting by workers.

Refresher training will be held monthly, and toolbox talks about site hazards and precautions will be conducted daily.

4. *Personal Protective Equipment*

All workers are expected comply with PPE protocols established for the project including the use of:

- Hard hats;
- Safety boots;
- High-visibility vests;
- Safety gloves;
- Eye and ear protection;
- Respiratory protection measures (dusty environments); and
- Fall protection measures where necessary.

Workers will not be able to enter the worksite without the required PPE. Supervisors will enforce compliance.

5. *Safe Work Procedures*

1. Trenching and Excavation

- Daily inspections of trenches for stability.
- Shoring, benching, or sloping where depth exceeds regulatory thresholds.
- Barriers and warning tape surrounding open trenches.
- No worker allowed in trench during heavy rainfall.
- Safe entry/exit using ladders or ramps.

2. Heavy Vehicle and Equipment Operations

- Only certified operators allowed to drive heavy machinery.
- Spotters used for reversing or navigating in narrow areas.

- Equipment parked safely and locked after work hours.
- Strict speed limits enforced within worksite and along main roads.

3. Roadside and Traffic-Adjacent Works

- Implementation of Traffic Management and Road Safety Plan
- Use of flag personnel and signage.
- Safe pedestrian pathways maintained for both workers and community members.

4. Working in Sensitive Areas

- Additional caution near schools, homes, shops and other sensitive areas.
- Avoid work near these sites during peak community hours.

5. Environmental Health (dust, noise, vibration)

- Implementation of the dust suppression measures outlined in the Air Quality and Dust Control Plan.
- Implementation of noise control and limited working hours as outlined in the noise and vibration management plan.
- Provide at least two weeks' advance notification to nearby residents, businesses, schools, and other sensitive receptors prior to high-impact construction activities.
- Close monitoring air quality, noise and vibration complaints around social sensitive receptors.

6. *Worker Grievance Mechanism (Internal GRM)*

The Contractor must maintain a dedicated worker grievance channel separate from community grievances. The GRM should feature measures to protect workers' rights and to promote safe environment and respectful interactions. These should include:

- Confidential reporting;
- Anonymous submissions allowed;
- Clear timelines for response (acknowledge within 24 hours; resolve in 7-14 days);
- No retaliation for reporting; and
- Integration with broader GRM oversight by WASA.

7. *Worker Accommodation and Welfare*

Worker welfare provisions will be maintained to ensure safe, comfortable, and secure working conditions throughout the project. To ensure this, the following will be implemented:

- Adequate sanitation for men and women, drinking water, and shelter from sun/rain.
- Safe storage for tools and personal belongings.
- Worker transportation safety (project roadworthy vehicles, mandated seatbelts, trained drivers).

8. *Emergency Preparedness and Response*

Emergency preparedness measures will be maintained to ensure rapid, coordinated, and effective response to any incident that may occur during project activities. These measures will be implemented:

- First aid kits at all work fronts;
- Supervisors with first aid skills;
- Emergency contact numbers posted visibly;
- Spill kits for chemical/fuel handling;
- Coordination with the Local Fire Station, Eastern Regional Health Authority (ERHA), Local Police Station and Regional CooperationDisaster Unit.
- An incident drill early in the project with additional drills if the following occur:
  - The workforce changes substantially,
  - There is an incident or near-miss, or
  - High-risk activities escalate (e.g., night works).

9. *Enforcement and Disciplinary Actions*

Guidelines for workers regarding violations of OHS rules, risky behaviour, or CoC breaches may result in:

- Verbal or written warnings;
- Mandatory retraining;
- Suspension;
- Removal from site; and
- Legal consequences (for severe violations).

3. Monitoring and Compliance

Monitoring ensures consistent implementation of OHS procedures and labour management standards.

Monitoring Activities

- Daily site inspections by the HSQ Officer.
- Weekly audits of PPE use and compliance.
- Monthly review of workplace incidents, near misses, and corrective actions.
- Verification of worker contracts and training attendance.
- Inspection of trenches, equipment, and traffic control setups.
- Monitoring worker fatigue, overtime, and working hour records.

Compliance Mechanisms

- Non-compliance notices issued by WASA or Supervisory Consultant.
- Corrective Action Plans implemented within specified timeframes.
- Repeated violations may lead to contractual penalties.
- Findings included in monthly ESMP compliance reporting.

Indicators (KPIs)

The project's progress will be tracked through the following indicators.

KPI	Monitoring Method	Frequency	Responsibility
Number of OHS inductions completed	Training logs	Monthly	Contractor
% of workers equipped with full PPE	Site inspections	Daily	HSQ Officers
Number of near misses and incidents	Incident log	Daily/ Weekly	Contractor; Supervisory Consultant
Time taken to close corrective actions	HSQ weekly report	Weekly	Contractor
Number of toolbox talks conducted	Toolbox logs	Daily	Supervisors
% of workers with written contracts	HR records	Monthly	Contractor
Worker grievances received and resolved	Worker GRM log	Weekly	Contractor; WASA
Roadside safety compliance	Traffic control inspection	Daily	HSQ Officers

Roles and Responsibilities

The roles and responsibilities of the parties involved in implementing the project's labour and safety requirements are outlined below.

ENTITY / ROLE	KEY RESPONSIBILITIES
WASA	Oversight of OHS and labour practices; review incident reports; enforce compliance; escalate safety violations; ensure workers' welfare standards are maintained.
Contractor	Implement daily OHS practices; provide PPE; train workers; enforce CoC; maintain worker GRM; document incidents; ensure safe trenching and heavy equipment operations.
HSQ Manager/Officers	Daily inspections; hazard identification; maintain OHS documentation; conduct toolbox talks; verify PPE compliance; lead accident investigations. Provide medical and safety support to public emergency responders; respond to accidents; participate in emergency drills.
Supervisory Consultant	Independent OHS oversight; verify compliance; audit training records; issue corrective action requests.
Contractor's Supervisors/ Foremen	Direct enforcement of safe work procedures; manage crew behaviour; ensure workers understand daily tasks and hazards.
Project Site Workers	Comply with OHS rules; use PPE; report unsafe conditions; follow supervisor instructions; wear project identification.

Worker Behaviour and Anti-Harassment Plan

Introduction and Objectives

The Worker Behaviour and Anti-Harassment Plan outlines the measures to prevent, identify, and respond to any form of gender-based violence and harassment (GBVH), or inappropriate conduct involving project workers and community members.

The objectives of this Plan are to:

- Establish a zero-tolerance policy toward all forms of GBV, SEA, SH, and harassment.

- Ensure all workers, including subcontractors, sign, understand, and comply with a Worker Code of Conduct (CoC) (Appendix 7).
- Protect women, girls, older adults, persons with disabilities, and other vulnerable groups living in the project area.
- Reduce risks associated with worker-worker interactions and worker-community interactions, especially during trenching, access restrictions, and community engagements.
- Provide accessible, confidential channels for reporting GBVH-related grievances.
- Strengthen coordination with WASA, the Contractor, the Supervisory Consultant, and community stakeholders to manage incidents effectively.
- Ensure that survivors receive timely, confidential, and survivor-centred support.

This Plan supports the SEP, GRM, OHS and Labour Management Plan, and the CHSMP.

2. Management Measures

1. Code of Conduct Requirements

All workers (including subcontractors) must:

- Sign a GBVH-specific Code of Conduct prior to starting work.
- Receive orientation on expected behaviours and consequences of violations.
- Re-sign the Code of Conduct if project conditions change or during annual refresher training.
- Wear identifiable uniforms/ID badges at all times.
- Avoid entering private properties without explicit permission.
- Respect community norms, privacy, and cultural expectations.

The CoC as presented in Appendix 7 prohibits:

- Sexual harassment, exploitation, or abuse of community members or co-workers.
- Sexual comments, gestures, unwanted attention, or propositions.
- Relationships with minors (under 18), regardless of consent.
- Any sexual relations that are exploitative, unbalanced, or linked to power dynamics.
- Transactional sex or solicitation.
- Use of threats, force, or coercion.
- Retaliation against survivors or complainants.

2. *Worker Training and Behavioural Oversight*

- Mandatory induction training for all workers on GBVH, respectful behaviour, and reporting obligations.
- Monthly toolbox talks on respectful interaction, safe community engagement, and gender sensitivity.
- Supervisor-level training on identifying risks, enforcing the CoC, and responding to incidents.
- Signage posted at site offices summarising CoC rules and reporting channels.
- Clear disciplinary procedures (warnings → suspension → removal → legal reporting if applicable).

3. *Community Awareness*

- Communicate CoC commitments to local communities.
- Share reporting channels with community groups, women's networks, health centres, and vulnerable groups.
- Conduct brief awareness sessions at community meetings and schools, emphasising:
  - prohibited behaviours
  - how to report concerns
  - survivor rights and confidentiality

4. *Reporting and Survivor-Centred Response*

GBVH-related grievances follow the GRM, with enhanced safeguards:

- Complaints can be anonymous and confidential.
- Female community members may report via female staff (CLO, WASA rep).
- Sensitive complaints bypass Contractor and go directly to WASA's designated GBVH focal point.
- Information is restricted to authorised personnel only.
- Immediate referral to medical, psychosocial, or legal support services where necessary.
- No survivor is required to provide written statements or engage beyond what they choose.

5. *Incident Management*

- Immediate safety assessment and survivor-centred response.
- Contractor removes alleged offender from community interactions pending investigation.

- WASA GBVH focal point oversees investigation and ensures due process.
- Coordinated response with Police or gender-based violence service providers where required.
- All actions documented while preserving confidentiality.

6. *Risk Mitigation in Worker–Community Interaction*

- Limit worker access to schools, community centres, and sensitive areas unless authorised.
- Enforce working-hour limits to avoid late-evening presence in communities.
- Avoid hiring practices that favour one gender unfairly; encourage women's participation.
- Monitor worker accommodation arrangements (if applicable) for GBVH risks.

3. Monitoring and Compliance

Monitoring ensures all mitigation measures and Code of Conduct provisions are implemented consistently.

Monitoring Activities

- Daily supervision of worker behaviour by site supervisors.
- Weekly review of any GBVH reports or early warning signs.
- Verification of worker signatures on CoC forms.
- Random interviews with workers and community members to assess behavioural compliance.
- Monthly reporting to WASA on GBVH implementation status.
- Oversight audits by the Supervisory Consultant.

Compliance Mechanisms

- Corrective Action Plans issued for weak enforcement.
- Mandatory removal of workers for serious CoC violations.
- Documentation of disciplinary actions in Contractor records.
- Annual review of the GBVH plan and CoC provisions.

4. Indicators

KPI	Monitoring Method	Frequency	Responsibility

% of workers who signed CoC	Contractor HR records	Monthly	Contractor
Number of GBVH induction and refresher sessions held	Training logs	Monthly	Contractor; WASA
Number of GBVH-related grievances reported	GRM log	Weekly/Monthly	WASA; CLO
Time taken to respond to GBVH complaints	GRM tracking	Weekly	WASA
% of workers disciplined or removed for violations	HR disciplinary records	Quarterly	Contractor
Community awareness events conducted	SEP records	Monthly/Quarterly	WASA; CLO
Availability of survivor referral support	Service provider confirmations	Quarterly	WASA

Roles and Responsibilities

Effective prevention and response require coordinated responsibilities among the Contractor, WASA, community representatives, and the Supervisory Consultant. Clear accountability ensures zero tolerance for GBVH and protects affected community members.

ENTITY / ROLE	KEY RESPONSIBILITIES
WASA	Oversight of GBVH plan; designate GBVH focal point; ensure CoC enforcement; manage sensitive GBVH grievances; coordinate with service providers; ensure sanctions are applied.
Contractor	Ensure all workers sign CoC; conduct training; supervise worker behaviour; enforce sanctions; immediately remove workers involved in GBVH incidents; maintain confidential records.
Supervisory Consultant	Monitor compliance; verify implementation; review training materials; audit GBVH reporting and response; escalate issues to WASA.
Community Liaison Officer	Maintain safe and respectful engagement; receive confidential complaints; support survivors; maintain referral pathways. Work with community leaders to share information on the project's zero tolerance policy regarding all forms of violence and harassment, the Worker Code of Conduct and expected worker behaviour.

	Where required identify and liaise with the TTPA and relevant GBV service providers in providing the necessary support for survivors (including medical, counselling, psychosocial, legal support to survivors, where required. Also to inform residents about GRM reporting channels.
HSQ Manager / Officers	Observe worker interactions; report violations; ensure the CoC displayed; support investigations.

Community Health and Safety Management Plan

The Community Health and Safety Management Plan (CHSMP) sets out the actions required to safeguard the health, safety, and well-being of communities in the project area.

The Plan aims to:

- Identify and manage the community health and safety risks arising from construction and operational activities.
- Maintain safe access for residents, businesses, schools, and vulnerable groups along the Toco Main Road and nearby communities.
- Prevent accidents involving residents and other visiting or passing through the main road, including road users, pedestrians, and children.
- Ensure timely, transparent, and accessible communication with affected communities throughout the project lifecycle.
- Strengthen coordination among WASA, the Contractor, MOWT, and Municipal Corporations to ensure safe work execution and rapid response to incidents.

The CHSMP forms part of the project's broader ESMS and supports the SEP, Traffic and Road Safety Management Plan, Project Emergency Response Plan (ERP), Water Quality Management Plan, and the Project's Grievance Redress Mechanism (GRM).

1. Management Measures

1. Traffic and Road Safety

- Implement a Traffic and Road Safety Management Plan with phased trenching, clear signage, designated pedestrian routes, flag personnel, and speed control measures.

- Maintain safe access to homes, schools, businesses, health facilities and beaches vicinity of the project's right-of-way.
- Install temporary crossings strategically to maintain continuous, safe access for residents, businesses, and emergency movement while trenching works are ongoing.
- Ensure nighttime lighting of work zones.
- Coordinate with MOWT for road reinstatement and use of road protection mats in vulnerable sections.

2. *Worksite and Public Safety*

- Secure all work areas with fencing, barriers, warning tape, and safety signage.
- Cover or barricade open trenches and ensure safe equipment operation protocols.
- Provide community sensitisation sessions on construction risks at schools, health centres and community focal points.
- Ensure adequate lighting at high-traffic or high-risk areas.

3. *Air Quality, Noise and Vibration Control*

- Use dust suppression measures (watering, covering material stockpiles, vehicle washing).
- Limit works near sensitive receptors to daytime hours.
- Install temporary noise barriers near schools, health facilities, and homes.

4. *Service Continuity and Water Supply Risks*

- Provide advance notification of planned service interruptions, specifying timing and duration.
- Provide temporary water supply (e.g., truckborne water) for essential services if necessary.
- Maintain real-time communication channels for urgent interruptions.

5. *Emergency Response and Incident Management*

- Maintain an Emergency Response Plan (ERP) including procedures for:
  - traffic accidents
  - trench collapse
  - community injuries
  - chemical spills
  - operational failures (during the O&M phase)

- Conduct joint emergency drills with WASA, Contractor, MOWT and first-responders.

6. *Community Engagement and Grievance Management*

- Provide ongoing updates via radio, WhatsApp groups, community boards, and door-to-door notices.
- Implement a project GRM which ensures accessibility to older adults (the elderly), PWDs, low-literacy groups, and persons who experienced harassment and violence including gender-based violence.
- Maintain an incident log and ensure all complaints are acknowledged within 24 hours and resolved within agreed timelines.

7. *Gender and Vulnerable Groups*

- Ensure safe access routes for children, older women and men, and PWDs.
- Avoid work scheduling that conflicts with school travel or peak community activity hours.
- Integrate gender-safe reporting channels in the GRM (confidential, alternative pathways).

2. Monitoring and Compliance

This section outlines the procedures, inspection activities, and reporting mechanisms that will be used to verify adherence to safety measures, identify non-compliance, and ensure timely corrective actions. Monitoring will be conducted jointly by WASA and the Contractor's HSQ Team.

Monitoring Activities

- Daily inspection of barricades, signage, lighting, and traffic control points.
- Weekly checks of noise, dust, and vibration control measures.
- Weekly verification of safe pedestrian access routes.
- Continuous monitoring of community notifications and GRM responses.
- Monthly review of road reinstatement and site restoration progress.
- Quarterly emergency response drills during construction; biannual during operations.
- Water quality monitoring as per the Water Quality Management Plan (WQMP).

Compliance Mechanisms

- Non-compliance notices issued by WASA or the Supervisory Consultant.
- Corrective Action Plans developed and implemented within agreed timelines.
- Inclusion of compliance performance in monthly site meetings and reporting.

- Enforcement of contractual penalties for repeated safety violations.

3. Indicators

The following are the KPIs for Community Health and Safety:

KPI	Monitoring and Measurement Method	Frequency	Responsibility
Number of community incidents/near misses	Review of incident logs, daily HSQ reports	Daily/Weekly	Contractor HSQ; WASA
Percentage of worksites secured with barriers, signage, lighting	Site inspections using checklist	Daily	Contractor; Supervisory Consultant
Number of community notifications issued prior to disruptions	Communication logs; SEP tracker	Weekly	Contractor; WASA
Time taken to resolve community grievances	GRM database; follow-up verification	Weekly/Monthly	Contractor; WASA
Percentage of reinstated road sections meeting MOWT standards	Joint inspections; reinstatement audits	Weekly/Monthly	Contractor; MOWT; WASA
Dust/noise exceedances at sensitive receptors	Monitoring equipment logs; visual inspections	Weekly	Contractor
Completion of emergency drills	Drill reports; attendance sheets	Quarterly (construction)/ Biannual (operations)	WASA; Contractor
Continuity of water service (operational phase)	O&M logs	Monthly	WASA

Roles and Responsibilities

The duties of each participating entity (WASA, the Contractor, supervisory personnel, etc.) to support safe operations, effective communication, and rapid response to any incidents affecting community wellbeing are outlined below.

ENTITY / ROLE	KEY RESPONSIBILITIES
WASA	Oversight of CHSMP implementation; community communication; ensuring road reinstatement compliance; coordination with MOWT and Municipal Corporations; water service continuity; emergency response; GRM oversight.

Contractor	Daily implementation of safety measures; traffic management; securing worksites; community notifications; incident reporting; grievance response; monitoring and reporting; maintaining barriers, signage, and access. Conducting road work and reinstate good road conditions in keeping with MOWT standards and approvals.
Contractor HSQ Manager/Officer	Conduct safety inspections; maintain CHS logs; verify compliance; train workers; support emergency drills; document incidents.
Contractor Community Liaison Officer	Serving as primary communication point with communities; receive and forward grievances; maintain community engagement log; support public safety sensitisation.
Supervisory Consultant/WASA	Providing oversight and verification; auditing compliance; issuing corrective actions; facilitating coordination between agencies; reporting to WASA.

Traffic and Road Safety Management Plan

This Plan provides a framework for managing all vehicular movement and related activities associated with the construction and operation of the Plant. The purpose of this plan is to ensure the safe and efficient movement of vehicles, machinery, materials, and personnel, minimizing risks to workers, local communities, and road users, while maintaining the integrity of public roadways and access routes.

Objectives

1. Identify traffic and road safety risks associated with project activities, particularly during construction.
2. Develop control measures to prevent accidents, property damage, and injuries involving project vehicles or the public.
3. Ensure compliance with national road traffic laws, MOWT guidelines, and IDB safeguard requirements.
4. Establish clear roles, responsibilities, and communication protocols for road safety management.
5. Engage with local authorities and communities to coordinate traffic management and respond to safety concerns.
6. Promote safe driving behaviour among project staff, contractors, and suppliers through training and enforcement.

7. Protect vulnerable road users: pedestrians, cyclists, and schoolchildren near construction areas and community access roads.

Management Measures

- A detailed site-specific TMP shall be developed prior to mobilization, identifying access routes, delivery schedules, speed limits, and signage placement. TMP to be approved by WASA and MOWT.
- Use designated haul routes approved by MOWT to minimize disturbance to residential areas and schools.
- Establish staging and laydown areas away from public roads.
- Enforce a maximum speed limit of 30 km/h within communities and 10 km/h within construction zones.
- Post speed limit signs at critical points.
- Install reflective signage, barriers, cones, and flag personnel at all entry points and intersections.
- Provide nighttime lighting and reflective tape for visibility.
- Install "Children Crossing", "Heavy Vehicles Turning", and "Slow Down Construction Ahead" signs near community access roads.
- Notify local residents, schools, and businesses in advance of major transport or roadworks.
- Provide safe pedestrian crossings or detours where needed.
- Schedule large deliveries outside peak hours (6–9 a.m. and 3–6 p.m.) to reduce congestion and risk.
- Require all drivers to have valid Trinidad and Tobago driving licenses appropriate for the vehicle class.
- Enforce zero-tolerance policy on speeding, mobile phone use, and impaired driving.
- Conduct daily vehicle pre-start inspections (brakes, tires, lights, horn, mirrors).
- Maintain vehicle logbooks and inspection checklists.
- Maintain all project access roads in good condition; immediately repair potholes or ruts caused by project traffic.
- Use water spraying and gravel compaction on unpaved roads to control dust.
- Cover truckloads of soil, sand, or aggregates with tarpaulins during transport.

- Provide first aid kits, fire extinguishers, and spill kits in all vehicles.
- Conduct induction training for all drivers and heavy equipment operators.

Monitoring and Compliance

The Plan will comply with the following regulations and standards:

- Motor Vehicles and Road Traffic Act (Chap. 48:50) – licensing, vehicle operation, and driver conduct.
- EMA CEC conditions relating to road use, traffic control, and dust management.
- OSH Act, 2004 – provisions on safe access, movement, and operation of equipment.
- MOWT Construction Traffic Guidelines (2019) – requirements for temporary signage, traffic diversion, and flagging.
- IDB ESPS 4 – obligations for community safety, road risk management, and emergency preparedness.

Indicators

The following KPIs have been selected to evaluate the effectiveness of the traffic management measures.

Table: Key Performance Indicators for Traffic Management

Indicator	Target /Frequency Performance Standard	Means of Verification	Responsible Party
% of vehicles with valid inspection certificates	100% Monthly	Inspection logs	Contractor / WASA
% of drivers trained in road safety	100% Quarterly	Training records	WASA HR / Contractor
Number of traffic incidents or near-misses	0 Ongoing	Incident logs	Contractor / WASA
% of work zones with adequate signage	100% Monthly	Site inspection	WASA HSE Officer
% of routes maintained at baseline condition	100% Monthly	Maintenance records	WASA / Contractor / MOWT

Number of community complaints related to traffic	≤1 per month	Monthly	Grievance log	WASA Community Liaison
% of loads properly covered	100%	Random checks	Visual inspections	Contractor / WASA

Roles and Responsibilities

It is the responsibility of the WASA and all contractors to ensure that all mitigation measures are carried out and that monitoring reports are prepared. The Contractor should ensure that an Environmental Health and Safety (EHS) Officer is employed to oversee the specific requirements of this plan.

WASA is responsible for assigning contractors as the responsible parties for undertaking the monitoring required and for implementing the mitigation measures necessary. The Site and surrounding environment will be monitored by WASA and contractors for negative impacts caused by the construction works.

Table: Roles and Responsibilities for Traffic Management

ENTITY / ROLE	KEY RESPONSIBILITIES
WASA Project Manager	Overall oversight of traffic and road safety compliance; approval of Traffic Management and Road Safety Plan; coordination with MOWT and EMA.
WASA HSE Unit	Ensure plan implementation; review incident reports; provide safety training and awareness materials.
Contractor / Site Manager	Day-to-day traffic management; ensure driver compliance; conduct inspections; report accidents immediately; inspect signage and barriers; enforce PPE and speed limits; maintain traffic logs.
Drivers and Operators	Comply with all road safety rules; perform vehicle checks; immediately report unsafe conditions or incidents.
Ministry of Works and Transport (MOWT)	Approve haul routes; inspect road conditions; enforce traffic laws.
EMA	Regulatory oversight to ensure CEC compliance on vehicle operation and dust control.
Community Liaison Officer	Communicate traffic schedules, safety notices, and grievance mechanisms to local residents.

Security Management Plan

Monitoring Standards

The safety and security of the workers and equipment would be the responsibility of the Contractors. They should coordinate with the Trinidad and Tobago police services when operating in areas with high risk to ensure the safety of equipment and all stakeholders.

Monitoring Frequency

Monitoring for safety and security should be carried out throughout all phases of the project.

Management and Mitigation Measures

The Contractor will be responsible for the following measures to ensure the safety and security of personnel and equipment during all phases of the project. The risk level and impact to the site(s) will have to be assessed and the appropriate mitigation measures devised. Some mitigation measures include:

- Creation of site-specific security plan based on an assessment of the security risk.
- Liaise and communicate with the Trinidad and Tobago Police Service to assess the risk associated with each site for every stage of the project.
- Contact the Police for the area to advise of areas where work will be conducted prior to commencement of work.
- Ensure that key assets and property are secured or removed to a secure location when not in use.
- Where possible ensure perimeter of areas has appropriate security fencing and areas are well illuminated.
- Control site access by ensuring limited access points and controlled entry.
- Engage with community members and encourage them to report suspicious activities to the BPS.
- Encourage security awareness among employees and ensure security supervisor is always at the site.
- Maintain a security risk register and periodically review the security risk plan to update the security mitigation measures.
- Contract licensed security services to guard and patrol sites where necessary. Security personnel should be unarmed and properly trained in de-escalation techniques.
- Consider the use of technology, such as tagging, GPS tracking and video surveillance to detect and alert for any security issues or treats.
- Ensure that police forces and/or private security guards safeguarding the project area comply with the project's Code of Conduct provisions regarding the prohibition of sexual and gender-based violence and SEAH.

- Ensure the participation of police forces/private security guards participation in trainings related to the prevention of sexual and gender-based violence particularly between workers and between workers/contractors and beneficiaries.

Key Performance Indicators

The following KPIs in the Table below have been select in order to evaluate the effectiveness of the plan to mitigate against treats to security.

Table: Key Performance Indicators

KEY PERFORMANCE INDICATORS	HOW WILL IT BE MONITORED AND MEASURED	RESPONSIBILITY	FREQUENCY
Security Risk Register	Review and inspection of documentation	Contractor; Results to be presented to the Implementing Agency	Daily
Incident Log	Review and inspection of documentation	Contractor; Results to be presented to the Implementing Agency	
Number of Police Officers or Private Security Guards that participated in trainings to prevent sexual and gender-based violence / Total number of Police Officers and Private Security Guards safeguarding the project	Review of training schedules and attendance sheets	Contractor; Results to be presented to the Implementing Agency	Monthly

Roles and Responsibilities

The Implementing Agency is responsible for assigning the ENGINEER and the CONTRACTOR as the responsible parties for undertaking the monitoring required and for implementing the mitigation measures necessary.

The site and surrounding environment will be monitored by the ENGINEER for negative impacts caused by the construction Works. The ENGINEER will notify the CONTRACTOR in writing of any

observed noncompliance with local environmental laws regulations, permits, and other elements of the CONTRACTOR's Environmental Protection Plan. The CONTRACTOR shall, after receipt of such notice, inform the ENGINEER of the proposed corrective action and take such action when approved by the Contracting Officer.

The ENGINEER may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or equitable adjustments allowed to the CONTRACTOR for any such suspensions. This is in addition to any other actions the ENGINEER may take under the Contract, or in accordance with applicable laws.

Data Analysis and Reporting

If there are any security incidents, these are to be reported to the Implementing Agency and the Local Police within 24 hours. The implementing agency will be required to ensure the appropriate mitigation measures are implemented and the Local Police will be responsible for investigating the incident.

Stakeholder Engagement Plan

This SEP outlines the approach for systematically identifying, informing, and engaging stakeholders affected by the project intervention.

The objectives of the SEP are to:

- Ensure transparent, timely, and culturally appropriate communication with all directly and indirectly affected communities.
- Support safe implementation of construction activities by informing stakeholders of works, disruptions, risks, and mitigation measures.
- Provide an accessible and responsive Grievance Redress Mechanism (GRM) for all communities and other stakeholder groups, including vulnerable populations.
- Strengthen coordination between WASA, the Contractor, MOWT, SGRC and other entities to ensure consistent messaging and effective engagement.
- Manage expectations concerning project timelines, service improvements, temporary disturbances, and long-term benefits.
- Promote long-term trust and operational sustainability through ongoing engagement during the operational phase.

The SEP is aligned with the project's CHSMP, Traffic Management and Road Safety Plan, Project GRM, Project Emergency Response Plan, and ESMS.

1. Management Measures

1. Stakeholder Identification and Mapping

Identify all relevant groups, including:

- Local communities along the pipeline corridor.
- Vulnerable groups (children, older adults, low-income households, persons with disabilities, women-headed households, unemployed persons).
- Schools (primary and secondary), outreach (health) centre, local churches, and community groups.
- Farmers, fisherfolk, small vendors, business owners, and guest house, Air BnB, tour, and other tourism operators.
- Government agencies (WASA, MOWT, SGRC, Trinidad and Tobago Fire Service (TTFS), Trinidad and Tobago Police Service (TTPS), Public and Private Utilities [such as T&TEC, Telecommunications – Telecommunications Services of Trinidad and Tobago Limited - TSTT]).
- Transport service providers and road users.
- The media.
- The public.

The Contractor's CLO will maintain an updated stakeholder database throughout the project.

2. *Communication and Information Disclosure*

The CLO will:

- Issue advance notifications about construction schedules, road disruptions, traffic diversions, service interruptions, and reinstatement works.
- Use multiple channels:
  - community WhatsApp groups;
  - printed notices and flyers;
  - loudspeaker announcements where appropriate;
  - local radio updates;
  - community notice boards;
  - door-to-door outreach for vulnerable households; and
- Provide regular updates on progress and upcoming works, including any expected changes.

3. *Engagement Activities*

- Conduct regular community meetings and targeted small-group discussions.
- Hold briefings with schools, clinics, businesses, and transport operators.
- Provide safety awareness sessions for schoolchildren, elders, and vulnerable groups.
- Use the CLO and community focal points to maintain continuous feedback loops.
- Document all engagement activities using standardised attendance sheets and contact logs.

The proposed Stakeholder Communication Schedule is provided as Appendix 5.

4. *Project Grievance Redress Mechanism*

- Maintain a confidential, accessible Project GRM that allows reporting through:
  - phone, WhatsApp, SMS.
  - in-person to CLO or Contractor.
  - community representatives.
  - suggestion boxes at community facilities.
- Acknowledge all grievances within 24 hours and resolve within agreed timelines.
- Track all cases in a GRM database and share summaries at monthly site meetings.
- Include gender-sensitive and anonymous reporting pathways.

Further details on the GRM will be provided in the Grievance Redress Plan (see Appendix 5).

5. *Engagement with Government and Institutional Stakeholders*

- Conduct regular coordination meetings among the following with scheduling set by the parties:
  - WASA;
  - Contractor;
  - Community leader or representatives;
  - Supervisory Consultant
- Share work schedules, road reinstatement plans, and safety updates.
- Coordinate public notices to avoid conflicting information.

6. *Community Inclusion and Expectation Management*

- Clearly communicate project benefits and limitations (pipeline length, service boundaries, commissioning timelines).
- Engage communities early on any issues related to temporary service disruptions (at least 2 weeks in advance), reinstatement, or service variability.
- Provide channels for community ideas and feedback on reinstatement, disturbance mitigation or project-related emergencies.

2. Monitoring and Compliance

Monitoring ensures that stakeholder engagement activities are implemented as planned and that communities remain well-informed throughout construction and operations.

Monitoring will include:

- Daily updates from the CLO on community interactions.
- Weekly verification of issued notices, communication channels, and GRM cases.
- Review of meeting minutes, attendance sheets, and community feedback logs.
- Monthly audits by WASA or the Supervisory Consultant on engagement quality and responsiveness.
- Tri-party reviews (WASA–Contractor–MOWT) for coherence of public information related to traffic and reinstatement.

Compliance will be reinforced through:

- Corrective Action Plans for inadequate engagement or communication gaps.
- Reporting performance in monthly progress reports.
- Contractual requirements tied to communication obligations.

Indicators

The KPIs for stakeholder engagement are the following:

KPI	Monitoring & Measurement Method	Frequency	Responsibility
Number of community notifications issued prior to construction disruptions	Communication logs; CLO records	Weekly	Contractor; WASA
Percentage of affected households receiving advance notice	Field verification; door-to-door confirmation	Weekly	Contractor CLO

Number of community meetings held and attendance rates	Meeting minutes; attendance sheets	Monthly	WASA; Contractor CLO
Time taken to acknowledge and resolve grievances	GRM database	Weekly/Monthly	Contractor CLO
Number of grievances received vs. resolved	GRM analytics	Monthly	Contractor; WASA
Level of satisfaction with engagement (from community feedback)	Community checks; follow-up calls	Mid-project and end of project	Contractor CLO; WASA
Accuracy and consistency of public information issued	Tri-agency verification	Monthly	WASA; MOWT; Contractor
Participation of vulnerable groups in engagement activities	Attendance disaggregated by gender, age, and vulnerability	Monthly	Contractor CLO

Roles and Responsibilities

Strong engagement requires that all parties coordinate actively, share information on time, ensure inclusive participation, and communicate clearly throughout the project. The following assigns specific roles and responsibilities to each agency, the Contractor, and the CLO to make this happen.

ENTITY / ROLE	KEY RESPONSIBILITIES
WASA/ Supervisory Consultant	SEP Oversight, compliance checks, and verification; advising on engagement strategy; reviewing communication materials; ensuring alignment with ESMS.
Contractor	Daily engagement activities; issuing notifications; maintaining CLO presence; responding to grievances; coordinating with WASA before releasing public information; documenting engagement; supporting safety awareness sessions. Overall responsibility for SEP implementation; oversight of communication; approval of notices; GRM management; liaison with MOWT, Fire Station, Police Station, ERHA, and SGRC; ensure consistent messaging; integrate engagement findings into decision-making.
Contractor Community Liaison Officer	Main point of contact for communities; daily engagement and issue tracking; maintaining contact lists; door-to-door outreach; assisting vulnerable households; logging grievances; providing updates to WASA and Contractor. Work with local leaders to disseminate notices through community channels including community meetings, to obtain local context and emergency coordination.

	Coordinate with MOWT regarding the reinstatement of the Main Road; roadworks communication, traffic diversions, notices to the public, and reinstatement updates. Work with emergency responders (Police, Fire, Health Facilities) in emergency coordination; receive information on works that may affect access or response times.

Grievance Redress Plan (See Appendix 5)

Land Acquisition and Resettlement Framework

1. Introduction

1.1 Background

The Water and Sewerage Authority of Trinidad and Tobago (WASA) is implementing the Trinidad and Tobago National Water Sector Transformation Program under a Conditional Credit Line for Investment Projects (CCLIP) supported by the Inter-American Development Bank (IDB). The Programme was developed in response to longstanding challenges affecting the country's water sector, including intermittent water supply, ageing infrastructure, high levels of Non-Revenue Water (NRW), limited storage capacity, operational inefficiencies and increasing pressures associated with population growth and climate variability.

The first phase of the Programme (TT-L1055) focused on improving water service reliability and operational performance within the north-west region of Trinidad. Building upon these efforts, the second phase of the Programme (TT-L1071) seeks to improve the efficiency, quality, sustainability and resilience of potable water supply services throughout Trinidad and Tobago. The specific objectives of TT-L1071 are to enhance the operational efficiency and financial sustainability of WASA, reduce non-revenue water through targeted infrastructure investments, expand access to potable water services, particularly within underserved communities, and strengthen governance and regulatory arrangements within the water sector.

Project interventions may generate substantial social, economic and public health benefits through improved water security, increased service reliability and reduced vulnerability to drought and climate-related water shortages. However, the implementation of Project infrastructure may require access to land, temporary occupation of property, restrictions on access, easements, rights-of-way and other activities that have the potential to affect landowners, land users, businesses, resource users and livelihood activities.

This Land Acquisition, Livelihood Protection and Restoration Plan (LALPRP) has therefore been prepared to establish the framework through which land acquisition, access restrictions and livelihood-related impacts will be avoided, minimised, managed and monitored in accordance with applicable national legislation and relevant IDB environmental and social requirements.

1.3 Purpose and Objectives

The purpose of this Land Acquisition, Livelihood Protection and Restoration Plan is to establish the framework, procedures and commitments that will guide the management of land acquisition, access restrictions, economic displacement and livelihood-related impacts associated with the Project.

The objectives of the Plan are to:

- Avoid or minimise land acquisition and displacement wherever feasible.
- Avoid or minimise impacts on livelihoods, access arrangements and land use activities.
- Establish procedures for identifying affected persons and affected assets.
- Ensure meaningful consultation with potentially affected persons.
- Provide compensation at replacement cost where applicable.
- Restore affected livelihoods where impacts cannot be avoided.
- Establish procedures for grievance management and dispute resolution.
- Ensure compliance with applicable national legislation and relevant IDB environmental and social requirements.

1.4 Scope and Applicability

This Plan applies to all Project activities that may result in:

- Permanent acquisition of land;
- Temporary occupation or use of land;
- Easements, servitudes or rights-of-way;
- Restrictions on access to land, property or natural resources;
- Physical displacement resulting in the loss of housing, land, structures or access to property.
- Economic displacement resulting in the loss of income, livelihoods or livelihood opportunities.
- Temporary business interruption;
- Temporary disruption of fisheries, agricultural or other livelihood activities; and
- Impacts on vulnerable persons and households.

At the time of preparation of this Plan, engineering design activities remain ongoing and final land requirements have not yet been confirmed. Consequently, this document has been prepared as a framework plan that establishes the principles, procedures and management measures that will be applied once detailed land requirements and potential impacts have been identified and verified.

Where Project activities are subsequently determined to result in land acquisition, access restrictions, displacement or livelihood impacts, the provisions of this Plan shall guide the preparation and implementation of any additional site-specific assessments, inventories, compensation measures, livelihood restoration measures or other actions that may be required.

1.5 Principles and Commitments

The Project shall be implemented in accordance with the following principles:

- Avoidance and minimisation of land acquisition, displacement and livelihood impacts.
- Fair, transparent and equitable treatment of affected persons.
- Meaningful stakeholder engagement and participation throughout the Project lifecycle.
- Respect for property rights, livelihoods and community wellbeing.

- Special consideration for vulnerable persons and groups.
- Restoration of livelihoods where impacts occur.
- Timely disclosure of relevant information.
- Accessible and responsive grievance redress mechanisms.
- Compliance with applicable national legal requirements.
- Compliance with relevant IDB environmental and social requirements.

1.6 Relationship to the ESA, ESMP and Stakeholder Engagement Plan

This Plan forms part of the broader environmental and social management plan developed for the Project and should be read in conjunction with the Environmental and Social Assessment (ESA), Environmental and Social Management Plan (ESMP), particularly Stakeholder Engagement Plan (SEP), Grievance Mechanism (GM) and other relevant Project management plans.

The ESA identifies and assesses the potential environmental and social impacts associated with Project implementation. The ESMP establishes the mitigation, monitoring and management measures required throughout the Project lifecycle, while the SEP outlines the framework for stakeholder engagement, consultation, information disclosure and grievance management.

This Land Acquisition, Livelihood Protection and Restoration Plan provides the specific framework for managing land acquisition, access restrictions, displacement and livelihood-related impacts and complements the requirements established under these associated Project instruments.

1.7 Plan Preparation Approach

This Plan has been prepared using information available during the environmental and social assessment process, including preliminary engineering and design information, environmental and social baseline studies, stakeholder consultation findings, land use information, socio-economic data and a review of applicable legal and policy requirements.

The Plan adopts a precautionary framework approach that recognises the current stage of Project development and establishes the procedures and commitments that will guide future impact identification, assessment and management as detailed design information becomes available.

1.8 Updating the Plan During Detailed Design

This Plan shall be treated as a living document and will be reviewed and updated as additional Project information becomes available during detailed design and Project implementation.

Updates may be required where facility locations are finalised, land requirements are refined, temporary work areas are identified, additional affected persons or assets are identified, stakeholder engagement activities identify previously unknown concerns or impacts, or monitoring results indicate the need for additional mitigation or livelihood restoration measures.

Any material revisions to the Plan shall be undertaken by WASA and its designated consultants and disclosed in accordance with Project stakeholder engagement procedures and applicable IDB

requirements. The implementation of any land acquisition, compensation or livelihood restoration measures shall be based on the most current approved version of this Plan.

2.5 Applicable Requirements for the Project

The Project shall comply with all applicable laws and regulations of the Republic of Trinidad and Tobago as well as the environmental and social requirements of the Inter-American Development Bank.

Where differences or inconsistencies exist between national legislation and IDB requirements, the more stringent requirement, or the requirement that provides the higher level of protection to affected persons, livelihoods and communities, shall apply, provided that its application does not contravene the laws of the Republic of Trinidad and Tobago.

Accordingly, this Plan incorporates both national legal requirements and applicable IDB Environmental and Social Performance Standards to ensure that affected persons receive fair treatment, meaningful consultation, appropriate compensation and livelihood restoration support where required.

2.6 Institutional Arrangements and Responsibilities

Implementation of this Plan will require coordination among WASA, contractors, consultants, government agencies and affected stakeholders. The principal institutional responsibilities are summarised in Table 4.

Table 4: Institutional Roles and Responsibilities

Institution	Responsibilities
Water and Sewerage Authority (WASA)	Overall responsibility for implementation of the Project and compliance with environmental and social requirements, including implementation of this Plan.
Inter-American Development Bank (IDB)	Provides financing and oversight and reviews Project compliance with applicable environmental and social requirements.
Supervising Consultant	Supports WASA in monitoring compliance with environmental and social requirements and implementation of this Plan.
Construction Contractor	Implements applicable mitigation measures, access management procedures, stakeholder communication activities and reporting requirements during construction.
Commissioner of State Lands	Responsible for matters relating to State-owned lands where applicable.
Municipal Corporations and Other Government Agencies	Provide approvals, technical guidance, coordination support and assistance relating to local infrastructure, land administration, community engagement and livelihood matters where required.

The Project is subject to both the legal requirements of Trinidad and Tobago and the environmental and social requirements of the Inter-American Development Bank. Together, these frameworks establish the basis for lawful land acquisition, fair compensation, meaningful stakeholder engagement, livelihood protection and livelihood restoration.

The provisions of this Plan have been developed to ensure compliance with both national and IDB requirements while promoting fair, transparent and equitable outcomes for affected persons and communities.

3 Project Components with Potential Land Acquisition and Livelihood Implications

The Mayaro Desalination and Network Upgrades Project comprises several components that may require land, temporary access arrangements, temporary occupation of land or other activities with the potential to affect land use and livelihoods. The principal Project components relevant to this Plan are summarised in Table 5.

Table 5: Example of Project Components with Potential Land Acquisition and Livelihood Implications

Project Component	Description	Potential Land Acquisition and Livelihood Considerations
Proposed Desalination Plant Site	Development of a seawater desalination facility with an estimated footprint of approximately 2.3 hectares (5.7 acres), including treatment infrastructure, operational buildings, pumping systems and ancillary facilities.	Represents the principal Project component with the potential to require permanent land acquisition, land access arrangements or other land-related measures.
Marine Intake and Outfall Infrastructure	Marine infrastructure required for abstraction of seawater and discharge of treated effluent. These facilities are expected to be located within the marine environment and public coastal areas.	Permanent acquisition of private land is not anticipated. Temporary access arrangements and management of interactions with marine and coastal users may be required during construction.
Transmission Pipeline and Network Upgrade Works	Transmission pipelines and replacement of sections of the existing Naparima–Mayaro Pipeline, primarily within existing road reserves, public rights-of-way and utility corridors.	Permanent land acquisition is not currently anticipated. Construction activities may result in temporary access restrictions, temporary occupation of land and temporary disruptions to adjacent land uses and livelihood activities.
Temporary Construction Areas and Access Requirements	Temporary work areas, equipment staging areas, material storage locations and access arrangements required during construction.	May require temporary occupation of land and temporary access arrangements. Appropriate measures will be implemented to minimize disruption to land users, businesses and livelihood activities.

Based on information currently available, the proposed desalination plant site represents the principal Project component with the potential to require permanent land. Other Project components are expected to be implemented primarily within public lands, road reserves, rights-of-way and marine areas. Consequently, the principal land and livelihood considerations associated with the Project are anticipated to relate to site selection for the desalination plant and temporary disruptions associated with construction activities.

Management

4 Potential Land Acquisition and Economic Displacement Risks

4.1 Current Status of Design Development

At the time of preparation of this Plan, detailed engineering design activities remain ongoing and final land requirements have not yet been confirmed. Preliminary information indicates that the proposed desalination plant will occupy approximately 2.3 hectares (5.7 acres), while marine intake and outfall infrastructure are expected to be located within public coastal and marine areas. Pipeline and network upgrade works are anticipated to be undertaken primarily within existing road reserves, public rights-of-way and utility corridors.

Consequently, the nature and extent of potential land acquisition, access restrictions and livelihood-related impacts cannot yet be fully quantified. This chapter therefore identifies potential risks and considerations that may require further assessment during detailed design and Project implementation.

4.2 Preliminary Land Requirements

Based on information currently available, the preliminary land requirements associated with the Project are summarised in Table 6.

Table 6: Preliminary Land Requirements

Project Component	Preliminary Land Requirement	Current Status
Proposed Desalination Plant Site	Approximately 2.3 hectares (5.7 acres)	Site ownership and final land requirements to be confirmed
Marine Intake and Outfall Infrastructure	Public coastal and marine areas	No private land acquisition currently anticipated
Pipeline and Network Upgrade Works	Underground under existing road verges/reserves	No permanent land acquisition currently anticipated
Temporary Construction Areas	To be determined	To be confirmed during detailed design and construction planning
Laydown Areas and Material Storage Areas	To be determined	To be confirmed during detailed design and construction planning

The desalination plant site currently represents the principal Project component with the potential to require permanent land. Other Project components are expected to be implemented primarily within public lands, road reserves, rights-of-way and marine areas.

4.3 Potential Types of Land Acquisition

Depending on final design requirements, the Project may involve different forms of land access, land use or land occupation arrangements.

4.3.1 Permanent Land Acquisition

Permanent land acquisition may be required for the proposed desalination plant site and any associated operational infrastructure. The extent of any permanent land requirements will be confirmed following completion of detailed design, land ownership investigations and site verification activities.

4.3.2 Temporary Land Occupation

Temporary occupation of land may be required during construction for work areas, equipment staging, material storage, contractor facilities, temporary access arrangements and other construction-related activities. Such occupation may occur on public lands, private lands or other areas identified during detailed design.

4.3.3 Easements and Rights-of-Way

The Project may require easements, access agreements or rights-of-way for the installation, operation and maintenance of infrastructure. At present, pipeline works are expected to be located primarily within existing road reserves and public rights-of-way; however, final requirements will be confirmed during detailed design.

Table 7: Potential Land Access Requirements

Type of Requirement	Potential Application
Permanent Land Acquisition	Desalination plant site and associated operational infrastructure
Temporary Land Occupation	Construction work areas, laydown areas and contractor facilities
Easements and Rights-of-Way	Infrastructure installation, operation and maintenance where required
Temporary Access Arrangements	Construction access and movement of equipment and materials

4.4 Potentially Affected Land Users and Livelihood Activities

The Project has the potential to affect a range of land users, resource users and livelihood activities. At the current stage of Project development, the extent of any affected persons or livelihood activities has not yet been determined.

Potentially affected land users and livelihood activities are summarised in Table 8.

Table 8: Potentially Affected Land Users and Livelihood Activities

Category	Potential Relevance to the Project
Agricultural Users	Potential impacts where crops, trees or productive land are affected by temporary construction activities or land requirements.
Informal Land Users	Potential impacts on persons utilising road reserves, verges, public lands or other areas for livelihood or income-generating activities.
Commercial Enterprises	Potential impacts arising from temporary construction activities, traffic disruptions or restricted customer access.
Roadside Vendors	Potential impacts where vending activities occur adjacent to pipeline works, road reserves or construction areas.
Fisheries and Marine-Based Livelihoods	Potential temporary impacts on access to fishing areas, landing sites or marine-based economic activities during marine construction works.

Based on information currently available, residential displacement is not anticipated. However, this will be confirmed following finalisation of site selection, land ownership verification and detailed design activities.

4.5 Vulnerable Persons and Households

Certain individuals and households may be more vulnerable to Project-related impacts due to economic, social, physical or other circumstances that may reduce their ability to respond to or recover from disruptions. They include:

- Elderly persons
- Persons with disabilities
- Female-headed households
- Low-income households
- Informal workers and vendors
- Resource-dependent households
- Social assistance recipients
- Persons with limited livelihood alternatives

The identification of vulnerable persons and households will be undertaken during subsequent surveys, consultations and impact assessments where land acquisition or livelihood impacts are confirmed.

4.6 Potential Impacts

At the current stage of Project development, the nature and extent of impacts cannot yet be fully quantified. However, based on available information and the requirements of ESPS 5, the Project has the potential to generate the impacts summarised in Table 9.

Table 9: Preliminary Assessment of Potential Land Acquisition and Livelihood Risks

Impact Type	Classification	Potential Relevance
Physical Displacement	Loss of housing, land, structures or access to property that results in the need for relocation	Currently considered unlikely but cannot be fully ruled out pending completion of detailed design
Economic Displacement	Loss of income, livelihoods, productive resources or livelihood opportunities resulting from Project activities.	Potentially relevant
Temporary Business Disruption	Temporarily affect business operations through restricted access, traffic disruptions, reduced visibility or temporary reductions in customer access.	Potentially relevant
Loss of Income	Temporary interruptions to commercial, agricultural, fisheries or informal livelihood activities may result in short-term income losses for affected persons	Potentially relevant
Loss of Access	Temporary restrictions on access to properties, businesses, fishing areas, public spaces or other locations utilised for economic or livelihood purposes	Potentially relevant
Community-Level Economic Effects	Changes in local traffic patterns, business activity, service access arrangements and economic interactions within affected areas	Potentially relevant

Based on information currently available, the proposed desalination plant site represents the principal Project component with the potential to require permanent land. Other Project components are expected to be implemented primarily within public lands, road reserves, rights-of-way and marine areas.

Consequently, the principal risks currently identified relate to temporary access restrictions, temporary occupation of land and temporary economic disruption affecting businesses, vendors, agricultural users, fisheries and other livelihood activities. These risks will be further assessed and refined during detailed design and Project implementation.

Land Acquisition and Resettlement Framework

1. Avoidance and Minimisation Principles

Consistent with the requirements of IDB ESPS 5, the Project should seek to avoid land acquisition, physical displacement, economic displacement and livelihood impacts wherever feasible through careful route selection, engineering design, construction planning and optimisation of right-of-way requirements.

Particular attention should be given to avoiding or minimising impacts on:

- Residential properties and occupied structures;
- Agricultural lands and productive assets;
- Informal residential occupants;
- Informal agricultural occupants;
- Vulnerable persons and households;
- Commercial and livelihood activities;
- Sand and gravel extraction activities;
- Environmentally sensitive lands and protected areas; and
- Community resources and access arrangements.

Where impacts cannot be avoided, measures should be implemented to minimise impacts and ensure that affected persons are treated fairly and equitably. Compensation, assistance, livelihood protection and livelihood restoration measures should be implemented where required in accordance with this Plan.

The Project should apply the following hierarchy:

1. Avoid impacts where feasible.
2. Minimise unavoidable impacts.

3. Mitigate residual impacts.
4. Compensate affected persons where applicable.
5. Restore affected livelihoods where impacts occur.

2. Screening and Impact Identification

As detailed design progresses, all Project components should be screened to determine whether land acquisition, easements, rights-of-way, temporary land occupation, access restrictions, physical displacement or livelihood impacts may occur.

The screening process should include:

1. Confirmation of final land requirements and right-of-way requirements;
2. Verification of land ownership, tenure and occupancy arrangements;
3. Identification of affected assets and land uses;
4. Identification of affected land users and livelihood activities;
5. Identification of informal occupants and land users;
6. Identification of vulnerable persons and households;
7. Identification of potential physical and economic displacement risks; and
8. Determination of the nature and significance of potential impacts.

Table 10: Land Acquisition and Livelihood Screening Process

Step	Activity
1	Confirm final design, alignment and land requirements
2	Verify land ownership, tenure and occupancy arrangements
3	Identify affected assets, structures and land uses
4	Identify affected land users and livelihood activities
5	Identify informal occupants and land users
6	Identify vulnerable persons and households
7	Assess potential displacement and livelihood impacts
8	Determine required mitigation, compensation and restoration measures

3. Land Acquisition Process

Where land acquisition, easements, rights-of-way or other land access arrangements are required, the Project should implement a structured process to ensure that impacts

are identified, assessed and managed in accordance with applicable national legislation and the principles established in this Plan.

The process should include verification of land ownership and occupancy, stakeholder engagement, asset identification, valuation, determination of applicable compensation and assistance measures, implementation of agreed measures and monitoring of outcomes.

Table 11: Land Acquisition and Land Access Process

Step	Description
Land requirement confirmation	Confirm final land requirements, alignments, rights-of-way and access requirements based on detailed design.
Land ownership and occupancy verification	Verify ownership, tenure, occupancy and land use arrangements, including formal and informal land users.
Stakeholder engagement	Engage affected persons, landowners, occupiers and other stakeholders regarding potential impacts and proposed arrangements.
Asset inventory and socio-economic surveys	Identify affected assets, structures, crops, trees, livelihood activities and vulnerable persons or households.
Valuation and entitlement determination	Determine applicable compensation, assistance and livelihood restoration measures.
Negotiation and agreement	Undertake negotiations and document agreed arrangements where applicable.
Compensation and assistance implementation	Implement applicable compensation, assistance and livelihood restoration measures.
Land access and construction commencement	Secure lawful access to affected lands and commence Project activities.
Monitoring and follow-up	Monitor implementation, address outstanding issues and evaluate outcomes.

Where State-owned lands are affected, the Project should obtain the necessary approvals, permissions, licences or other access arrangements from the relevant authorities prior to commencement of construction activities.

Where informal occupants or informal land users are identified, the Project should assess potential impacts and determine appropriate assistance, livelihood protection or livelihood restoration measures in accordance with the principles established in this Plan and the requirements of ESPS 5.

4. Census and Asset Inventory

Where land acquisition, easements, rights-of-way, temporary occupation of land or livelihood impacts are identified, a census and asset inventory should be undertaken to identify affected persons, affected assets and affected livelihood activities.

The census and asset inventory should be designed to establish an accurate record of ownership, occupancy, land use and asset conditions within the affected area and should be completed prior to implementation of compensation, assistance or livelihood restoration measures.

The inventory may include:

- Land parcels;
- Residential structures and associated improvements;
- Commercial structures and business assets;
- Agricultural lands, crops and trees;
- Farm buildings, fencing and other agricultural infrastructure;
- Sand and gravel extraction areas and associated assets;
- Community assets and facilities;
- Informal residential occupation;
- Informal agricultural occupation;
- Access arrangements and rights of use; and
- Other affected assets or resources.

The results of the census and asset inventory should be used to support impact assessments, valuation activities, eligibility determinations and development of compensation and livelihood restoration measures.

5. Socio-Economic Surveys

Where land acquisition, displacement or livelihood impacts are identified, socio-economic surveys should be undertaken to establish baseline conditions and inform the development of compensation, assistance, livelihood protection and livelihood restoration measures.

The surveys should seek to understand the characteristics of affected households, land users and livelihood activities and may include:

- Household composition and demographic characteristics;
- Sources of income and livelihood activities;
- Land ownership, occupancy and land use arrangements;

- Agricultural production and resource use activities;
- Business and commercial activities;
- Dependence on natural resources;
- Vulnerability considerations;
- Existing access arrangements;
- Housing conditions; and
- Livelihood restoration needs.

Particular attention should be given to vulnerable persons and households, informal residential occupants, informal agricultural occupants and other groups that may be disproportionately affected by Project activities.

The results of socio-economic surveys should be used to support eligibility determinations, compensation planning, livelihood restoration planning and monitoring activities undertaken under this Plan.

6. Valuation Methodology

Valuation of affected assets should be undertaken using appropriate and recognised valuation methods and, where required, qualified valuation professionals.

Valuation activities may include:

- Land;
- Residential structures and associated improvements;
- Commercial structures and business assets;
- Crops and trees;
- Agricultural infrastructure;
- Sand and gravel extraction assets where applicable; and
- Other affected assets and resources.

Compensation should be determined in accordance with applicable national legal requirements and relevant IDB requirements.

Eligibility for compensation or assistance will depend on the nature of the impact and the status of the affected person. Persons with formal legal rights to land may be eligible for compensation for affected lands and associated assets, where applicable. Persons without formal legal rights to land may not be eligible for compensation for the land itself but may be eligible for compensation for

affected structures, crops, trees and other non-land assets, as well as assistance, livelihood protection or livelihood restoration measures where applicable.

Valuation and entitlement determinations should be undertaken following completion of land ownership investigations, asset inventories, socio-economic surveys and stakeholder engagement activities.

7. Eligibility Criteria

Eligibility for compensation, assistance, livelihood protection or livelihood restoration measures should be determined based on the nature of the impact and the status of the affected person, household, land user or livelihood activity.

Eligibility determinations should be informed by land ownership investigations, occupancy verification, asset inventories, socio-economic surveys and stakeholder engagement activities undertaken by the Project.

Table 12: Preliminary Eligibility Categories

Category	Potential Eligibility
Legal Landowners	Compensation for affected land and assets, together with other applicable assistance measures.
Leaseholders and Tenants	Compensation and assistance for affected assets, investments, access arrangements and livelihood activities where applicable.
Residential Occupants	Assistance and compensation where occupancy, structures or access arrangements are affected.
Agricultural Users	Compensation for affected crops, trees, agricultural infrastructure and other productive assets where applicable.
Informal Residential Occupants	Compensation for affected structures and non-land assets, together with applicable assistance and livelihood restoration measures where required.
Informal Agricultural Occupants	Compensation for affected crops, trees and other productive assets, together with applicable livelihood restoration measures where required.
Commercial Enterprises	Compensation, assistance and livelihood restoration measures where business activities are affected.
Sand and Gravel Extraction Operators and Workers	Assistance and livelihood restoration measures where Project activities result in demonstrable impacts on extraction activities or associated livelihoods.
Resource Users within Protected Areas	Assistance and livelihood restoration measures where Project activities result in demonstrable impacts on resource use activities or livelihoods.

Eligibility requirements and entitlements will be refined following completion of detailed design, impact assessments, asset inventories, socio-economic surveys and stakeholder engagement activities.

8. **Entitlement Framework**

The entitlement framework establishes the types of compensation, assistance and livelihood restoration measures that may be provided depending on the nature of the impact.

Table 13: Preliminary Entitlement Framework

Impact Type	Potential Entitlement
Permanent loss of land	Compensation in accordance with applicable legal requirements and Project commitments.
Permanent easement or right-of-way restrictions	Compensation, assistance or other measures as appropriate to the nature of the restriction.
Temporary occupation of land	Restoration of land and compensation where applicable.
Loss of residential structures or improvements	Compensation for affected structures and improvements together with applicable assistance measures.
Loss of crops or trees	Compensation where applicable.
Loss of agricultural infrastructure	Compensation or replacement where applicable.
Temporary business disruption	Appropriate assistance and livelihood protection measures.
Loss of livelihood opportunities	Livelihood restoration measures where applicable.
Temporary loss of access	Appropriate mitigation and assistance measures.
Impacts on informal residential occupants	Compensation for affected non-land assets together with applicable assistance and livelihood restoration measures.
Impacts on informal agricultural occupants	Compensation for affected crops, trees and productive assets together with applicable livelihood restoration measures.
Impacts on extractive activities	Appropriate livelihood protection, livelihood restoration or other assistance measures where applicable.

The final entitlement framework should be refined following completion of detailed design, impact identification activities, socio-economic surveys and stakeholder engagement processes.

9. Compensation Procedures

Where compensation is required, the following principles should apply:

- Compensation should be determined using appropriate valuation methods and relevant professional expertise where required.

- Affected persons should be informed of applicable compensation arrangements and entitlement provisions.
- Compensation agreements should be documented and maintained on file.
- Compensation and applicable assistance measures should be implemented prior to the commencement of activities that result in the loss of land, assets, access or livelihood opportunities, unless otherwise agreed.
- Appropriate records should be maintained throughout the process.
- Stakeholders should have access to the Project Grievance Mechanism to raise concerns relating to compensation, eligibility or valuation matters.

Compensation procedures should be implemented in a fair, transparent and consistent manner and should be supported by appropriate stakeholder engagement and disclosure activities.

10. Special Assistance for Vulnerable Persons

Where vulnerable persons or households are identified, additional assistance measures should be considered to reduce the risk of disproportionate adverse impacts and facilitate meaningful participation in Project processes.

Such measures may include:

- Additional consultation and engagement activities;
- Assistance with understanding and accessing compensation processes;
- Assistance with documentation requirements where necessary;
- Additional livelihood protection or livelihood restoration measures;
- Relocation support where applicable; and
- Referrals to relevant social support programmes or services where appropriate.

Particular attention should be given to vulnerable households that may experience greater difficulty in adapting to land acquisition, access restrictions, displacement or livelihood disruptions.

11. Documentation and Recordkeeping

WASA should maintain appropriate records relating to:

- Land requirements and right-of-way investigations;
- Land ownership and occupancy verification activities;
- Asset inventories and census activities;
- Socio-economic surveys;

- Consultation and stakeholder engagement activities;
- Compensation agreements and payment records;
- Livelihood protection and livelihood restoration measures;
- Grievances and resolutions;
- Monitoring activities; and
- Reporting and compliance documentation.

Records should be maintained in accordance with applicable Project procedures, data management requirements and relevant confidentiality obligations.

12. Monitoring and Compliance

Implementation of the land acquisition, compensation and resettlement-related measures described in this Plan should be monitored throughout Project implementation to verify compliance with applicable legal requirements, Project commitments and IDB Environmental and Social Performance Standards.

Monitoring activities may include:

- Verification of implementation of compensation and assistance measures;
- Review of stakeholder engagement activities;
- Monitoring of grievances and resolutions;
- Monitoring of impacts on vulnerable persons and households;
- Monitoring of livelihood restoration activities where applicable; and
- Verification of compliance with the procedures established under this Plan.

Where monitoring identifies gaps, non-compliance or unforeseen impacts, corrective actions should be developed and implemented in a timely manner.

13. Indicators (KPIs)

Table 14 presents the key performance indicators that should be used to monitor implementation of the land acquisition and resettlement framework.

Table 14: Land Acquisition and Resettlement KPIs

Key Performance Indicator	How Will It Be Monitored and Measured	Responsibility
Land ownership, occupancy and asset investigations completed prior to land acquisition or construction activities	Review of investigation reports and verification records	WASA / Supervising Consultant

Affected persons identified and recorded through census and asset inventory activities	Review of census, asset inventory and socio-economic survey records	WASA
Compensation and assistance measures implemented prior to impact occurrence where applicable	Review of compensation and implementation records	WASA
Grievances relating to land acquisition, compensation or resettlement addressed within established timeframes	Review of grievance records	WASA
Monitoring activities completed and corrective actions implemented where required	Review of monitoring reports and corrective action records	WASA / Supervising Consultant

14. Roles and Responsibilities

Table 15 outlines the principal responsibilities for implementation of the land acquisition and resettlement framework.

Table 15: Roles and Responsibilities for Land Acquisition and Resettlement

Party	Responsibility
WASA	Overall implementation of land acquisition, compensation, assistance and resettlement-related activities and compliance with this Plan.
Supervising Consultant	Monitoring, verification and reporting on implementation of land acquisition and resettlement measures.
Construction Contractor	Compliance with land access requirements, implementation of mitigation measures and support for stakeholder engagement activities.
Community Liaison Officer (CLO)	Stakeholder engagement, communication and support to affected persons throughout implementation.
Social Specialist	Support land acquisition planning, socio-economic surveys, impact assessments, livelihood restoration planning and monitoring activities.
Commissioner of State Lands and Other Relevant Authorities	Support matters relating to State lands, approvals, access arrangements and other statutory requirements where applicable.
Affected Persons and Stakeholders	Participate in consultations, provide relevant information and engage in agreed compensation, assistance and livelihood restoration processes where applicable.

Livelihood Protection

1. Objectives

The objective of this section is to establish measures to avoid, minimise and manage livelihood-related impacts associated with Project planning, construction and implementation.

Specifically, the Project should seek to:

- Avoid unnecessary disruption to livelihood activities;
- Minimise impacts on agricultural production, extractive activities and other income-generating activities;
- Maintain access to properties, productive lands and livelihood resources wherever feasible;
- Minimise disruptions associated with land acquisition, rights-of-way and construction activities;
- Ensure timely communication regarding activities that may affect livelihoods;
- Identify and address livelihood-related concerns in a timely manner;
- Protect vulnerable persons and households from disproportionate impacts; and
- Reduce the potential for economic displacement during Project implementation.

2. **Livelihood Risk Identification**

Based on information currently available, the principal livelihood risks are expected to arise from land acquisition, right-of-way requirements, temporary occupation of land, access restrictions and construction activities associated with the transmission pipeline corridor.

The main livelihood activities potentially affected by the Project are summarised in Table 16.

Table 16: Potential Livelihood Risks

Livelihood Activity	Potential Risk
Agriculture	Loss of crops, trees, productive land, access restrictions, temporary occupation of land and disruption of agricultural activities.
Informal Agricultural Activities	Disruption of farming or cultivation activities undertaken without formal legal tenure, including impacts on crops, productive assets and access arrangements.
Sand and Gravel Extraction Activities	Temporary or permanent restrictions on access to extraction areas, disruption of extraction activities and impacts on associated livelihoods.
Commercial Activities	Temporary disruption of business operations, access restrictions, reduced accessibility and construction-related disturbances.
Informal Economic Activities	Temporary disruption of roadside vending, trading and other informal income-generating activities.
Resource-Based Livelihood Activities	Potential restrictions on access to natural resources within protected or environmentally sensitive areas.

The nature and extent of these risks will depend on the final alignment selected, right-of-way requirements, construction methods and the location of affected land users and livelihood activities. Potential impacts will be further assessed and refined as additional Project information becomes available.

3. Construction-Related Livelihood Protection Measures

The Project should implement livelihood protection measures throughout construction to minimise disruptions to affected persons, land users and livelihood activities.

6.3.1 Advance Notification

Where construction activities have the potential to affect land use, access arrangements or livelihood activities, advance notice should be provided to potentially affected stakeholders.

Notifications may include information regarding:

- Planned construction activities;
- Expected duration of works;
- Land access requirements;
- Temporary access restrictions;
- Construction schedules;
- Alternative access arrangements where applicable; and
- Contact information for Project representatives.

Where feasible, notifications should be provided prior to commencement of the relevant works.

6.3.2 Stakeholder Engagement

Affected stakeholders should be informed and consulted regarding construction activities that may affect livelihoods, access arrangements, land use activities or economic activities.

Stakeholder engagement activities may include:

- Meetings with affected landowners and occupiers;
- Discussions with agricultural users and farmers;
- Engagement with sand and gravel extraction operators and workers;
- Engagement with informal land users and livelihood groups;
- Community meetings;

- Distribution of notices and information materials; and
- Ongoing communication throughout construction.

Livelihood-related concerns identified through stakeholder engagement should be documented and addressed where appropriate.

6.3.3 Access Management

Access management measures should be implemented to minimise disruption to affected properties, agricultural areas, livelihood activities and resource users.

Measures may include:

- Phased construction scheduling;
- Temporary access arrangements;
- Clearly marked access routes;
- Maintenance of property access where feasible;
- Coordination with affected stakeholders regarding access requirements; and
- Restoration of access following completion of works.

Construction activities should be planned to minimise unnecessary restrictions on access to properties, productive lands and livelihood resources.

6.3.4 Protection of Agricultural Activities

Where agricultural activities may be affected by Project construction, measures should be implemented to minimise disruption and avoid unnecessary damage to crops, trees, agricultural infrastructure and productive land.

Measures may include:

- Delineation of work areas;
- Avoidance of unnecessary disturbance outside approved work areas;
- Protection of crops, trees and agricultural infrastructure where feasible;
- Restoration of temporarily occupied agricultural areas following construction;
- Reinstatement of access arrangements; and
- Consultation with affected agricultural users regarding construction scheduling and access requirements.

6.3.5 Protection of Informal Livelihood Activities

Where informal livelihood activities may be affected, the Project should seek to minimise disruption through communication, planning and stakeholder engagement.

Measures may include:

- Advance notification of works;
- Identification of affected livelihood activities;
- Consultation regarding access requirements;
- Temporary access arrangements where feasible;
- Measures to minimise disruption to livelihood activities; and
- Consideration of livelihood restoration measures where impacts cannot be avoided.

6.3.6 Protection of Extractive Activities

Where sand and gravel extraction activities may be affected by Project construction, measures should be implemented to minimise disruption and maintain safe access arrangements where feasible.

Measures may include:

- Advance notification of construction activities;
- Consultation with affected operators and workers;
- Coordination regarding access routes and work schedules;
- Temporary access arrangements where feasible; and
- Consideration of livelihood protection or restoration measures where significant impacts occur.

6.3.7 Emergency Response Procedures

Where unforeseen Project activities result in significant disruption to access, livelihood activities or economic functions, the Project should implement appropriate response measures to address the situation.

Such measures may include:

- Immediate investigation of the issue;
- Engagement with affected stakeholders;
- Implementation of temporary corrective measures;

- Restoration of access where feasible;
- Additional communication and information disclosure; and
- Determination of any additional assistance measures that may be required.

All significant livelihood-related incidents should be documented and monitored to ensure timely resolution and continuous improvement of Project management measures.

4. Communication and Public Information

Timely communication is essential to minimise disruptions to livelihoods, land use activities and economic activities during Project implementation.

The Project should provide information regarding:

- Planned construction activities;
- Construction schedules;
- Land access requirements;
- Temporary access restrictions;
- Right-of-way requirements;
- Alternative access arrangements where applicable;
- Stakeholder engagement opportunities; and
- Grievance management procedures.

Information may be communicated through stakeholder meetings, community consultations, notices, signage, social media platforms, local media, direct engagement and other appropriate communication channels.

Particular attention should be given to landowners, occupiers, agricultural users, informal land users and other stakeholders whose activities may be affected by Project construction.

5. Grievance Management

Stakeholders should have access to the Project Grievance Mechanism (GM) to raise concerns relating to land acquisition, access restrictions, livelihood impacts, compensation, livelihood restoration or other Project-related matters.

All livelihood-related grievances should be documented, investigated and addressed in accordance with the procedures established under this Plan and the Stakeholder Engagement Plan.

Where grievances relate to compensation, land acquisition, displacement or livelihood restoration, efforts should be made to address concerns promptly and transparently through consultation and resolution processes established by the Project.

6. Monitoring of Livelihood Protection Measures

Implementation of livelihood protection measures should be monitored throughout Project implementation to assess effectiveness and identify any unforeseen impacts.

Monitoring activities may include:

- Tracking livelihood-related grievances;
- Monitoring access arrangements;
- Monitoring impacts on agricultural activities;
- Monitoring impacts on informal land users;
- Monitoring impacts on sand and gravel extraction activities;
- Monitoring stakeholder engagement activities;
- Monitoring implementation of mitigation measures; and
- Monitoring issues affecting vulnerable persons and households.

Where monitoring identifies significant livelihood impacts or unresolved concerns, additional mitigation, compensation or livelihood restoration measures should be considered.

7. Indicators (KPIs)

Table 17 presents the key performance indicators that should be used to monitor implementation of the livelihood protection measures described in this section.

Table 17: Livelihood Protection KPIs

Key Performance Indicator	How Will It Be Monitored and Measured	Responsibility
Potentially affected livelihood activities identified and assessed prior to construction	Review of impact assessments, stakeholder engagement records and survey findings	WASA / Supervising Consultant
Advance notification provided to affected stakeholders prior to commencement of relevant works	Review of notification records and stakeholder engagement documentation	WASA / Contractor
Access arrangements maintained or restored where required	Field inspections, stakeholder feedback and monitoring reports	Contractor / Supervising Consultant

Livelihood-related grievances addressed within established timeframes	Review of grievance records and resolution logs	WASA
Monitoring activities completed and corrective actions implemented where required	Review of monitoring reports and corrective action records	WASA / Supervising Consultant

8. Roles and Responsibilities

Table 18 outlines the principal responsibilities for implementation of the livelihood protection measures described in this section.

Table 18: Roles and Responsibilities for Livelihood Protection

Party	Responsibility
WASA	Overall implementation and oversight of livelihood protection measures and compliance with this Plan.
Supervising Consultant	Monitoring, verification and reporting on implementation of livelihood protection measures.
Construction Contractor	Implementation of livelihood protection, access management and mitigation measures during construction.
Community Liaison Officer (CLO)	Stakeholder engagement, communication and support to affected persons and communities.
Social Specialist	Assessment of livelihood impacts, identification of vulnerable persons and support to implementation and monitoring activities.
Affected Persons and Stakeholders	Participation in consultations, engagement activities and monitoring processes where applicable.

Livelihood Restoration

1. Objectives

The objective of this section is to establish a framework for restoring livelihoods and income-generating activities where Project impacts cannot be fully avoided, minimised or mitigated through the livelihood protection measures described in Section 6.

Specifically, the Project should seek to:

- Restore affected livelihoods and income-generating activities where impacts occur;
- Assist affected persons in re-establishing economic activities disrupted by Project implementation;
- Support vulnerable persons and households affected by livelihood impacts;

- Promote fair, transparent and equitable implementation of livelihood restoration measures; and
- Ensure consistency with applicable national requirements and relevant IDB Environmental and Social Performance Standards.

2. Livelihood Restoration Planning Process

Where livelihood impacts are identified, restoration measures should be developed and implemented in a manner proportionate to the nature, duration and significance of the impact.

Table 19: Livelihood Restoration Planning Process

Step	Activity
1	Identify affected livelihood activities and affected persons
2	Assess the nature and extent of livelihood impacts
3	Identify vulnerable persons and households
4	Determine appropriate restoration measures
5	Consult with affected persons regarding proposed measures
6	Implement agreed restoration measures
7	Monitor outcomes and effectiveness
8	Implement corrective actions where required

3. Eligibility for Livelihood Restoration Assistance

Eligibility for livelihood restoration assistance should be determined based on the nature and extent of Project-related impacts on livelihoods, income-generating activities or access to productive resources.

Potentially eligible persons may include:

- Agricultural users;
- Informal agricultural occupants;
- Commercial enterprises;
- Informal livelihood operators;
- Sand and gravel extraction operators and workers;
- Resource users affected by Project activities;
- Vulnerable persons and households; and
- Other persons whose livelihoods are demonstrably affected by Project activities.

Eligibility should be determined through impact assessments, socio-economic surveys, asset inventories and stakeholder engagement activities undertaken by the Project.

4. Livelihood Restoration Measures

Where livelihood impacts occur and cannot be adequately addressed through mitigation measures alone, one or more of the following restoration measures may be implemented.

7.4.1 Cash-Based Assistance

Where Project activities result in demonstrable livelihood losses that cannot be avoided or adequately mitigated, cash-based assistance may be considered.

The nature and extent of assistance should be determined based on:

- The severity and duration of the impact;
- The extent of livelihood disruption;
- The vulnerability of the affected person or household; and
- The availability of alternative mitigation measures.

7.4.2 Business Restoration Assistance

Where business activities are affected, restoration measures may include:

- Temporary access arrangements;
- Construction scheduling adjustments where feasible;
- Temporary relocation assistance where appropriate;
- Business continuity support measures; and
- Other site-specific measures intended to facilitate restoration of business operations.

7.4.3 Agricultural Restoration Measures

Where agricultural activities are affected, restoration measures may include:

- Compensation for affected crops, trees and productive assets where applicable;
- Restoration of temporarily occupied agricultural lands;
- Reinstatement of access arrangements;
- Rehabilitation of disturbed areas;
- Assistance with re-establishment of agricultural activities where appropriate; and
- Other measures appropriate to the nature of the impact.

7.4.4 Assistance for Informal Livelihood Activities

Where informal livelihood activities are affected, restoration measures may include:

- Temporary relocation assistance where feasible;
- Assistance with re-establishment of livelihood activities;
- Enhanced stakeholder engagement and communication;
- Temporary access arrangements; and
- Other measures appropriate to the nature of the impact.

7.4.5 Assistance for Extractive Activities

Where Project activities result in demonstrable impacts on sand and gravel extraction activities or associated livelihoods, restoration measures may include:

- Temporary access arrangements where feasible;
- Assistance to address temporary livelihood disruptions;
- Restoration of access following construction; and
- Other measures appropriate to the nature and duration of the impact.

7.4.5 Vulnerable Household Assistance

Where vulnerable persons or households are affected by livelihood impacts, additional support measures may be implemented to reduce the risk of disproportionate adverse effects.

Potential measures may include:

- Enhanced consultation and engagement;
- Priority consideration during implementation of restoration measures;
- Additional livelihood support measures where required; and
- Referrals to relevant social support services or programmes where appropriate.

5. Monitoring and Compliance

Implementation of the livelihood restoration measures described in this section should be monitored to assess their effectiveness and determine whether affected persons have been able to restore livelihoods and income-generating activities impacted by the Project.

Monitoring activities may include follow-up consultations with affected persons, review of grievance records, assessment of restoration outcomes and monitoring of vulnerable households where applicable.

Where monitoring identifies that livelihood restoration measures have not achieved their intended outcomes, additional measures may be considered and implemented as appropriate.

6. Indicators (KPIs)

Table 18 presents the key performance indicators that will be used to monitor implementation and effectiveness of the livelihood restoration measures.

Table 18: Livelihood Restoration KPIs

Key Performance Indicator	How Will It Be Monitored and Measured	Responsibility
Affected livelihood activities identified and assessed	Review of assessment records and impact documentation	WASA / Supervising Consultant
Eligible affected persons receiving agreed restoration assistance	Review of implementation records	WASA
Vulnerable households receiving additional support measures where required	Review of monitoring and assistance records	WASA / CLO
Livelihood restoration grievances resolved within established timeframes	Review of grievance records	WASA
Livelihood restoration measures implemented and completed as planned	Monitoring reports and verification of implementation	WASA / Supervising Consultant

7. Roles and Responsibilities

Table 19 outlines the roles and responsibilities of the parties responsible for implementing, monitoring and reporting on the livelihood restoration measures described in this section.

Table 19: Roles and Responsibilities for Livelihood Restoration

Party	Responsibility
WASA	Overall implementation of the Livelihood Restoration Framework and provision of required assistance measures

Supervising Consultant	Monitoring, verification and reporting on implementation of livelihood restoration measures
Construction Contractor	Support implementation of restoration measures where required and comply with applicable Project requirements
Community Liaison Officer (CLO)	Stakeholder engagement, communication and support to affected persons
Social Specialist	Assessment of livelihood impacts, identification of vulnerable households and support to implementation and monitoring activities
Affected Persons	Participation in consultations and livelihood restoration activities where applicable

Cultural Heritage Management Plan

1. Chance Find Program/ Watching Brief

During construction activities, cultural heritage assemblages may be discovered or identified. The Chance Find Program is intended to manage impacts to known, probable and unknown cultural sites. Consultations and communication with the legal and regulatory institutions, such as the National Trust of Trinidad and Tobago should be held and procedures and protocols for assessing any unanticipated cultural heritage sites or materials encountered during the project construction phase should be developed and implemented as outlined below.

Chance/Find Protocols & Procedures

Essentially there are several main protocols involved in the implementation of a Chance Find Procedure. These include:

- The Chance Find Program includes the following procedures:
    a. A local specialist or archaeologist should remain on call and shall provide oversight of the entire Chance Find Program.
    b. The on-call specialist should be used on an as-needed-basis and will monitor the Chance Find Program.
    c. The on-call specialists are only required to conduct field monitoring in the case of unusual or highly sensitive and important chance finds.
- A stop work authority/procedure should be affected in the immediate area for the protection of cultural heritage materials encountered during construction activities.
- Document and assess Chance Finds to determine if additional investigations are required.

- Adhere to any established protocols established in consultation with project management of Implementing Agency, Contractors, cultural heritage specialists, local regulatory bodies (for the design and implementation of additional investigations, if needed).
- Identify the roles and responsibilities of the various stakeholders involved.
- The archaeologist must be present during all ground disturbing works conducted within culturally sensitive areas.
- Ground works in other areas should be monitored by at least one member of the project staff who has previously received cultural heritage training.
- Considering that a chance find can be reported by any member of the project staff, it is important that cultural training be provided to all project staff and subcontractors.
- If a Chance Find is encountered, the following steps should be undertaken:
    1. Issue a stop work order in the vicinity of the find.
    2. Inform the site supervisor or project manager.
    3. Install temporary site protection measures such as warning tape or avoidance signs.
    4. Inform all personnel of the Chance Find if access to any part of the work area is restricted.
    5. Establish a localized no-go area needed to protect the Chance Find.
    6. Arrange for the specialists to perform a preliminary evaluation to determine whether the Chance Find is cultural heritage and if so, whether it is an isolate or part of a larger site or feature.
    7. Leave artefacts in place if possible; if materials are collected, they will be placed in bags and labelled by an archaeologist and transported to the relevant agency. Artefacts should not be allowed to be taken by any project personnel as personal possessions.
    8. Document the finding via the use of photography, notes, GPS coordinates and maps as appropriate.
    9. If the Chance Find proves to be an isolated find or not of cultural heritage, the specialist will authorize the removal of the site protection measures and activity in the area.

If, however, the specialist confirms the Chance Find as a cultural heritage of artefact or site of significance, inform the National Trust of Trinidad and Tobago, and initiate discussions about treatment as follows:

1. Prepare and retain archaeological monitoring records including initial reports whether they are later confirmed or not. The record shall include coordinates of all observations to be retained;
2. Develop and implement treatment plans for confirmed finds using the services of qualified cultural heritage experts;
3. If a Chance Find is a verified cultural heritage site, prepare a final Chance Find report once treatment has been completed;
4. While investigation is ongoing, co-ordination with onsite personnel is needed so as to keep them informed of the status and schedule of the investigations and inform them of when construction will resume.

In the event that mitigation is required, then expedient rescue excavations should be undertaken by the relevant archaeological specialists unless the chance find is of international importance. If this is the case, then special care should be taken and archaeologists with the appropriate expertise in addressing the find should be appointed.

Decommissioning Plan

1. MANAGEMENT MEASURES

Background and Decommissioning Objectives

Decommissioning shall be undertaken in a manner that protects downstream receiving waters, public health and the environment, while eliminating environmental liabilities associated with the existing facility.

All activities shall be undertaken in accordance with the Environmental Management Act of Trinidad and Tobago, Water Pollution Rules, applicable waste management requirements, WASA operational requirements, WHO Guidelines for Drinking-water Quality, IDB Environmental and Social Performance Standards (ESPS), IFC General EHS Guidelines and Good International Industry Practice (GIIP).

1.1 Structural Isolation & Hydraulic Safeguarding

Intake Switch-Over Lockout: Implement strict mechanical Lock-Out/Tag-Out (LOTO) isolation on all raw water intake valves and gravity-fed connections to this 'old' plant.

Electrical Grid Severing: Coordinate with T&TEC to permanently disconnect high-voltage grid lines feeding the 'old' high-lift pumps, chemical mixers, and air blowers

1.2 Source Water and Receiving Water Protection

Protection of watercourses shall be a primary environmental objective during decommissioning activities.

Treatment units, drainage channels and pipelines shall be isolated prior to cleaning and dismantling. Residual process water, washwater, sediments and demolition debris shall be contained and managed to prevent discharge to the reservoir or adjacent watercourses. Temporary erosion, sediment and spill control measures shall be maintained throughout decommissioning activities.

Any accidental release with the potential to affect water quality shall be immediately contained, investigated and corrected.

1.3 Chemical and Hazardous Materials Management

All treatment chemicals shall be inventoried and removed from the facility prior to demolition activities.

Residual alum, lime and activated carbon shall be removed from storage facilities, dosing systems and associated pipework. All chlorine cylinders shall be isolated, and 150lb chlorine cylinders recovered from the chemical dosing bay and transferred for reuse or returned to the supplier. Chlorine lines, regulators and dosing equipment shall be depressurized, purged and verified safe prior to cutting or dismantling local pipe lines to prevent localized toxic chlorine gas vapor releases into the adjacent environment.

The chemical storage room shall be cleaned and inspected following removal of all chemicals to verify that no residual contamination remains.

1.4 Sludge and Treatment Residuals Management

Treatment units, sludge channels, washwater drains and associated infrastructure shall be inspected for accumulated sludge and treatment residuals.

Sludge and sediments shall be removed, dewatered where practicable and transported to an approved disposal facility. Waste tracking records shall be maintained for all removed materials.

No sludge, sediment, filter backwash solids or treatment residuals shall be discharged to the receiving environment during decommissioning activities.

1.5 Generator and Fuel System Removal

Diesel fuel, lubricants, batteries and associated materials shall be removed from the standby generator prior to dismantling.

The generator area shall be inspected for evidence of hydrocarbon contamination. Any contaminated material identified shall be removed and appropriately managed. Spill prevention and response measures shall remain in place throughout removal activities.

1.6 Decommissioning of Process Infrastructure

The coagulation, flocculation, sedimentation, filtration and disinfection systems shall be drained, cleaned and inspected prior to dismantling.

The underground clear well and backwash water storage tank shall be cleaned and assessed to determine the most appropriate closure option. Structures retained on site shall be secured against unauthorized access, standing water, vector breeding and public safety risks.

1.7 Site Rehabilitation and Environmental Closure

Upon completion of decommissioning activities, all wastes, redundant infrastructure and temporary facilities shall be removed from the site.

Disturbed areas shall be stabilized and rehabilitated as necessary to prevent erosion, sediment transport and drainage instability. Open basin cavities shall be backfilled with certified clean fill dirt. The final topsoil slope shall be graded to eliminate low spots, preventing standing rainwater from creating breeding grounds for *Aedes aegypti* mosquitoes. Also native Savannah grass shall be planted immediately to stabilize the earth against erosion during heavy tropical downpours.

The site shall be left in a safe, stable and environmentally acceptable condition.

2. MONITORING AND COMPLIANCE

Monitoring shall be undertaken throughout decommissioning activities to verify implementation of mitigation measures and compliance with applicable environmental requirements.

Monitoring activities shall include:

- inspection of reservoir and watercourse protection measures;
- verification of chemical removal and decontamination activities;
- verification of chlorine cylinder transfer and disposal records;
- inspection of sludge removal and disposal activities;
- inspection of generator removal and fuel management activities;
- verification of waste management records;
- inspection of erosion and sediment control measures;
- verification of site rehabilitation activities; and
- investigation and documentation of environmental incidents and non-compliances.

Inspections shall be undertaken prior to commencement of decommissioning activities, during high-risk activities, following significant rainfall events, following environmental incidents and as part of the final environmental closure inspection.

Any non-compliance identified shall be documented and corrective actions implemented promptly.

Monitored Operational Activity	Statutory Compliance Standard	Minimum Sampling Frequency
Tank Draining & Basin Fluid Evacuation	**Water Pollution Rules (WPR) Schedule I:** pH must be strictly between 6.0 – 9.0; TSS must remain < 30 mg/L before leaving property.	Continuous grab testing per active batch discharge event.
Demolition & Concrete Crushing	**EMA Ambient Air Quality Standards:** PM10 boundary limit < 150 µg/m^3 over a 24-hour averaging period.	Continuous daily tracking during active crushing or heavy excavation.
Material Haulage & Sludge Logistics	**Waste Management Rules (WMR):** 100% containment; zero visible tracking of mud/sludge on public asphalt; valid EMA-permitted waste handler signatures.	Every departing truck load.
Stockpiling chemical pipes & scrapped Pumps	**WPR Section 4 (General Prohibition):** Zero visible oily sheen or chemically colored runoff permitted in public stormwater channels.	Daily, plus immediate inspection following any heavy rainfall event.

3. PERFORMANCE INDICATORS

Indicator	Target
Water Quality Compliance	100%
Release of sludge, sediment or process water to reservoir or watercourses	Zero
Chlorine release incidents	Zero
Fuel or oil spills	Zero
Significant environmental incidents	Zero
Treatment chemicals removed and accounted for	100%
Chlorine cylinders removed and accounted for	100%
Sludge disposal records completed	100%
Waste transfer records completed	100%
Significant erosion associated with decommissioning activities	Zero

Environmental closure verification completed	100%

4. ROLES AND RESPONSIBILITIES

WASA

- Ultimate Oversight: Acts as the primary asset owner and applicant for the decommissioning Certificate of Environmental Clearance (CEC)
- Approves and oversees decommissioning activities.
- Verifies operational shutdown of the facility.
- Review environmental compliance documentation.
- Confirm satisfactory environmental closure of the site.
- Regulatory Liaison: Submits the Final Closure and Rehabilitation Report to the EMA to request formal site de-registration and release from CEC obligations.
- Inter-Agency Coordination: Manages formal communication channels and updates with the Tobago House of Assembly (THA) or the EMA

Contractor Project Manager

- Operational Execution: Directs all field personnel, heavy equipment scheduling, and demolition sequencing in strict alignment with the ESMP.
- Implement all decommissioning and mitigation measures.
- Subcontractor Management: retains and monitors the performance of certified specialty subcontractors for gas chlorine extraction, and hazardous waste transport.
- Maintain environmental compliance throughout decommissioning activities.
- Maintain records of waste, sludge and chemical management.
- Undertake site rehabilitation and restoration activities.

Environmental Officer

- Compliance Testing: Conduct monitoring and compliance inspections including daily on-site field testing for pH and total suspended solids (TSS) of all residual basin fluids before discharge

- Chain of Custody Control: Manages the legal waste tracking system for all departing chemical, sludge and structural wastes.
- Verify implementation of mitigation measures.
- Investigate environmental incidents and non-compliances.
- Prepare environmental monitoring and closure documentation.
- Post-Closure Audits: Coordinates the 12 month post-closure groundwater sampling and soil core grid analysis with an accredited laboratory.

Health and Safety Officer

- Safety Enforcement: Implements and verifies Lock-Out/ Tag-Out (LOTO) procedures, confined space air-purging protocols, and mandatory worker PPE compliance
- Oversee chlorine handling and chemical removal activities.
- Nuisance Control: Monitors daily boundary dust levels (PM10) and ensures all stock piles and departing trucks are securely covered.
- Vector Management: Conducts weekly site walkthroughs to locate and eliminate areas of standing water that could breed mosquitoes.
- Monitor worker safety compliance.
- Implement emergency response procedures.
- Verify safe closure of confined spaces and underground structures.

5. Post-Closure Activities and Decommissioning Closure Verification

Following complete infrastructure removal, the project must enter a 12-month post-closure validation phase which includes

1. **Groundwater Quality Audit:** Sample quarterly, monitoring wells (one upgradient, two downgradient) around the historical footprints of the old chemical storage bays to track potential historical chemical migration.
2. **Soil Validation Core Sampling:** Take systematic grid-based soil core samples across the old treatment plant footprint. Ensure heavy metal contents and pH levels conform to safe residential/industrial baseline numbers.
3. **Formal Permit Close-Out:** Compile clean water reports, certified soil samples, and disposal manifests into a comprehensive **Decommissioning Closure Verification Report**. This report is then submitted directly to the EMA to officially de-register the old facility, close out the

decommissioning CEC requirements, and transfer full site management to the team operating the new 2.0 IMGD plant.

This Decommissioning Closure Verification Report shall be prepared by the Contractor Project Manager and reviewed by WASA and the Environmental Officer.

This Report shall confirm that all chemicals, fuels, wastes and residual materials have been removed and appropriately managed; sludge and treatment residuals have been disposed of at approved facilities; infrastructure has been safely decommissioned; disturbed areas have been rehabilitated; and the site has been left in a safe, stable and environmentally acceptable condition.

Appendix 4: Indicative Index of the Environmental and Social Management Plan (ESMPc) at the Construction Level and Guidelines for Minimum ESMPc

Indicative Index of the Environmental and Social Management Plan at the construction Level (ESMPc)

1. **Cover**, including:
   - Project and Program Name and location.
   - Work's name.
   - Contractor firm.
   - ESMP preparation date.
   - Environmental representative of the company (responsible for implementing the ESMP): name, signature, enabling professional registration.
   - Version control: table indicating revision date, preparation manager, date and approval manager, and major version changes.

2. **Table of** Contents, including all annexes
3. **Introduction**:
   - ESMP Objective and scope.
   - Data of the company, work, location, and client
   - Company's environmental, social, quality, and occupational health and safety policy.
   - Code of Conduct for employees of the company, which includes, among other topics,
   - the explicit prohibition of harassment or violence against women and children in the community, and employees of the company.
   - Professional responsible for the implementation of the ESMP (name, contact details).
   - Definitions of technical terms and acronyms used throughout the ESMP.

4. **Project Description**
   - Objective and components of the work.
   - Scope and descriptive memory of the work, construction methods.
   - Basic description of environmental and social particularities at construction sites.
5. **Legal regulations** of reference, applicable to the project
6. **Identification of environmental, social and occupational health and safety risks and impacts in the construction phase.**
7. **Mitigation measures.** Mitigation measures identified should include:
   - Impact or risk they address.
   - Monitoring and follow-up indicators
   - Target performance level values
   - Corrective actions in case of deviations

- Timeline (when measures are triggered, duration)

8. **Detailed ESMPc Environmental Management Programs (at the construction level)** – at a minimum, this chapter should include all programs listed in Annex 4 of ESMF, and any other programs deemed necessary for the execution of the Project.
9. **Implementation and Operation**
   - Resources required for the ESMP implementation (budget, materials, equipment, and human resources)
   - Roles: functional organization chart, role of each key position in terms of ESMP responsibility (Project Manager, Environmental Manager, Occupational Health and Safety Manager, Supervisors and Managers, Operational Personnel, Subcontractors and Suppliers)
   - Documentation: guidelines for the preparation, review, approval and filing of documents related to the environmental and social management of the project
10. **Operational oversight**
    - arrangements and responsibilities for monitoring of ESMP implementation
    - triggers or periodic review schedule of the ESMP
    - Control and measurements: control measures to be implemented.
    - Assessment of compliance: accepted limit values, criteria
    - Non-conformity, preventive, mitigation, corrective, compensatory actions
    - Verification of execution and effectiveness of preventive, mitigative, corrective, compensatory actions
    - Reporting requirements
    - Log control
    - Audits
    - Reports of ESMP compliance indicators by contractor.
11. **Annexes**
    - Environmental procedures
    - Model registration and control sheets
    - Internal environmental and social audits model form.

Guidelines for the Environmental and Social Management Plans (ESMPc) at the Construction Level

The ESMP will include the mitigation measures identified for the project and will consist of a series of programs and sub-programs for each of its phases, including, but not limited to, those detailed in Minimum Programs to be included in the ESMPc of construction phase.

1. Monitoring and Control of Compliance with Mitigation Measures
2. Construction Sites Management
3. Air Quality, Noise and Vibrations Management
4. Erosion Control
5. Biodiversity Management
6. Waste Management
7. Effluent Management

8. Occupational and Community Health and Safety
9. Traffic and Pedestrian Management
10. Environmental and Social Training for Site Personnel
11. Disaster Management and Emergency Response
12. Community Information and Participation
13. Chance Find Procedure
14. Hazardous Materials Management
15. Works Closure

Below, the guidelines for each of the Construction ESMP programs are presented.

Program 1: Monitoring and Control of Compliance with Mitigation Measures

Environmental and social effects to be prevented or corrected: Deviations in implementation of mitigation measures

Management Measures

To ensure effective oversight of compliance with the identified mitigation measures, the contractor will establish and maintain a comprehensive "compliance monitoring system." This system will serve to oversee the implementation of each mitigation measure during the construction stage. The compliance monitoring system will include, but is not limited to, the following elements:

- Actions to be Implemented: A detailed description of specific actions and steps to be taken to execute each mitigation measure.
- Necessary Material Resources: An inventory of the materials, equipment, and resources required to carry out mitigation measures effectively.
- Responsible Staff: Identification of personnel responsible for execution and supervision of each mitigation measure, including their roles and responsibilities.
- Indicators of Compliance: Establishment of clear and measurable indicators that will be used to assess the degree of compliance with each mitigation measure.
- Goals and Frequency of Monitoring: Defined objectives for achieving compliance, along with the frequency and methodology for monitoring progress towards these goals.

This structured compliance monitoring system will ensure that the construction project adheres to the established mitigation measures and operates in a manner that minimizes potential environmental or regulatory impacts.

Monitoring and Compliance

Indicators: Number of ESHS Non-Conformities (environmental, social and safety and hygiene) identified during the inspections.

- Number of ESHS Non-Conformities closed on time.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 2: Construction Sites Management

Environmental and social effects to be prevented or corrected: Minimize the environmental and social impacts of the preparatory activities of the works

Management Measures

The work sites must ensure the minimal impact on the environment and incorporate the following considerations:

- Establishment of a materials storage and collection area.
- Implementation of an efficient waste collection and storage system.
- Supply of sufficient water resources for sanitary and operational needs.
- Installation of appropriate signage for safety and guidance.
- Availability of a well-equipped first aid kit.
- When deemed necessary, provision of an electric generator with a waterproof base.

Among the specific recommendations, the following guidelines have been established:

- Provision of Adequate Communication Equipment: All work sites shall be equipped with reliable communication tools, such as radios, to facilitate prompt requests for assistance during emergencies.
- Fire Safety Measures: Work sites must be equipped with fire extinguishers or other appropriate fire suppression systems.
- Emergency Response Training: Personnel shall undergo comprehensive training in emergency response procedures, first aid, and proper hygiene practices.
- Site Cleanup: Upon completion of construction activities at each work site, all residual materials must be promptly removed, ensuring a clean and organized environment.
- Machinery Maintenance and Compliance: Regular maintenance checks and technical verifications will be conducted to ensure construction machinery remains in good working condition.
- Runoff management: The drainage of excess water, soil movement, and stockpile management shall prioritize the preservation of natural drainage patterns and land runoff levels to prevent erosion and its associated environmental impacts.
- Covered Transportation and Material Handling: All materials prone to generating dust will be transported in vehicles equipped with tarpaulins and maintained at adequate humidity levels to minimize dispersion during transit. Additionally, during on-site stockpiling, regular wetting of materials susceptible to dust generation will be enforced. Efforts will be made to minimize stockpile quantities, wherever operationally feasible, to reduce potential emissions.
- Road and Site Maintenance: To control dust emissions from roads lacking an asphalt layer, a regular watering schedule will be implemented, ensuring these surfaces are dampened at least twice a day.

- The speed of construction vehicles using access roads without asphalt will be regulated and limited (ranging from 20 to 40 km/h depending on specific conditions).
- Dust Control during Earth Extraction: When excavating or moving soil, measures will be taken to mitigate dust emissions. This will include the application of water or other appropriate suppressants to the material during extraction to minimize airborne dust.

Monitoring and Compliance

Indicators:

- The ratio of work sites where management measures have been applied to the total number of active work sites.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 3: Air Quality, Noise and Vibrations Management

Environmental and social effects to be prevented or corrected: Impacts of air quality, dust and noise near community or urban areas.

Management measures

Emissions Control Measures:

- Ensure all construction equipment is maintained in accordance with manufacturer's specifications.
- Implement dust suppression measures as necessary in unpaved areas.
- Prohibit incineration of non-vegetative wastes (e.g., refuse) at construction sites.
- Reduce unnecessary idling of construction equipment and delivery trucks when they are not in active use.
- Maintain cleanliness, especially of tires, on work vehicles to prevent tracking of dirt both within and outside the construction site.
- Covering of work vehicles transporting friable materials to prevent dispersion of materials beyond the site.
- Minimize drop heights of materials during construction operations.
- Establish and enact a comprehensive grievance procedure in the event of receiving complaints related to dust and/or exhaust emissions.

Noise Control measures:

- Ensure maintenance of all construction equipment in accordance with manufacturer's specifications to minimize noise emissions.

- Strategic Work Scheduling: Plan construction, modification, and rehabilitation activities to take place during daylight hours when heightened noise levels are generally more acceptable to the surrounding community.
- Develop and implement a comprehensive Construction Communications Plan to proactively notify neighboring receptors, such as residents, commercial establishments, religious institutions, and hotels, about upcoming construction activities.
- Consider Acoustic Enclosures: Evaluate the necessity of installing acoustic enclosures where applicable to mitigate noise generated by construction activities.
- Discourage unnecessary idling of construction equipment and trucks to minimize noise emissions and environmental impact.

Monitoring and Compliance

Indicators:

- Absence of grievances voiced by neighboring commercial establishments and/or the local community.

Monitoring:

- Regular daily site inspections shall be conducted, encompassing the following critical aspects:
- Visual assessment for dust migration to detect any instances of dust transgressing site perimeters.
- Visual assessment of areas with a heightened propensity for dust emissions, such as haul roads, stockpiles, and operational zones.
- Equipment and machinery service records.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 4: Erosion Control

Environmental and social effects to be prevented or corrected: Effects of erosion and sedimentation on the environment - soil disturbance, degradation, and erosion.

Management measures

Erosion control measures

- The minimization of disturbance area will be a paramount objective, and clear demarcation will be established to delineate the boundaries of this zone.

- All activities will strictly occur within the designated work zone, ensuring that the work scope is confined to this specific area.
- Vehicle movements will be confined to predefined roads and tracks, thereby mitigating potential offroad impacts.
- Management of runoff water, soil displacement and accumulations will be carried out with a primary focus on preserving their natural flow patterns and adhering to the natural runoff levels of the terrain.
- Monitoring and periodic inspections will be conducted to assess the effectiveness of sediment controls, particularly after significant rainfall events exceeding 10mm in a 24-hour period.

Monitoring and Compliance

Indicators

- Absence of Substantial Sediment Deposition: There should be no noticeable accumulation of sediment beyond the designated works area.

Monitoring

- Daily inspections of the work site will be conducted.
- Sediment controls will be assessed during site inspections and following significant rainfall events (defined as more than 10mm of rainfall within 24 hours, leading to site runoff). The assessment will also encompass the removal of any accumulated sediments as needed.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 5: Biodiversity Management

Environmental and social effects to be prevented or corrected: Impacts on vegetation cover and wildlife

Management measures

The following management measures are required to be adhered to in the applicable local environment for the project intervention.

- Integrate biodiversity protection clauses in all construction contracts and site environmental procedures.
- Review the results of pre-construction ecological surveys along proposed pipeline routes, particularly the location of sensitive habitats, fauna nesting sites, and a list of rare species within the footprint.

- Clearly demarcate no-go areas (e.g., avoidable riparian zones that are intact, pristine forest patches) prior to mobilisation.
- Limit clearing strictly to the approved project footprint and use existing access routes where possible (e.g., T&TEC utility corridor, roadways).
- Prohibit collection, hunting, or disturbance of wildlife by any project personnel.
- Schedule high-noise activities during daylight hours only and as best as possible outside sensitive breeding seasons (March–July).

Terrestrial Habitat Management

- Retain and mark vegetation buffers (minimum 20–50 m) along the River courses.
- Preserve mature trees (>25cm DBH) where feasible, especially those offering nesting or shade functions.

Riparian and Aquatic Habitat Protection

- Maintain riparian vegetation continuity and stabilise banks using suitable bioengineering methods.
- Prohibit machinery access within 10 m of watercourses unless explicitly authorised and controlled.
- Conduct in-stream works during low-flow (dry) season and use silt curtains or cofferdams where necessary.
- Install sediment traps and turbidity curtains downstream of construction zones.
- Regularly monitor turbidity, dissolved oxygen, and TSS upstream and downstream of work sites.

Faunal Protection Measures

- Restrict clearing and noisy works during bird and reptile breeding seasons.
- Use downward-directed lighting and low-wattage LEDs to minimize light spill if used.
- Cover all open trenches at the end of each workday and install escape ramps for small animals.
- Ensure waste is securely stored to prevent attraction of wildlife.

Invasive Species Control

- Inspect all fill and topsoil sources for invasive species.
- Clean all construction equipment and vehicles before entering the site.
- Conduct quarterly monitoring for invasive species colonization and implement manual or mechanical removal if detected

Post-Construction Habitat Restoration

- Restore disturbed areas using native ground cover and reforestation species.
- Conduct survival assessments at 3, 6, and 12 months post-planting.
- Replace any non-surviving plants to maintain target density.
- Engage local environmental NGOs and other groups in replanting and post-restoration monitoring.

Downstream Ecosystem Protection

- Maintain sediment and water quality controls to prevent adverse effects on downstream beaches and turtle nesting habitats (where applicable).
- Collaborate with the EMA to monitor nesting activity and beach sediment conditions.

<u>Monitoring and Compliance</u>

Indicators

- Reduction in vegetation covers surface.
- Persistence of revegetated cover surface four months after planting.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 6: Waste Management

Environmental and social effects to be prevented or corrected: Pollution due to improper handling of waste generated on site.

Management measures

Waste generated during the construction phase comprises two distinct categories: common household waste, characterized by low hazard, and specialized waste, considered potentially dangerous.

The first category encompasses materials such as packaging waste, plastics, pipe cuttings, wood, cardboard, food scraps, wires, bags containing lime and cement, cables, bricks, and similar non-hazardous items.

The second category comprises hazardous materials such as rags, contaminated wood, filters, gloves, or other solid objects tainted with oils, hydrocarbons, traces of solvents, varnishes, paints, as well as waste stemming from coating and welding electrodes. Additionally, it includes used oils and containers or packaging with residues of the aforementioned substances.

Waste Management Measures

- Personnel training and waste management: all personnel must be adequately trained to distinguish between the two distinct categories of waste and to rigorously maintain their segregation throughout the entirety of the project's development. This includes the proper handling and management of waste.
- Waste storage and categorization: all waste materials must be segregated based on their inherent properties, such as reusability, recyclability, or categorization as household or special waste. This segregation should occur under controlled conditions to preserve their inherent characteristics and prevent any unintended dispersion.
- Waste disposal prohibitions: no form of waste generated during the construction phase, whether it is of household or special nature, solid or liquid, may be incinerated, buried, or discharged into water bodies or the soil. Strict adherence to these prohibitions is mandatory.
- Prevention of unattended waste: under no circumstances shall unattended waste be left unattended at construction sites, where it may be accessible to both wildlife and individuals.

- Waste documentation: a comprehensive record of the waste generated at each construction site must be diligently maintained, documenting the type, volume, and detailed characterization of the waste produced.
- Effluent management: whenever feasible, the practice of washing tools and machinery on the construction site should be avoided. In cases where this is unavoidable, a designated location must be provided for the temporary containment of effluents. These effluents must be removed from the project area at the conclusion of each phase of work.

Low Hazard Waste Management Measures

- When the recycling of assimilable household waste is both technically and economically viable, it will be carried out.
- Should recyclable materials prove valuable to the residents of the locality, they shall be made available to those who express a need for them, following consultations and mutual agreement with the local populace.
- Waste materials that remain unutilized within the Project Area must be securely stored and promptly removed upon the successful conclusion of each phase of the project.

Special Waste Management Measures

- Special waste must be securely stored in appropriate containers, in compliance with the nature of the substances, and treated as hazardous waste, in accordance with prevailing legal regulations.
- In the event of accidental spills, the Environmental Management Authority will be immediately informed, and necessary measures for the containment and elimination of the spilled hydrocarbon or chemical product will be carried out. Immediate absorption using suitable materials (such as absorbent cloths or clay) shall be applied. Any contaminated soil or vegetation shall be treated as special waste.
- Any generation of pathological waste resulting from personal accidents requiring first aid care must be carefully separated, stored, and treated in strict adherence to prevailing legislation.
- Hazardous waste generated because of construction activities should be diligently managed, adhering to current legislation. These materials must be securely stored within designated facilities, ensuring their proper preservation. After competition of the works, prompt removal and transportation of special waste to an appropriate facility for treatment and final disposal must be carried out.
- Transportation and disposal of special waste must exclusively be carried out by licensed and authorized operators. Under no circumstances will the ultimate disposal of special waste be conducted at open dumps or landfills designated for household waste.

<u>Monitoring and Compliance</u>

Indicators

- Hazardous waste managed according to standards / hazardous waste generated by the project.
- Properly managed dry waste and construction surplus / total dry waste and construction surplus generated by the project.

Monitoring

- Training in supervising hazard waste registration forms for key personnel.
- Records of the removal of hazardous waste for its ultimate disposal.
- Reviewing hazardous waste removal records for compliance.
- Verifying accreditation certificates for hazardous waste disposal.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 7: Effluent Management

Environmental and social effects to be prevented or corrected: Pollution due to inadequate management of effluents generated by work activities.

Management Measures

Effluent Management Measures

- Identify and categorize all potential sources of effluents.
- Implement specific protocols for handling different types of effluents (domestic, construction, stormwater runoff).
- Conduct regular training sessions for construction personnel on the proper handling, storage, and disposal of potentially harmful substances to prevent accidental spills or leaks.
- Regularly monitor, test, and treat effluents discharged from the construction site.
- Prioritize managing water drainage, soil movements, and stockpiles in alignment with natural flow patterns and land runoff levels.
- Implement erosion and sediment control measures to minimize the introduction of sediment-laden runoff into water bodies.
- Install impermeable flooring in susceptible areas and a surrounding channel connected to an autonomous drainage system to direct rainwater towards treatment facilities.
- Install enough portable toilets or equivalent facilities. Prioritize toilets with efficient waste management systems and low-water-consumption sanitation solutions. Effluents from these facilities will be removed and sanitized daily by authorized operators or service providers.
- Implement wastewater recycling systems for sanitation facilities, where feasible, using greywater treatment for non-potable purposes like irrigation or construction.

- Establish a Tools and Machinery Maintenance Protocol. Efforts will be made to avoid on-site tool and machinery washing. When such washing is unavoidable, cleaning areas will be designated and equipped with containment measures to prevent the washing of tools and machinery from affecting the surrounding environment. Explore and encourage the use of eco-friendly cleaning agents to minimize environmental impact.

Monitoring and compliance

Indicators

- Effluent types managed according to standards / Total effluent types generated by the project.

Monitoring

- Record sheet documenting the withdrawal and inspection of portable toilets by the contractor.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 8: Occupational and Community Health and Safety

Environmental and social effects to be prevented or corrected: Accidents and incidents that affect occupational and community health and safety

Management measures

The contractor shall regularly ensure compliance with relevant standards and regulations, including international best practices (such as the International Finance Corporation guidelines). This will involve retaining a team of professional advisors.

All personnel are required to receive training in equipment operation, machinery use, and vehicle operation in accordance with prevailing regulations within protected areas.

Clear and permanent identification of all available elements must be conducted, alongside the use of signage and instructional materials for educational purposes.

The contractor must supply Personal Protective Equipment (PPE) and provide comprehensive induction training to workers, covering PPE types, proper usage, characteristics, and limitations.

Occupational Health and Safety Subprogram

A comprehensive assessment of risk factors associated with each job role, including an enumeration of the workforce exposed to these risks, must be carried out. The following measures are recommended to enhance workplace safety:

- Conduct Daily 5-Minute Safety Talks before commencing work. Topics should be tailored to the specific risks associated with ongoing activities.
- Develop and implement Safe Work Procedures for the safe execution of activities. Emphasize adherence to established safety protocols.
- Regularly inspect and ensure the proper functioning of equipment, machinery, and essential safety apparatus such as fire extinguishers.
- Apply Safety Data Sheets for hazardous products, ensuring that relevant information is readily accessible to workers.
- Provide necessary Personal Protective Equipment (PPE) to all workers on the construction site in accordance with the specific requirements of their tasks.
- demarcate work areas and storage zones using appropriate signaling to promote awareness and help prevent accidents.
- Develop a comprehensive Contingency Plan and ensure that all workers are proficiently trained in its implementation to address unforeseen circumstances.
- Conduct proper Waste Management by exercising control over the collection, treatment, and disposal of residues and waste, while adhering to basic sanitation standards.
- Verify that personnel operating equipment possess the necessary licenses and certifications.
- Training in Environmental, Health, Hygiene, and Occupational Safety.

The following activities are classified as high-risk within the occupational context, and demand a diligent commitment to safety protocols, continuous training, and strict adherence to established guidelines to mitigate potential hazards and ensure the well-being of personnel involved:

- Work at Heights and on Scaffolding
- Hot Work (Welding)
- Machinery Maintenance
- Electrical Work

Community Health and Safety Subprogram

This subprogram is designed to address potential risks and impacts on the health and safety of communities affected by the project. The Contractor is required to conduct a comprehensive evaluation of the project's potential effects on the health and safety of the affected communities, with specific attention to individuals facing vulnerability due to their unique circumstances, such as children. Subsequently, the Contractor is expected to propose mitigation measures in strict adherence to the mitigation hierarchy. The assessment will encompass the following key aspects:

- Thorough evaluation of the impact on traffic and road safety, with the aim of minimizing any adverse effects on the community.
- Implementation of clear and effective signaling and delineation measures at work sites to enhance safety and minimize potential hazards.
- Rigorous management and safety protocols for handling hazardous materials to prevent any harm to the health and safety of the affected communities.

- Development and implementation of a comprehensive emergency preparedness and response plan, ensuring swift and effective actions in the event of unforeseen circumstances.
- The Contractor is expected to integrate these measures into the project's execution, reflecting a commitment to responsible and conscientious project management.

Labor Management Procedure Subprogram

The contractor is required to formulate a comprehensive Labor Management Procedure (LMP) designed to articulate a structured framework governing the actions and responsibilities of both the employer and the workforce. This protocol is applicable to individuals employed directly by the contractor and extends to personnel engaged through third-party entities (sub-contractors).

The primary objective of the LMP is to establish and maintain employment relationships grounded in the principles of equal opportunities and equitable treatment. The employment of children or forced labor is strictly prohibited. The contractor, along with its subcontractors, is expressly prohibited from engaging individuals below the minimum age of employment as prescribed by relevant legal statutes, with a minimum threshold of no less than 18 years of age.

The LMP will include the creation of a grievance redress mechanism. This mechanism is designed to provide a channel through which workers, and where applicable, their affiliated organizations, can voice concerns related to the workplace. Additionally, it serves as a platform for the lodging of complaints pertaining to instances of sexual and gender-based violence. The contractor is tasked with ensuring the effectiveness and accessibility of this grievance redress mechanism to facilitate a transparent and responsive resolution process.

Monitoring and Compliance

Indicators

- Frequency rate (number of accidents x 200,000/person-hours worked in the period).
- Severity Index (number of serious accidents x 200,000/ person-hours worked in the period).
- Fatal Accident Incidence Rate (Number of fatal accidents x 200,000/Number of exposed workers).
- Number of personnel using PPE according to the risk of the activity / Total number of personnel.
- Number of workers with Medical and Labour Insurance / Total number of workers in the project

Monitoring

- Work accident registration forms.
- PPE delivery record forms.
- Record sheets for training in the use of PPE.
- Certification forms for the use of specific machinery.
- Safety procedures for critical activities.
- Risk analysis and checklists for critical activities.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 9: Traffic and Pedestrian Management

Environmental and social effects to be prevented or corrected: Accidents and incidents that affect occupational and community health and safety

Management measures

The Master Contractors will prepare the Traffic and Pedestrian Management Program. Consultation with key stakeholders will be conducted prior to Program finalization. The Contractors will ensure implementation of this Program.

The Traffic and Pedestrian Management Program shall:

- Identify the sensitive location (religious facility, educational facility, heath facility, commercial areas) along the site access roads.
- Identify the road condition, traffic congestion areas and peak traffic load period.
- Identify the traffic hotspots like road junctions, market areas, school areas.
- Provision of traffic marshal (signal operator) in identified traffic sensitive locations.
- Identify any major road repairing requirements along the site access road.
- Prepare the Traffic and Pedestrian Management Program based on local sensitivity (religious gathering, school timing, market timing and peak traffic timings);
- Implement procedure to follow road safety requirements by the drivers & helpers.
- Implement procedure to check fit certificates of the vehicles to minimize the emission of air and noise.
- Monitor road conditions to identify any damage to road or structures and remedies immediately to reduce the potential for significant impacts to the local communities.

Contractors are responsible for ensuring that drivers receive instructions in accordance with the Traffic and Pedestrian Management Program to maintain appropriate speeds. Additionally, they must conduct induction and training sessions for all drivers to promote safe driving practices. Furthermore, contractors are obligated to enforce compliance among drivers, ensuring adherence to all legal and project-specific safety regulations relevant to road safety measures.

Monitoring and Compliance

Indicators

- Number of work fronts marked with signs in accordance with the approved Traffic and Pedestrian Management Program /Number of work fronts that require signage in accordance with Traffic and Pedestrian Management Program.

- Number of road accidents.

Monitoring

- Weekly inspection program
- Monthly inspection report
- Road safety accident records

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 11: Socio-Environmental Training for Construction Personnel

Environmental and social effects to be prevented or corrected: Lack of knowledge regarding the personnel's role in preserving, protecting, and conserving the environment, as well as ensuring occupational safety in the performance of their duties

Management measures

Environmental and Social Training

To carry out the training process, informative sessions will be conducted prior to the commencement of work.

Subsequently, ongoing exchange and training meetings will be organized, tailoring content to meet the specific requirements of diverse projects with environmental implications. Additionally, drills addressing emergency response protocols will be conducted.

The planning and execution of these training sessions will be conducted under the oversight of safety, hygiene, and environmental professionals employed by the contractor. The training program encompasses a comprehensive agenda, including, but not limited to, the following topics:

- Basic induction in environmental protection.
- Evaluation and control of risks with a focus on personnel safety.
- Management of environmental contingencies such as spills and fires.
- Fire prevention and control measures.
- Comprehensive waste management procedures.
- Protection and management of plant species in the immediate environment.
- Safe handling of chemical substances.
- Familiarization with the company's Code of Conduct and addressing gender-related issues.
- The implementation of this program will ensure a thorough understanding of essential environmental and safety protocols, contributing to the effective management of potential risks and emergencies.

Code of Conduct

The Contractor is required to develop and implement a comprehensive Code of Conduct for Site Personnel, as exemplified in Appendix 7. This code shall be incorporated into employment contracts for both the Contractor and Subcontractors, adhering to the guidelines outlined in the LMP. To mitigate the risk of gender, social, political, cultural, or racial conflicts, and to maintain order, the Contractor must take necessary measures and precautions. This includes preventing tumult or disorder among construction personnel, employees hired by them, or Subcontractors, while ensuring the preservation of order, protection of inhabitants, and the security of public and private property within the project's area of influence.

The Code expressly prohibits harassment, violence, exploitation, and racism. Its application is mandatory for all individuals involved in the project, both during and outside of working hours.

Non-compliance or infringement of the established rules of conduct will result in sanctions, fines, or dismissals, depending on the severity of the violation. All construction personnel, irrespective of their hierarchical level, are required to participate in training sessions and discussions related to the Code.

Furthermore, the Contractor is obligated to conduct a minimum of two activities addressing non-discrimination and gender equity for all personnel affected by the project. These activities will focus on: 1) the prevention of sexual exploitation of children and adolescents, including labor and criminal consequences; and 2) fostering positive relationships between men and women in the workplace.

Prior to these activities, the Contractor must submit an Action Plan for approval by the Construction Management. This plan should outline the responsible parties for implementation, the methodology, and the schedule. Upon completion, a comprehensive evaluation report must be submitted.

Additionally, the Contractor is required to establish, within an agreed-upon timeframe with Construction Management, a protocol addressing sexual harassment in the workplace.

<u>Monitoring and Compliance</u>

Indicators

- Percentage of personnel trained in accordance with the Training Program.
- Percentage of training sessions given out of the total training sessions required according to the Training Program.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 12: Disaster Management and Emergency Response

Environmental and social effects to be prevented or corrected: Human, economic, and environmental losses associated with an emergency and protect areas of social, economic, and environmental interest located in the area of influence of the project.

Management measures

Contingency Prevention and Control Strategies

Contractor Responsibilities:

- Strict compliance with general and specific regulations, rules, procedures, and instructions pertaining to health, hygiene, and occupational safety.
- Identification and mitigation of all potential risks leading to workplace accidents or occupational illnesses.
- Identification and rectification of unsafe conditions within work areas.
- Enforcement of standards and procedures outlined in environmental management plans.
- Development of programs aimed at enhancing working conditions and implementing procedures to ensure greater safety during project execution.
- Implementation of training and awareness campaigns for workers focused on Occupational Health practices.
- Periodic communication of specific job risks to each worker, along with information about environmental risks and preventive measures.
- Ensuring that the design, engineering, construction, operation, and maintenance of equipment align with safety norms and procedures endorsed by Construction Supervision.
- Establishment of periodic and preventive maintenance programs for machinery, equipment, and facilities.
- Facilitation of inspections and investigations related to occupational health conditions conducted by competent authorities.
- Provision of necessary and suitable personal protective equipment based on the level of risk, adhering to Industrial Safety recommendations.
- Development of an emergency response plan in collaboration with the Office of Disaster Preparedness and Management (ODPM)
- Ensuring availability of essential resources and materials for effective response to emergencies.

Employee Responsibilities:

- Execute tasks with utmost care, ensuring operations adhere to safety standards, environmental regulations, and the guidelines outlined in the management plan programs.
- Vigilantly monitor machinery and equipment to promptly identify and report any risks or dangers to superiors. Address human, physical, mechanical, or environmental issues that arise during work.

- Refrain from operating unauthorized machines or allowing unauthorized personnel to handle equipment under their responsibility.
- Avoid the introduction of alcoholic or intoxicating substances in the workplace and avoid working under their influence.
- Workers operating machinery with moving parts must avoid wearing loose clothing, jewelry, or accessories. If they have long hair, secure it with a cap or hairnet.
- Safely utilize and maintain company-provided work items, safety devices, and personal protective equipment. Maintain cleanliness and order in workplaces and services.
- Actively participate in company-approved programs for preventing occupational accidents, illnesses, and community health issues.
- Promptly report any procedures or operations that violate safety regulations and pose a threat to individuals, colleagues, or company assets.
- Vehicle drivers must adhere to internal traffic regulations and those of protected areas during work execution.
- Propose activities that promote occupational health within the workplace.

Implement actions specified in emergency protocols and strategies.

Fire Prevention and Control:

The Contractor is responsible for preventing and controlling fires in the workplace. In case of a fire, the following actions will be taken:

- Utilize the nearest fire extinguishers to prevent the fire from spreading.
- Request external support when necessary and initiate control procedures with available resources as a first response.
- Establish means for maintaining constant communication, such as radios or telephones.
- Evacuate individuals from the work front and the camp until the emergency is under control.
- Identify and evaluate the emergency, determining the point of occurrence, cause, magnitude, consequences, actions to follow, and necessary support for control.

Actions in Case of Floods:

- In the event of flash flooding, immediately move to higher ground.
- Stay vigilant for sudden flooding in streams, drainage channels, and other areas.
- Avoid driving through flooded areas.
- Once the emergency is controlled, the emergency coordinator will prepare a comprehensive final report.

<u>Monitoring and Compliance</u>

Indicators

- Number of environmental and health accidents managed in accordance with the defined procedure / Total number of environmental and health accidents that occurred in the project.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 13: Community Information and Participation

Environmental and social effects to be prevented or corrected: Misinformation of the public regarding the progress and tasks of the project.

Management measures

Contractor Responsibilities:

- Project Reporting: Maintain timely and updated records on the project's implementation and progress. Promptly address queries, observations, complaints, and claims from the Works Inspection, proactively identifying and implementing solutions to identified problems.
- Communication Channels: Provide the public with a transparent and accessible means of communication. Establish a complaints book for public access. Make available a 24-hour contact telephone number, an email address, and a web interface for the community to submit their claims, complaints, and suggestions. Ensure that all submitted comments are promptly analyzed and receive a swift response.
- Community Information and Participation: Implement the Community Information and Participation Program consistently throughout the project's lifecycle. Give special attention to ensuring clear, transparent, and timely communication with all individuals benefiting from the program.
- Community Engagement: Establish a mode of engagement with the community affected by the project's development. Inform the community about the project's schedule and progress to foster transparency.
- Access to Information: Facilitate equal access to information, with a commitment to promoting gender equity among all interested social sectors. These responsibilities underscore the contractor's commitment to effective communication, community engagement, and transparency throughout the project.

Monitoring and Compliance

Indicators

- The percentage of complaints managed properly during the month according to the defined mechanism over the total number of complaints generated.
- Percentage of public consultations carried out over the total number of public consultations required.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 14: Chance Find Procedure

Environmental and social effects to be prevented or corrected: Destruction of historical, cultural, archaeological, and paleontological heritage.

Management measures

This program will be systematically implemented throughout the duration of the project, with the following key provisions:

- Continuous Monitoring: A permanent monitoring initiative will be conducted across the entire area directly impacted by the project to identify any archaeological elements.
- Immediate Action on Discovery: Should any property of potential archaeological significance be discovered; the construction team is obligated to promptly cease activities that may impact the identified area. Adequate surveillance measures will be implemented to prevent unauthorized access and looting.
- Alternative Worksite Consideration: If necessary, the project team will explore alternative locations for project activities to mitigate any potential impact on archaeological finds.
- Notification of Competent Authority: The relevant national authority will be promptly notified, and the project will adhere to their instructions for further action in response to the archaeological discoveries.
- Salvage Operations: In the event of cultural remains emerging during activities such as ditching, earth removal, or excavations, salvage operations will be promptly initiated. Recognized archaeologists, under supervision, will conduct these operations with the utmost consideration for preserving the contextual integrity of the archaeological remains. Work will resume only upon the archaeologist's determination of an appropriate timeframe and location.
- Comprehensive Reporting: Upon completion of the project, a comprehensive final report will be prepared. This report will detail the quantity and nature of the recovered materials and will be submitted to the competent authority.
- Consultation with Competent Authority: The competent authority will be consulted regarding the proper procedures for delivering archaeological materials as part of the project's commitment to compliance and transparency.

Monitoring and Compliance

Indicators

- Number of archaeological and cultural resources found in the project and managed according to the defined procedures / Number of archaeological and cultural resources found in the project.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 15: Hazardous Materials Management

Environmental and social effects to be prevented or corrected: Pollution due to inadequate management of hazardous substances used by work activities.

Management Measures

If the contractor refuels heavy machinery in the vicinity of the worksite, tanker trucks must be used, and the following procedures must be considered during refueling:

- Park the vehicle in a way that does not cause interference, allowing for a quick exit.
- Ensure the presence of fire extinguishers near the refueling site (within a distance of no more than 3 meters).
- Verify that there are no sources that could cause a fire in the surrounding area.
- Check the coupling of the hoses.
- Use spill containment trays.
- In case of a spill or fire, follow the procedures outlined in the Contingency Plan.
- Immediately report any spills or product contamination to the environmental inspector.

There should be a report and authorization form for fuel refilling.

Polyethylene material should be placed over the area where any corrective maintenance on heavy machinery (greasing and checking oil levels) will be carried out. In this case, the delegated Site Supervision must be notified of the day, place, and reasons for the maintenance.

The person responsible for the site must report and clean up any fuel, oil, and toxic substance spills. If there are accidental spills on the ground, they must be immediately removed, and the Site Supervision must be notified. If the spill exceeds approximately 5 liters, the affected soil must be removed and treated as special waste. Small, spilled volumes can be collected with synthetic absorbent materials, rags, sawdust, or sand. The final cleaning of the site can be done with water and detergent.

The minimum daily storage allowed in the work area must be agreed upon with the competent authority. Tanks containing fuels or lubricants should be stored away from any building, ideally at a distance greater than 6 meters.

The storage of fuels or lubricants should be in metal containers with spring-closed lids or in plastic tanks. They should be properly labeled with the substance they contain and have warning signs of "flammable" and "no smoking".

When concrete is mixed on site, the application of chemicals that require handling measures is sometimes needed. An inventory of the hazardous products should be made before starting work, classifying them according to the type and degree of physical and health risks associated with their use.

All flammable substances must be properly protected, safeguarded, and stored under safe conditions and restricted according to their use and level of hazard. All hazardous products should be labeled to provide essential information about their classification, the hazards they pose, and the safety precautions that should be observed by workers.

Persons handling hazardous products should ensure that when chemical products are transferred to other containers, their identification and all industrial safety and occupational health precautions are maintained, in accordance with the relevant Plan.

It will be mandatory to have materials safety data sheets (MSDS) for the hazardous products at the site and to inform employees about them during induction training. These sheets should contain essential detailed information about their identification, supplier, classification, hazards, precautionary measures, and emergency procedures. A registry of these sheets should be created and made accessible to all interested workers and their representatives.

Implement procedures for the safe decontamination of equipment that has contained chemicals, using methods that neutralize chemical residues before their removal or recycling.

Conduct training on the safe handling of hazardous substances, emergency procedures, and proper use of PPE.

Monitoring and compliance

Indicators

- Percentage of compliance in inspections conducted on facilities and hazardous substance management procedures.

Monitoring

- Registration forms for training of key personnel in hazardous substance management.
- Registration forms for hazardous substances stored on-site.
- Report and authorization forms for fuel refilling.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Program 16: Works Closure

Environmental and social effects to be prevented or corrected: Impacts on the environment once the work is finished.

Management measures

Mitigation measures

- All installations utilized in the execution of the project will undergo systematic removal.
- An exhaustive examination of environmental and social liabilities will be conducted, and identified issues will be promptly addressed and remedied.
- Disposal of waste and solid materials must adhere to the guidelines set by environmental and social supervision, ensuring their transfer to approved sites.
- Areas where vegetation has been cleared must undergo revegetation using the same species originally present.
- Surplus reusable or recyclable materials are eligible for donation, while the delivery of materials constituting environmental liabilities is strictly prohibited.
- The incineration of waste during the dismantling process is expressly forbidden.
- Dismantled sites are obligated to be left in impeccable condition, seamlessly integrated into the surrounding environment.

Monitoring and Compliance

Indicators

- Absence of claims by the authorities, the surrounding population, and the community in general.

Monitoring

- Photographic record before and after work.

Responsible for the measure implementation: Works Director

Responsible for the control of the measure: Works Inspector

Appendix 5: Grievance Redress Mechanism

Introduction and Objectives

The following GRM provides a structured, transparent, and accessible process for the affected communities and other stakeholders to raise concerns, lodge complaints, receive redress and feedback related to the project intervention.

The objectives of the GRM are to:

- Ensure that all grievances, particularly those related to road access, construction safety, road reinstatement, environmental nuisance, and service interruptions, are systematically recorded, assessed, and resolved in a timely and fair manner.
- Strengthen trust, transparency, and accountability between WASA, the Contractor, government agencies, and affected communities.
- Provide special support to vulnerable groups (older adults, persons with disabilities, women-headed households, low-literacy groups) to ensure equitable access to the mechanism.
- Reduce the risk of conflicts by addressing issues promptly before they escalate.
- Support continuous improvement of project performance by capturing trends and lessons learned.

The GRM aligns with the Stakeholder Engagement Plan (SEP), Community Health and Safety Management Plan (CHSMP), Traffic Management and Road Safety Plan, and relevant CESMP components. A Worker GRM will be implemented but this mechanism, though relatable, is separate and apart from this project SEP.

The following steps will be taken as part of the GRM:

Grievance Uptake and Submission

To ensure that persons with disabilities and other vulnerable groups effectively access a Grievance Redress Mechanism (GRM), the concept of universal design is applied, meaning that systems are designed from the outset to be usable by as many people as possible without requiring special adaptation. The mechanism outlined below therefore uses multiple channels for submitting complaints as listed above using different means, including both verbal/voice-based systems and written means as well as in-person and remote means.

Grievances may be submitted through multiple channels to maximise accessibility:

- CLO – in person, by phone, WhatsApp, SMS;
- Verbal via the Contractor site office with clear signage and wayfinding systems;
- WASA project representatives;
- Public meetings or consultations (including wheelchair-accessible offices and meeting rooms and consultation venues);
- Written letters or complaint forms;
- GRM boxes at community facilities;
- Project email; and
- Anonymous submissions.

Physical barriers can prevent persons with mobility impairments from accessing grievance services as well as intellectual barriers and as such, the system allows for representation as follows:

- Permission for family members, caregivers, advocates, or disability organizations to assist complainants.
- Provision for support persons during interviews and hearings.
- Allowance of complaints to be submitted through authorized representatives.
- Partner with Disabled Persons' Organizations (DPOs).
- Disseminate information through disability networks.
- Use community meetings, radio, social media, and accessible materials using simple language and avoiding all jargons.
- Train community workers to assist persons with disabilities in filing complaints.

All grievances are treated confidentially, especially those involving safety, worker behaviour, or sensitive issues including GBVH complaints. The Grievance submission form in Appendix 3 aids this process.

Registration and Acknowledgement

- Every grievance receives a unique GRM Case ID.
- The CLO enters the grievance into the GRM Log within 24 hours.
- Acknowledgement is issued to the complainant within 24 hours, or immediately for safety-related cases.
- Anonymous cases will also be registered and investigated.

Screening and Classification

Grievances are screened and categorised according to type within 48 hours of receiving the complaint:

- Access restrictions/road disruptions;
- Noise, dust, vibration;
- Safety risks (open trenches, traffic hazards);
- Service interruptions (water supply, other project related utility disruptions – electricity, TSTT);
- Environmental issues – air quality, water quality, biodiversity, etc.;
- Worker behaviour;
- Land, property, drainage, reinstatement issues (road and access);
- Gender-based or vulnerable group-related concerns; and
- Requests for information.

Screening determines:

1. Urgency;
2. required investigation; and

3. responsible entity.

Investigation and Resolution

- HSQ team, CLO, and relevant technical staff will conduct site investigations.
- Root cause analysis is carried out for each complaint.
- Contractor/WASA implement corrective action measures, which may include:
    - reinstatement of access;
    - repairing damages;
    - reinforcing safety measures;
    - additional communication;
    - traffic adjustments; and
    - water supply alternatives.

IDB's Grievance Redress Mechanism - Independent Consultation and Investigation Mechanism (MICI)

Outside of the investigation and resolutions outlined above, should there remain outstanding issues for redress, project-affected people and communities can access the IDB's grievance mechanism, The Independent Consultation and Investigation Mechanism (MICI). MICI has been set up independently of IDB operations and management and which reports directly to the IDB's Executive Board, to consider grievances from individuals and communities affected by projects financed by the IDB Group.

MICI manages two mechanisms through which it assesses claims made by claimants:

(i) The Consultation Phase, which is a voluntary and flexible space for dispute resolution, under the impartial mediation of the MICI. Through this mechanism, the claimant(s), the Borrower and/ or the executing agency and the IDB have an opportunity to resolve their differences and reach an agreement that resolves the complaint;

(ii) The Compliance Verification Phase, which consists of an investigation of facts by MICI to determine whether the IDB met its obligations with regards to the requirements of its ESPF.

Resolution timeframe

Resolution timelines will be applied based on the complexity of each grievance, as outlined below:

- Minor issues: within 7 days
- Moderate issues: within 14 days
- Complex issues requiring agency coordination: within 30 days

Complainants are informed of proposed and completed actions. Feedback on the completed actions will be sought from complainants.

Close-Out and Documentation

A grievance is closed only when:

1. Corrective action is completed;
2. The complainant confirms satisfaction, where applicable; and
3. The CLO records the closure in the GRM Log.

Cases may be closed without agreement only after escalation and final decision by WASA.

Escalation Procedure

If the complainant is dissatisfied:

Level 1: Contractor
Level 2: WASA Project Management Staff
Level 3: WASA Senior Management or an appointed Independent Reviewer
Level 4: National regulatory authorities (e.g., Regulated Industries Commission)

Escalation timelines are communicated clearly to complainants.

Disclosure and Awareness

- GRM Summary Posters displayed in communities.
- GRM process explained at all community meetings.
- CLO conducts local outreach, especially with vulnerable households.
- Hotline/WhatsApp numbers publicly posted.

Confidentiality, Data Protection and Non-Retaliation

- Complainants are protected from retaliation.
- Sensitive cases (e.g., violence, gender issues) handled discreetly.
- Records kept securely by WASA.

Monitoring and Compliance

Monitoring ensures that all grievances are managed efficiently and transparently.

Monitoring Activities

These activities include the following:

- Daily updates from the CLO on new grievances.
- Weekly review of the GRM Log by the Contractor HSQ Manager/Officer.
- Monthly verification by WASA and the Supervisory Consultant.
- Quarterly review of trends, systemic issues, and response time performance.
- Cross-checking actions implemented on the ground.
- Reporting on open, in-progress, and closed cases.

Compliance Measures

- Non-compliance triggers Corrective Action Plans issued by WASA or Supervisory Consultant.
- Repeated failure to respond effectively to grievances may lead to contractual penalties, especially Level 3 and Level 4 grievances or those that have progressively escalated over time without satisfactorily conclusion.
- Performance included in monthly ESMP compliance reports.

Indicators

The performance of the GRM will be tracked through the following indicators.

KPI	Monitoring and Measurement Method	Frequency	Responsibility
Number of grievances received	GRM Log	Weekly	Contractor; CLO
Percentage acknowledged within 24 hours	Log audit	Weekly	Contractor
Percentage resolved within defined timelines	Log review; follow-up checks	Monthly	WASA; Contractor
Number of grievances escalated	Log analysis	Monthly	WASA
Grievance themes and trends	GRM report	Monthly	WASA
Satisfaction rate of resolved cases	Follow-up calls	Monthly	CLO
Participation of vulnerable groups	GRM disaggregation tracking	Monthly	CLO; WASA
Corrective actions implemented on time	Verification inspections	Weekly	Contractor; Supervisory Consultant/WASA

Roles and Responsibilities

Effective grievance resolution requires strong coordination between the Contractor, WASA, supervisory personnel, and community representatives. Roles must be clearly defined to ensure timely response and transparent accountability.

ENTITY / ROLE	KEY RESPONSIBILITIES
WASA	Oversight of GRM; approval of escalation decisions; quarterly analysis; coordination with government agencies; ensuring corrective actions are implemented; public disclosure of GRM summary.

CONTRACTOR	Primary recipient of grievances; implement corrective actions; maintain daily GRM Log; coordinate with CLO; ensure safety and reinstatement issues are addressed promptly.
COMMUNITY LIAISON OFFICER	First point of contact; receive and register grievances; acknowledge complaints; maintain communication with complainants; support vulnerable households; assist with investigations; keep records updated. Work with community leaders/focal points to inform residents, local businesses, guesthouses and organisations about the GRM; to support their communication about the project; and to report concerns early. Coordinate with community leaders, including the SGRC Councillor to inform residents about the GRM; to facilitate communication with residents about the project, local businesses, organisations, and guest houses; and to support their reporting concerns early. Work with partner agencies like MOWT, SGRC and utilities to address grievances relating to road reinstatement, traffic management and access disruptions; utility damage; and participate in joint inspections.
HSQ TEAM (CONTRACTOR)	Conduct site investigations; verify hazards; inspect access, signage, barriers; support resolution of safety and environmental grievances.
SUPERVISORY CONSULTANT	Independent oversight; verification of grievance handling quality; ensure compliance with ESMP; escalate serious unresolved issues to WASA.

Appendix 6: Public Events Outline

In accordance with ESPS 10 meaningful consultations are a requirement throughout the project period for all project interventions. As such a public consultation event is essential for the proposed project to facilitate the disclose of project information to allow stakeholders to understand the project's risks, impacts, and potential opportunities and development benefits from the project.

Following the publishing of the ESA and ESMP for the project intervention for public viewing, a public consultation event will be held with no less than 1 week's notice prior to the execution of a public consultation. At least 1 week prior to an event, public advertisement inviting the community should be communicated using multiple modes of communication. The following are some options for advertising that can be utilised for this project:

- Online websites
- Radio or television announcements
- Community Flyers – hard copy in mailboxes and posted community centres
- Community Flyers circulated in the what's App groups of community groups and other community based organisation
- Invitation Letters to government agencies, nongovernmental organisation, private sector and other local entities

To ensure that the consultation meets the requirements of ESPS 10, all communication will be published and presented in the English language, accessible and culturally appropriate, taking into account the needs of groups that may be differentially or disproportionately affected by the project or groups with specific information needs (e.g. disability, literacy, gender, mobility, or accessibility).

In order to make the public consultation accessible for the TT-L1071 program, multiple public consultation events are being recommended based on the groupings outlines below:

1. Project Locations North Central: Acono,
2. Project Locations North East: Matura, Salybia
3. Project Locations South West: Siparia, St. Margaret's, Petrotrin
4. Project Locations South East: Mayaro, Naparimo
5. Project Locations Tobago: Hillsborough, Charlotteville

The consultations will take place within a 1 to 2 week period in the evenings beginning at 5:30pm to facilitate the attendance of the working population.

The public consultations will be conducted with a independent chair person and will be conducted in a manner that provides opportunities to project-affected people and other relevant stakeholders, without fear of reprisal, to express their views on project risks, impacts, and mitigation measures, and on access to potential opportunities and development benefits, and allows the Borrower to consider and respond to any concerns or questions they have regarding the project interventions.

To facilitate accessibility a Hybrid approach is recommended at all the event to facilitate persons participating remotely in these consultations.

Additionally, each consultation will have a target number of attendees from stakeholders and groups that may be affected by the project activities. The Consultant will also strive to ensure an adequate gender ratio among the participants. A 50/50 balance of males to females is the recommended target.

WASA will serve as the host for the public consultations and will fund and make the logistical planning, venue and refreshments. The project consultants will support this process by assisting with the development of the agenda for the event and will facilitate at all events.

Appendix 7: Code of Conduct

Introduction

The project is committed to ensuring a work environment which minimizes any negative impacts on the local environment, communities, and its workers. The project also strongly commits to creating and maintaining an environment in which Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) have no place, and where they will not be tolerated by any employee, sub-contractor, supplier, associate, or any representative of the company implementing the proposed works.

The purpose of this *Code of Conduct* is to:

1. Create a common understanding of what constitutes acceptable and unacceptable forms of conduct during work and in any interactions with the community and beneficiaries. This includes matters of sexual exploitation and abuse, and sexual harassment including their forms, the reasons behind their prohibition and the sanctions to be deployed.
2. Create a shared commitment to fair, appropriate and socially responsive behaviors and guidelines for company employees as well as contractors/third-party suppliers to prevent, report, and respond to SEA and SH, and
3. Create understanding that breach of this code of conduct will result in disciplinary action.
4. Frequency and content of the training for the prevention of sexual exploitation and abuse.

Definitions

Sexual Exploitation and Abuse (SEA)[1]

[1] As defined in the UN Secretary's bulletin – Special Measures for protection from sexual exploitation and abuse October, 9, 2003 ST/SGB/2003/13

Is defined as any actual or attempted abuse of a position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another[2].

- **Sexual Abuse:** "The actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions." **Usually between project team members and beneficiaries.**
- **Sexual Harassment:**[3] Unwelcome sexual advances, request for sexual favors, and other verbal or physical conduct of sexual nature. **Usually between members of the project team, within WASA and between project team and contractors.**

Sexual Harassment versus SEA[4]

SEA occurs against a beneficiary or member of the community. Sexual harassment occurs between personnel/staff of an organization or company and involves any unwelcome sexual advance or unwanted verbal or physical conduct of a sexual nature. The distinction between the two is important so that agency policies and staff training can include specific instruction on the procedures to report each.

Consent is the choice behind a person's voluntary decision to do something. Consent for any sexual activity must be freely given, ok to withdraw, made with as much knowledge as possible, and specific to the situation. If agreement is obtained using threats, lies, coercion, or exploitation of power imbalance, it is not consent. **Under this Code of Conduct**[5] **consent cannot be given by anyone under the age of 18, regardless of the age of majority or age of consent locally. Mistaken belief regarding the age of the child is not a defense**.

There is no consent when agreement is obtained through:

- the use of threats, force or other forms of coercion, abduction, fraud, manipulation, deception, or misrepresentation
- the use of a threat to withhold a benefit to which the person is already entitled, or
- a promise is made to the person to provide a benefit.

While all forms of violence against a community resident or a co-worker are forbidden, this code of conduct is particularly concerned with the prevention and reporting of sexual exploitation and abuse (SEA) and sexual harassment which constitute gross misconduct, is grounds for termination or other consequences related to employment and employment status:

2. **Examples of sexual exploitation and abuse** include, but are not limited to:

[2] In the context of World Bank Financed operations exploitation occurs when access to, or benefit from a World Bank Financed good or service is used to extract sexual gain.
[3] Inter-Agency Standing Committee *Protection against Sexual Exploitation and Abuse (PSEA): Inter-agency cooperation in community-based complaint mechanism. Global standard Operating Procedures*. May 2016
[4] Ibid
[5] In accordance with the United Nations Convention on the Rights of the Child.

- A project worker tells women in the community that he can get them jobs related to the work site (cooking and cleaning) in exchange for sex.
- A worker that is connecting electricity input to households says that he can connect women headed households to the grid in exchange for sex.
- A project worker gets drunk after being paid and rapes a local woman.
- A project worker denies passage of a woman through the site that he is working on unless she performs a sexual favor.
- A manager tells a woman applying for a job that he will only hire her if she has sex with him.
- A worker begins a friendship with a 16-year-old girl who walks to and from school on the road where project related work is taking place. He gives her moto rides to school. He tells her that he loves her. They have sex. In this case, even though the age of consent for the country maybe be 16 this is still illegal for the purposes of the project as the acceptable age of consent in this case is 18 years of age.

3. **Examples of sexual harassment in a work context** include, but are not limited to:

- Male staff comment on female staffs' appearances (both positive and negative) and sexual desirability.
- When a female staff member complains about comments male staff are making about her appearance, they say she is "asking for it" because of how she dresses.
- A male manager touches a female staff members' buttocks when he passes her at work.
- A male staff member tells a female staff member he will get her a raise if she sends him naked photographs of herself.

Individual signed commitment (example):

I, _____, acknowledge that sexual exploitation and abuse (SEA) and sexual harassment, are prohibited. As an *(employee/contractor)* of *(contracted agency / sub-contracted agency)* in (*country)*, I acknowledge that SEA and SH activities on the work site, the work site surroundings, at workers' camps, or the surrounding community constitute a violation of this *Code of Conduct*. I understand SEA and SH activities are grounds for sanctions, penalties or potential termination of employment. Prosecution of those who commit SEA and SH may be pursued if appropriate.

I agree that while working on the project I will:

- Treat all persons, including children (persons under the age of 18), with respect regardless of sex, race, color, language, religion, political or other opinion, national, ethnic or social origin, gender identity, sexual orientation, property, disability, birth or other status.
- Commit to creating an environment which prevents SEA and SH and promotes this code of conduct. In particular, I will seek to support the systems which maintain this environment.

- Comply with the laws governing the land with regards to employment and will strive to provide equal opportunities to all, ensure work environments are safe and compensate those employed under me with fair wages.
- **Not** participate in SEA and SH as defined by this *Code of Conduct* and as defined under *(country)* law (*and other local law, where applicable)*.
- **Not** use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- **Not** participate in sexual contact or activity with anyone below the age of 18. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense. I will not participate in actions intended to build a relationship with a minor that will lead to sexual activity.
- **Not** solicit**/**engage in sexual favors in exchange for anything as described above.
- Unless there is the full consent by all parties involved, recognizing that a child is unable to give consent and a child is anyone under the age of 18, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered "non-consensual" under this Code.

I commit to:

- Adhere to the provisions of this code of conduct both on and off the project site.
- Attend and actively partake in training courses related to preventing SEA and SH as requested by my employer.

If I am aware of or suspect SEA and SH, at the project site or surrounding community, I understand that I am encouraged to report it to the Grievance Reporting Mechanism (GRM) or to my manager. The safety, consent, and consequences for the person who has suffered the abuse will be part of my consideration when reporting. I understand that I will be expected to maintain confidentiality on any matters related to the incident to protect the privacy and security of all those involved.

Sanctions: I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary action which could include:

- Informal warning or formal warning
- Additional training.
- Loss of salary.
- Suspension of employment (with or without payment of salary)
- Termination of employment.
- Report to the police or other authorities as warranted.

I understand that it is my responsibility to adhere to this code of conduct. That I will avoid actions or behaviors that could be construed as SEA and SH. Any such actions will be a breach this Individual Code of Conduct. I acknowledge that I have read the Individual Code of Conduct, do agree to comply with the standards contained in this document, and understand my roles and responsibilities to prevent and potentially report SEA and SH issues. I understand that any action inconsistent with this Individual Code of Conduct or failure to act mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Appendix 8: Minimum Contents of a Disaster Risk Management Plan (DRMP)

A DRMP is developed throughout the assessment process and becomes more detailed as risks are better understood. Its purpose is to identify actions needed to reduce disaster and climate risks to acceptable levels.

At a minimum, a DRMP should include the following headings.

1. Summary of Risks

- Key hazards identified
- Areas and assets exposed
- Vulnerabilities identified
- Potential consequences and impacts

2. Risk Reduction Measures

Measures to reduce identified risks, including:

Structural (Grey) Measures

Examples:

- Retaining walls
- Drainage improvements
- Flood protection works
- Retention ponds
- Slope stabilization
- Stronger infrastructure design

Nature-Based (Green) Measures

Examples:

- Watershed restoration
- Wetland protection
- Reforestation
- Ecosystem-based adaptation measures

3. Construction-Phase Risk Management

Measures to protect workers, communities, and assets during construction, including:

- Emergency response procedures
- Site safety measures
- Temporary protection works
- Incident reporting arrangements

4. Operational Risk Management

Measures to be implemented during project operation, including:

- Inspection and maintenance schedules
- Updated operating procedures
- Asset management measures
- Drainage cleaning programs
- Infrastructure monitoring systems

5. Emergency Preparedness and Response

- Emergency response procedures
- Evacuation arrangements
- Communication protocols
- Roles and responsibilities
- Coordination with local authorities

6. Business Continuity and Contingency Planning

Measures to maintain or quickly restore critical services after a disaster, including:

- Backup systems
- Redundancy measures
- Service restoration procedures
- Recovery planning

7. Early Warning Systems

Where applicable:

- Hazard monitoring systems
- Forecasting arrangements
- Alert mechanisms
- Community notification procedures

8. Financial Protection Measures

Examples:

- Insurance coverage
- Emergency funds
- Financial contingency arrangements
- Risk transfer mechanisms

9. Implementation Plan

For each risk reduction measure:

- Responsible agency or person
- Timeline for implementation
- Required resources
- Monitoring indicators

10. Prioritization and Cost-Benefit Analysis

Each proposed measure should include:

- Priority level
- Estimated cost
- Expected benefits
- Cost-benefit justification