TRINIDAD AND TOBAGO URBAN REGENERATION AND REVITALIZATION PROGRAMME (TT-L1056)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (DRAFT REV. 2)

Report No. 17/2019

September 19, 2019

SUBMITTED BY

ECOENGINEERING CONSULTANTS LIMITED

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1 INTRODUCTION

1.1 Authorization and Layout of Report

This Environmental and Social Management Framework Assessment pertains to the Trinidad and Tobago Urban Regeneration and Revitalization Programme. It has been prepared for the Inter-American Development Bank (IDB). It is intended to guide Environmental and Social Studies for new projects which may be considered for funding under this loan. Following this introductory chapter, information is presented in Chapter 2 on the legal context under which this programme will be implemented, including Trinidad and Tobago laws and regulations as well as IDB Guidelines. Chapter 3 sets out requirements for an Environmental and Social Assessment (ESA), including a listing of specific impacts which are likely to arise on projects under this programme and mitigation measures which are available to manage such impacts. The final three chapters describe approaches to stakeholder consultation, preparing an Environmental and Social Management Plan (ESMP) and identifying other plans which may be required for these projects.

1.2 Background

The Government of Trinidad and Tobago has requested a loan from the IDB with four components:

1. **Urban Upgrading** and Serviced-Sites based on the regularization of squatter settlements and the servicing of well-located state land sites

2. **Affordable Housing Finance** to reduce qualitative and quantitative housing deficits;

3. **Urban Regeneration and Revitalization** to improve the functionality of public space; and

4. **Strengthening of Stakeholder Capacities** in the Housing and Urban Development sectors.

Several sample projects have been identified and studied under the Urban Regeneration and Revitalization and the Urban Upgrading and Serviced-Sites components: upgrade of Eastside Plaza (Port of Spain) and Regularization of squatter settlements on State-owned lands in Factory Road (Diego Martin), Sahadeen Trace and Bois Bande Settlement C (Sangre Grande). These have been assessed for potential environmental and social impacts, including public consultation in each case. When additional projects are identified under this component, they must be subjected to similar environmental and social assessment, and this Management Framework provides guidance on conducting such studies. A process flow diagram for these studies is shown in Figure 1-1.

1.3 Project Categorization

The first step in assessing any new project is to classify it based on a screening exercise. IDB OP-703, Operational Policy on Environment and Safeguards Compliance and Guidelines, classifies projects into three categories, as follows:

Category "A": Any operation that is likely to cause significant negative environmental and associated social impacts, or have profound implications affecting natural resources. These operations will require an environmental assessment**. No category A projects are eligible for this operation.**

Category "B": Operations that are likely to cause mostly local and short-term negative environmental and associated social impacts and for which effective mitigation measures are readily available. These operations will normally require an environmental and/or social analysis which is focused on the specific issues identified, as well as an environmental and social management plan (ESMP).

Category "C": Operations that are likely to cause minimal or no negative environmental and associated social impacts. This category does not require an environmental or social analysis beyond the screening and scoping analysis, but should establish safeguard or monitoring requirements.

The result of this categorization will determine the type and level of detail in the environmental and social studies, as will be described in Section 2.2.1.1.

1.4 Eligibility Criteria

Based on the sample projects (see Section 1.2) and discussion with the Ministry of Housing and Urban Development, the following eligibility criteria apply to this programme:

- No Category A projects are eligible for this Operation.
- Projects will be situated within an urban area, so that projects in predominantly rural areas will not be eligible.

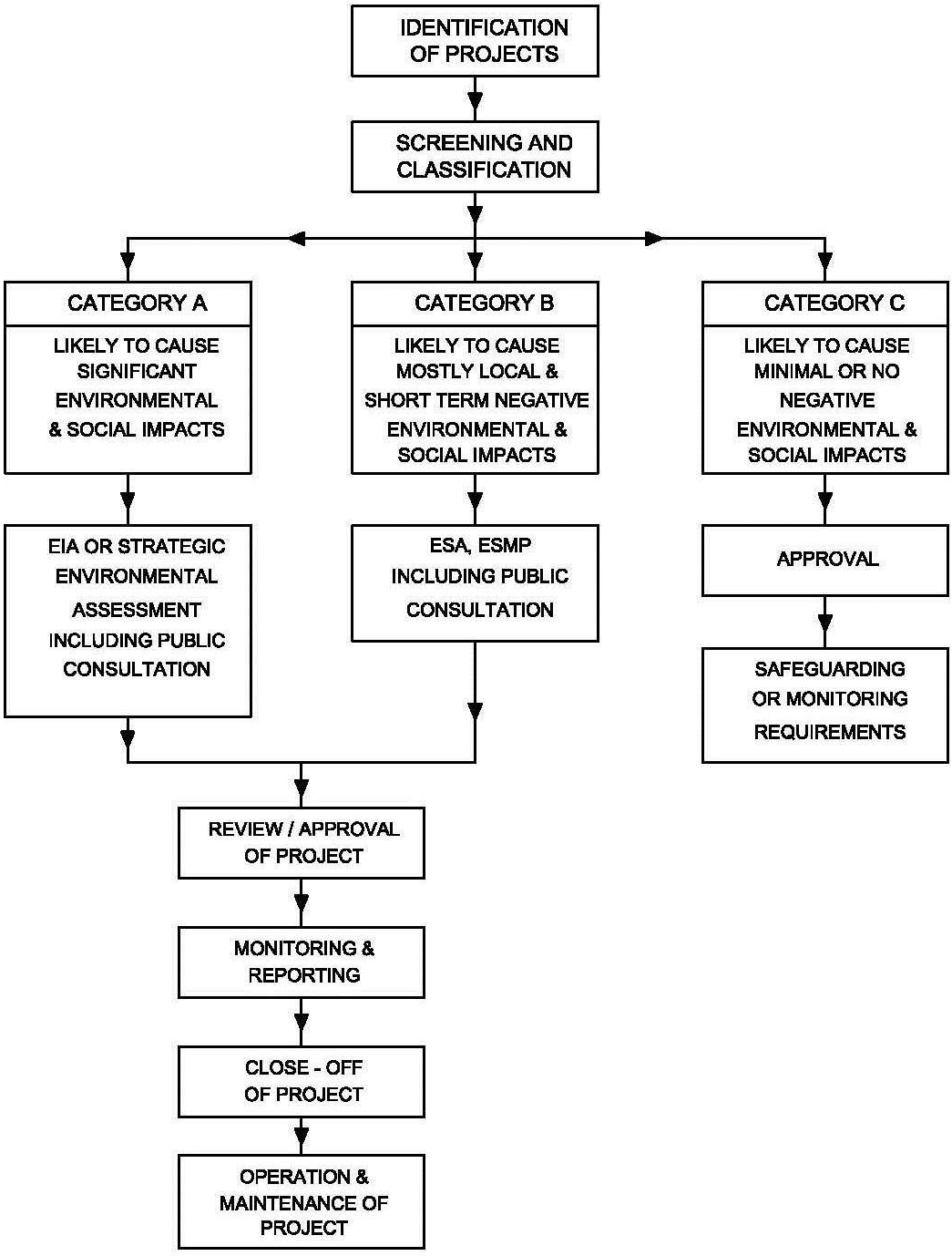

FIGURE 1-1: PROCESS FLOW DIAGRAM FOR IDB ENVIRONMENTAL AND SOCIO-CULTURAL STUDIES

- Projects can focus on fostering business opportunities / entrepreneurship, maintaining or creating jobs. Projects involving significant permanent loss of jobs will not be eligible.

- Projects may involve temporary relocation, but projects involving permanent relocations will not be eligible. Also, projects that will involve significant impacts on livelihoods will not be eligible.

- Projects may include the clearing of ornamental or secondary vegetation, but will not include clearing of primary vegetation or affect Environmentally Sensitive Areas (ESAs) nor Environmentally Sensitive Species (ESSs). Project impacting critical natural habitats or protected areas are not eligible.

- Projects may involve government agencies and other third parties, but purely private sector projects will not be eligible.

- Projects may involve improvements or preservation of sites of historical or cultural importance, but projects involving disturbance or loss of such sites will not be eligible.

- Due to location of specific projects, shoreline works may be included in this programme.

1.5 IDB Policies and Guidelines

Projects under this programme would be regulated (on a case by case basis) by the following IDB Policies and Guidelines"

- OP-703 Operational Policy on Environment and Safeguards Compliance and Guidelines;

- Meaningful Stakeholder Consultation: IDB Series on Environmental and Social Risk and Opportunity.

- OP-761 Operational Policy on Gender Equality in Development and Guidelines;

- OP-765 Operational Policy on Indigenous Peoples; and

- OP-710 Operational Policy on Involuntary Resettlement and Guidelines.

2 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

This Chapter describes the legislative and regulatory framework which will govern the implementation of projects under the Trinidad and Tobago Urban Regeneration and Revitalization Programme, taking into consideration both Trinidad and Tobago regulatory framework as well as IDB Policies and Guidelines. Information in this chapter will be discussed under the following headings:

- Trinidad and Tobago Regulatory Framework
  - Key Policies;
  - Key Laws and Agencies;
  - Other Laws and Agencies;
  - EMA Rules and other Guidelines; and
  - Summary of Environmental Approvals.
- IDB Policies and Guidelines

2.1 Trinidad and Tobago Regulatory Framework

2.1.1 Key Policies

This sub-section introduces the following laws and policies which may be relevant to the projects under this programme:

- National Environmental Policy,
- National Climate Change Policy,
- National Spatial Development Strategy,
- National Policy on Gender and Development,
- National Policy on Persons with Disabilities, and
- Tobago Comprehensive Economic Development Plan (2013 – 2017).

2.1.1.1 National Environmental Policy, 2018

The National Environmental Policy (NEP) of Trinidad and Tobago, was prepared to satisfy the requirements of the Environmental Management Act, Chapter 35:05 (see Section 3.1.2.1). It focuses on the sustainable management of the country's environmental assets rather than the narrower concept of environmental protection, so as to avoid conflict between environment and development. The goal of this policy is environmentally sustainable development, meaning that a balance between economic growth and environmentally sound practices is required in order to enhance the quality of life and meet the needs of present and future generations. The projects under this programme must seek to be environmentally sustainable vis-à-vis resource requirements, environmental effects and socio-cultural effects.

2.1.1.2 National Climate Change Policy, 2011

The National Climate Change Policy (2011) established the principles which mandate the actions related to climate change issues in Trinidad and Tobago. Its goal is to provide policy guidance for the development of an appropriate administrative and legislative framework, in harmony with other sectoral policies, for the pursuance of a low-carbon development path for Trinidad and Tobago through suitable and relevant strategies and actions to address climate change, including sectoral and cross - sectoral adaptation and mitigation measures. Projects under this programme will be required to comply with this policy.

2.1.1.3 National Spatial Development Strategy

The National Spatial Development Strategy (NSDS) is an overarching framework that spatially represents the sociocultural, economic and environmental priorities of Trinidad and Tobago. These strategies and policies articulate the government's vision of sustainable development and aim to describe in broad terms the nature and location of future development in the country. As a spatial development strategy, distinct from a physical development plan, the NSDS provides a strategic national framework, based on spatial planning principles, and guidance to be followed when the Tobago House of Assembly (THA) and municipal corporations are reviewing or preparing detailed local spatial development plans and when decisions are being made on specific development proposals. It also provides a broad spatial development context for key infrastructure and investment decisions. As with the National Environmental Policy, projects under this programme must seek to be sustainable vis-à-vis planning considerations.

2.1.1.4 National Policy on Gender and Development

The National Policy on Gender and Development aims to eliminate all barriers to gender equality and to advance measures to promote such equality. The Policy is aligned to the rights of the individual in Trinidad and Tobago's 1976 Republican Constitution, and the Government's national development framework. It is also consistent with the Government's commitments and obligations under the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).

CEDAW defines discrimination against women as "...any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field". Projects under this program must seek to ensure that gender equality is a cornerstone of their processes.

2.1.1.5 National Policy on Persons with Disabilities

The National Policy on Persons with Disabilities provides a comprehensive framework for achieving social inclusion and equality of opportunity for all persons with disabilities in Trinidad and Tobago. Trinidad and Tobago has also ratified the United Nations Convention on the Rights of Persons with Disabilities (CRPD) and its protocol. Countries that join in the Convention engage themselves to develop and carry out policies, laws and administrative measures for securing the rights recognized in the Convention and abolish laws, regulations, customs and practices that constitute discrimination.

Under the CRPD "Discrimination on the basis of disability" means "any distinction, exclusion or restriction on the basis of disability which has the purpose or effect of impairing or nullifying the recognition, enjoyment or exercise, on an equal basis with others, of all human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. It includes all forms of discrimination, including denial of reasonable accommodation." Projects under this programme must be designed to facilitate access and use by persons with disabilities, including ramps for wheelchairs, elevators to facilitate access to upper floors, toilet facilities that are accessible to persons with handicaps, etc.

2.1.1.6 Tobago Comprehensive Economic Development Plan (2013-2017)

The Comprehensive Economic Development Plan 2013-2017 (CEDP 2.0) for Tobago is a second edition of the document that covered the period 2006 – 2010, and it advocates a "re-doubling of the effort" to achieve its goals. The goal of the CEDP is to transform and diversify the Tobago economy such that it is better able to adjust to rapid changes in the national and international economies by producing products and services in which it can retain a competitive edge. The vision for development expressed in the CEDP 2.0 includes:

- "branding" of the island consistent with eco-tourism: "Clean, Green, Safe and Serene";
- institutional strengthening and development;
- social and physical infrastructural development;
- human capital development;
- industrial development; and
- environmental sustainability.

Projects under this programme should conform to this vision for development.

2.1.2 Key Laws and Agencies

The main regulatory agencies that will govern the activities of the projects under this programme are:

- The Environmental Management Act and Authority (EMA);
- The Town and Country Planning Act and Division;
- The Tobago House of Assembly;
- Municipal Corporations; and
- State Land (Regularisation of Tenure) Act

2.1.2.1 The Environmental Management Act and Authority

The Environmental Management Act, Act 3 of 2000 (EM Act), is the governing legislation for the development of a national strategy for sustainable development within Trinidad and Tobago. The EMA, created under this Act, is an independent body. The objective of the Act which is most relevant to projects in this programme is to encourage the integration of environmental concerns into private and public decisions.

The Environmental Management Authority (EMA) is an independent body, created under the EM Act, which is responsible for environmental management and protection of the natural resources of Trinidad and Tobago. The Authority is governed by a ten-member multi-disciplinary board, appointed by the President of the Republic of Trinidad and Tobago. The EMA has issued a series of Rules by which they regulate environmental matters in Trinidad and Tobago, some of which will apply to specific projects in this programme (see Section 2.1.4).

Section 81 of the Environmental Management Act makes provision for the establishment of a tribunal known as the Environmental Commission, which is a superior court of record. The Commission has jurisdiction to hear and determine appeals against decisions or actions of the EMA, and complaints brought by persons (the direct private party action provision). The Commission will therefore become involved in this project if either of those events occur.

2.1.2.2 The Town and Country Planning Act and Division

The Town and Country Planning Act (Ch. 35:01) makes provision for the orderly and progressive development of land in both urban and rural areas and to preserve and improve the amenities thereof; and for the grant of permission to develop land and for other powers of control over the use of land. Under the provisions of the Act, the Minister responsible for Town and Country Planning has a responsibility to secure consistency and continuity in the framing and execution of a comprehensive policy with respect to the use and development of all land in Trinidad and Tobago. The functions of the Division derive from this mandate of the Minister. TCPD's core functions relative to the projects under this programme include:

- Evaluate and determine on behalf of the Minister, applications for planning permission to develop land, in accordance with land use policies and plans;
- Evaluate and determine applications for the display of advertisements; and
- Enforcement of planning control.

Planning Permission is required for any activity which constitutes "development" under the Town and Country Planning Act. The TCP Act defines "development" as follows

> *(2) In this Act, except where the context otherwise requires, the expression "development" means the carrying out of building, engineering, mining or other operations in, on, over or under any land, the making of any material change in the use of any buildings or other land, or the subdivision of any land, except that the following operations or uses of land shall not be deemed for the purposes of this Act to involve development of the land, that is to say-*

(a) the carrying out of works for the maintenance, improvement or other alteration of any building, if the works affect only the interior of the building or do not materially affect the external appearance of the building;

TCPD administers a two-tier system of approvals, which consists of:

i. Outline Planning Permission (OPP), and

ii. Planning Permission (PP).

Outline Planning Permission is based on land use and planning grounds. In essence, this level of permission seeks to ensure that the proposed development is compatible with the intended land use in the area, as defined in national, regional or local area plans. However, any structure/building which has been in existence since 1926, prior to the enactment of the Town and Country Planning Act in 1960 will not require Outline Planning Permission.

The grant of Outline Planning Permission comes with conditions to be satisfied in the application for Planning Permission (commonly referred to as “Final Planning Permission”). This latter stage deals with engineering and architectural details of a development, and the application is expected to include design and layout drawings to provide these details. The grant of Planning Permission is only one of the requirements to be satisfied before the start of construction. Therefore, the Ministry of Housing and Urban Development (MHUD) will need to apply for Planning Permission (PP) for the proposed works to TCPD who will then make a determination if PP is required. It should be noted that construction should only commence after Final/Building Approval has been obtained from the respective Regional Corporation of the Ministry of Local Government.

2.1.2.3 Tobago House of Assembly (THA) Act and the THA

The Tobago House of Assembly (THA) first met in 1768, but it was not until 1980 that the first Tobago House of Assembly Act was passed. This Act grants the citizens of Tobago the right of internal self-governance. The Modern Tobago House of Assembly was created by Act 37 of 1980 for “making better provision for the administration of Tobago and for matters therein”. This Act was replaced by the Tobago House of Assembly Act 1996 which has increased the administrative and decision-making capacity of the Assembly.

The Assembly is responsible for the formulation and implementation of policy in respect of matters pertaining to Tobago and in respect of such responsibility, the Assembly shall give due consideration to national policy. In the discharge of its responsibility the Assembly may, subject to the Constitution enact "Assembly Laws" which shall be subject to negative resolution of Parliament.

For the better performance of its functions, the Assembly may devise mechanisms to ensure protection and security of property under its control, enter into such contracts as it deems fit and obtain from international donors any grant, aid or technical assistance. Projects under this programme which are situated in Tobago will come under the regulatory control of the THA.

2.1.2.4 Municipal Corporations Act and the Corporations

The Municipal Corporations Act No. 21 of 1990 brought regional corporations into the local government landscape. Regional Corporations, with each regional corporation representing a specified region, replaced the county councils. This Act was amended by Act. No. 28 of 1991, and further amended by Act No. 8 of 1992.

Trinidad is divided into 14 municipal corporations which are of three types:

A. City Corporations
- Port of Spain, and
- San Fernando

B. Borough Corporations
- Arima,
- Chaguanas, and
- Point Fortin

C. Regional Corporations
- Couva/Tabaquite/Talparo,
- Diego Martin,
- Mayaro/Rio Claro,
- Penal/Debe,
- Princes Town,
- Sangre Grande,
- San Juan/Laventille,
- Siparia, and
- Tunapuna/Piarco.

All have the same powers and responsibilities, and are empowered to make policies and by-laws in relation to its functions for the local area. The local Government Councils are headed by a mayor in a city or borough, and by a Chairperson in the regional corporations. Trinidad projects under this programme will be under the regulatory control of one of these local government bodies.

2.1.2.5 State Land (Regularisation of Tenure) Act

The State Land (Regularisation of Tenure) Act is an Act to protect certain squatters from ejectment from State Land; to facilitate the acquisition of leasehold titles by both squatters and tenants in designated areas and to provide for the establishment of land settlement areas. The

Act also established a body corporate known as the Land Settlement Agency (LSA). Urban Upgrading projects under this programme must be guided by the provisions of this Act.
The LSA is charged with the responsibility for administering and carrying out the provisions of this Act with respect to State Land in the Island of Trinidad. The Tobago House of Assembly is responsible for administering and carrying out the provisions of this Act with respect to State Lands which are vested in the Tobago House of Assembly pursuant to section 54 of the Tobago House of Assembly Act.

2.1.3 Other Laws and Agencies

This sub-section discusses laws and agencies related to:

- Occupational Safety and Health
- Litter,
- Water Supply and Sewerage,
- National Trust, and
- Equal Opportunities.

It then introduces several other agencies which will have jurisdiction over projects on this programme.

2.1.3.1 Occupational Safety and Health

The Occupational Safety and Health (OSH) Act, 2004 (as amended) is a comprehensive law governing all aspects of health and safety in the workplace. It replaced the Factories Ordinance, but Orders and Regulations made under the Factories Ordinance remain in force. The Occupational Safety and Health Agency (OSHA), Ministry of Labour and Small and Micro-Enterprises Development is the executing agency under this Act.

Part II of this Act identifies the General Duties of employers and employees. The selected Contractors for the projects under this programme will be required to comply with the requirements of the OSH Act; including the preparation of Risk Assessments for their work. In the event that any of the Contractor(s) selected for the proposed works employs twenty-five or more employees, he shall keep a record in accordance with Section 75 of the following:

(a) the findings of the assessment; and

(b) any group of his employees identified by the assessment as being exposed to an occupational safety and health risk.

2.1.3.2 Litter

According to the Litter Act Chapter 30:52 ‘‘litter means any solid or liquid material or product or combination of solid or liquid materials or products including but not limited to any bottles, tins, logs, sawdust, derelict vehicles, cartons, packages, packing materials, paper, glass, food,

animal remains, garbage, debris, sand, gravel, stone, aggregate, dirt, waste (including any human and animal waste) or any other refuse or rubbish or waste material, and any other material or product that is designated as litter by the Minister by notice published in the Gazette.'' This Act states the laws by which litter is punishable when disposed of improperly and is applicable to the proposed project. Compliance with this Act will be required both by Contractors implementing the projects under this programme and the managers and users of the projects once they become operational.

2.1.3.3 Water and Sewerage

The Water and Sewerage Act, Chapter 54:40 of the Laws of Trinidad and Tobago, regulates the development and control of water supply and sewerage facilities in Trinidad and Tobago, and promotes the conservation and proper use of water resources. The Act established the Water and Sewerage Authority as its executing agency, which is responsible for providing potable water in Trinidad and Tobago, and collection and treatment of sewage where centralized facilities exist.

It is envisaged that WASA will supply water to all of the projects which will be included under this programme. They will also receive and treat sewage from projects in many of the urban areas, including Port of Spain, San Fernando, Arima, Scarborough, Tobago, and some built-up communities along the southern foothills of Trinidad's Northern Range. WASA has published a draft standard concerning the quality of sewage that may be discharged into its sewers (see Section 3.1.4.7), and these limits will have to be complied with by any project which will discharge sewage to public sewers.

2.1.3.4 National Trust

The National Trust of Trinidad and Tobago was established by Act No. 11 of 1991 (the National Trust of Trinidad and Tobago Act, 1991). To complete the Act prior to its proclamation, amendments were effected by way of Act No. 31 of 1999 – the National Trust of Trinidad and Tobago (Amendment) Act, 1999. The purpose of the act includes:

(a) listing and acquiring such property of interest as the Trust considers appropriate;
(b) permanently preserving lands that are property of interest and as far as practicable, retaining their natural features and conserving the animal and plant life;
(c) 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;
(d) making provision for the access to and enjoyment of property of interest by the public;
(e) encouraging research into property of interest including, where applicable, any animal, plant or marine life associated therewith;
(f) compiling photographic or architectural records of property of interest;
(g) making the public aware of the value and beauty of the heritage of Trinidad and Tobago; and
(h) advising the Government on the conservation and preservation of property of interest and on any or all of the matters referred to above.

The National Trust declares sites and buildings to be Heritage Properties, which designation seeks to protect structures and features of the site that are considered of national importance. Some projects under this programme may involve Heritage Sites or Buildings, and these will require protection as set forth by the National Trust.

2.1.3.5 Equal Opportunity

The Equal Opportunity Act, 2000, prohibits certain kinds of discrimination in order to promote equality of opportunity between persons of different status, where according to the Act, "status" in relation to a person, means - (a) the sex; (b) the race; (c) the ethnicity; (d) the origin, including geographical origin; (e) the religion; (f) the marital status; or (g) any disability of that person. It also establishes an equal opportunity Commission and an Equal Opportunity Tribunal and for matters connected therewith. Contractors constructing projects under this programme, and the management and users of these facilities once they become operational, must comply with the requirements of this act.

2.1.3.6 Other Agencies

Table 2-1 summarizes the roles of other agencies which may have jurisdiction.

TABLE 2-1: SUMMARY OF OTHER AGENCIES

AGENCY	FUNCTION
Highways Division, Ministry of Works and Infrastructure	The Highways Division of the Ministry of Works and Infrastructure provides the physical infrastructure necessary for land transportation. On certain projects in this programme, consultations will be required with the Highways Division regarding: < Traffic management during the haulage of equipment and materials during construction activities; and < Repairs to roads and bridges under their jurisdiction, if there is damage from construction vehicles.
Trinidad and Tobago Fire Service (TTFS), Ministry of National Security	Assist in responding to emergencies at the proposed site; accidents, fires, explosions and / or spills of any kind. TTFS will require the preparation of an emergency response plan. TTFA has a HazMat Unit which can provide search and rescue operations in the event of a building collapse. Consultation with the TTFS will be required for any project which involves storage or handling of hazardous material or waste, or the preparation of an emergency response plan.
Trinidad and Tobago Police Service (TTPS), Ministry of National Security	Responsible for safeguarding the rights and freedoms of the citizens of Trinidad and Tobago, while maintaining social order. They will also provide backup emergency response to site security during projects associated with this programme. Specific consultation with the TTPS will be required for any project which requires the preparation of an emergency

AGENCY	FUNCTION
	response plan.
Ministry of Health (MoH)	Responsible for setting a policy for Health Disaster Management in Trinidad and Tobago. They should be consulted for any project which involves the handling of hazardous material or waste, or the preparation of an emergency response plan.

2.1.4 EMA Rules and Other Regulations

This sub-section discusses the following EMA Rules and other Regulations:

- Certificate of Environmental Clearance Rules;
- Noise Pollution Control Rules;
- Water Pollution Rules;
- Air Pollution Rules;
- Draft Waste Management (Registration & Permitting) Rules; and
- Draft Standards for Discharges into Sewers.

The Environmentally Sensitive Areas and Environmentally Sensitive Species Rules are not likely to be relevant to projects on this programme, since these projects will all be located in urban settings.

2.1.4.1 Certificate of Environmental Clearance Rules

The Certificate of Environmental Clearance (CEC) Rules, 2001 came into effect on July 07. 2001. These Rules, which apply to new developments or the expansion of existing developments, require that a Certificate of Environmental Clearance (CEC) be obtained from the EMA prior to the start of any work on any project which involves a Designated Activity.

2.1.4.1.1 Designated Activities

A review of the listing of Designated Activities shows the following activities which may be relevant to any sub-project of this program:

TABLE 2-2: DESIGNATED ACTIVITIES WHICH MAY BE RELEVANT TO SPECIFIC PROJECTS

NO.	ACTIVITY	DEFINITION
8	Clearing, excavation, grading and land filling	(c) The clearing, excavation, grading or land filling of any area with a gradient of 1:4 or more
Comment: This activity may apply to specific projects in Port of Spain, San Fernando, Arima or built-up areas in the southern foothills of the Northern Range of Trinidad; as well as in Scarborough, Tobago, and certain other locations in Tobago.		

NO.	ACTIVITY	DEFINITION
9	Waterproofing/ caulking/ paving	The establishment of a paved area (inclusive of associated works) of more than 4500 square metres during a two-year period.
10	Establishment of institutional facilities and other facilities	(b) The modification or expansion (inclusive of associated works) of the following facilities in order to cater for 500 or more persons including staff: (ii) other facilities such as sporting complexes, shopping malls, etc
13	Coastal or offshore construction or modification and dredging activities	(a) The establishment, modification, expansion, decommissioning or abandonment (inclusive of associated works) of marinas, piers, slipways, jetties or other coastal features
Comment: This designated activity would apply to selected projects in Port of Spain, San Fernando or Scarborough, Tobago; all of which have shoreline areas.		
43	Provision of other service-oriented activities	The establishment, modification, decommissioning or abandonment (inclusive of associated works) of a commercial kitchen with a water consumption of 9 cubic metres or more per day
Comment: The EMA has indicated that the water consumption criterion of 9 cubic metres or more per day applies to the entire facility included in a project, rather than each individual kitchen within that facility, even when the kitchens are operated by separate tenants.		

Despite their requirement to consult with potential applicants, the EMA has consistently declined to indicate at meetings whether a CEC would be required for a particular project. Instead, they will only make that determination when a CEC Application is submitted. Projects in this programme will therefore be required to submit an application to the EMA who will then determine if a CEC is required.

2.1.4.1.2 The CEC Process

If a CEC is required, the Process is set out in the CEC Rules (2001), as follows:

i. The Developer submits an application for a CEC on the prescribed form. The CEC Application Fee is $TT 500.00. This should not be confused with the EIA Review Charge, which will be explained later.

ii. Because this project will ultimately require planning permission, the submittal is made to the relevant office of the Town and Country Planning Division (TCPD). Within 5 working days, the TCPD must forward the CEC Application to the EMA.

iii. Within a further 10 working days, the EMA must respond to acknowledge the receipt of the application and to indicate either that-
   - < no CEC is required, or

- further information is needed, or
- a CEC is required but an Environmental Impact Assessment (EIA) is not needed, or
- a CEC is required and an EIA must be submitted.

Note: If an EIA is required, no other Government Agency may issue any permit, license or approval unless the CEC has been granted.

iv. If a CEC is required but an EIA is not needed, the EMA must determine the CEC application within 30 working days of the acknowledgement (or of the receipt of further information if such is requested).

v. If an EIA must be submitted, the EMA must prepare draft Terms of Reference (TOR) for the EIA within 21 working days. The Developer may collect the draft TOR upon notification and upon payment of the prescribed charges. For Designated Activity No. 21, the charge is a minimum of $100,000.00 and a maximum of $600,000.00 (depending on the need for the EMA to employ external expertise to help in the review of the EIA). The Developer will pay $100,000.00 to collect the draft TOR, and for any charges in excess of this the EMA must document their actual expenses and claim the extra amount at the end of the process.

vi. The Developer has 28 calendar days following issue of the draft TOR to consult with key stakeholders and make representations to the EMA for modifications to the TOR.

vii. Within 10 working days, the EMA must consider the requested modifications, and issue Final Terms of Reference for the EIA.

viii. The EMA must determine the CEC Application within 80 working days of receipt of the EIA, which includes a statutory period of 30 days for receipt of public comment on the EIA. However, the EMA can “stop the clock” by requesting further information. In addition, if they consider that they are unable to make a determination within 80 working days, they can so advise the Developer before the expiration of the 80 working days, and set a new deadline date.

2.1.4.1.3 EIA Requirement

The EMA will request an EIA for a project if, in their sole discretion, they determine that project is likely to have significant adverse environmental impacts. In such a case, the EMA will issue Terms of Reference (TOR) for the EIA, and these typically list the following items to be addressed in an EIA:

1. Description of the Project,
2. Legislative and Regulatory Considerations,
3. Institutional and Financial Mechanisms,
4. Definition of the Study Area,
5. Description of Baseline Environmental and Socio-cultural Characteristics,
6. Analysis of Alternatives,
7. Stakeholder Engagement,
8. Analysis of Environmental Impacts,
9. Mitigation Strategy and Management Plan,

10. Monitoring and Intervention Strategy.

Information to be provided for each of these items is described in the TOR. On this programme, it is considered likely that only a minority of projects will require an EIA.

2.1.4.1.4 Stakeholder Engagement

Stakeholder engagement is considered an important part of the CEC process by the EMA. Where an EIA is required, there must be a minimum of two public meetings; one at the start of the process to introduce the project and explain the studies that will be undertaken, and the other close to the end of the process to report the findings of the various studies. If a CEC is issued without an EIA, the EMA requests evidence that information on the project has been shared with stakeholders and comments received from them.

2.1.4.2 Noise Pollution Control Rules

Under the Environmental Management Act, 2000, the Environmental Management Authority has issued Noise Pollution Control Rules, 2001, which are in effect. These rules recognize the following noise zones:

- Zone I - Industrial Areas,
- Zone II - Environmentally Sensitive Areas, and
- Zone III - General Area.

Under Section 2 of the Noise Pollution Rules, 2001, Zone I (Industrial Areas) is defined as areas 'expressly approved for industry by a competent governmental entity'. Zone II, Environmentally Sensitive Areas means a portion of the environment so designated under Section 41 of the Act, and Zone III (General Area) means all of Trinidad and Tobago except Environmentally Sensitive Areas and Industrial Areas. The majority of projects under this programme are expected to fall within the General Area zone.

Section 7 of the Noise Rules lists a number of activities which are exempt from the prescribed standards and include the following which is applicable to this project:

> *(k) construction activity when conducted on a construction site between the hours of 7:00 a.m. and 7:00 p.m. of the same day.*

Under the Prescribed Standards in the First Schedule, the Rules state that for both Daytime and Night-time levels for General Areas “the sound pressure level when measured as equivalent continuous sound pressure level shall not be more than 5 dBA above the background sound pressure level.” Therefore, if background sound pressure levels are not available, these will have to be measured at or beyond the property boundary of any proposed development in order to determine if there are exceedances of the noise pollution rules either during construction work or during occupancy of any proposed project after completion.

A proposed project will require a variation if work is to proceed at night, and if that work is expected to exceed the specified limits. Section 9 of the Rules describes the procedures for the application of a Noise Variation. The relevant subsections read as follows:

9.(1) Subject to subrule (3) where a person proposes to conduct an activity or an event that will cause sound in excess of the prescribed standards, that person shall submit an application to the Authority for a variation.

(4) Notwithstanding anything to the contrary in these rules, where a person emits a sound in a noise zone within the prescribed standards for that noise zone but which results in the creation of a sound in excess of the prescribed standards in an adjoining noise zone, the Authority may notify that person to submit an application for a variation.

The granting of a variation is made by the EMA based on the advice of the Noise Advisory Council (appointed by the board of the EMA) and the variation will be valid for a fixed period. The EMA may establish maximum permissible sound pressure levels and conditions as required (which may include measures to minimise environmental impacts, a monitoring programme, a procedure for reporting non-compliance, etc.) in each variation.

2.1.4.3 Water Pollution Rules, 2001 (Amended 2006)

The EMA has implemented a system of wastewater discharge regulations for a wide range of activities in the Water Pollution Rules issues in 2001 with amendments in 2006. These rules are intended to control and mitigate pollutant discharges into the aquatic environment. The salient features of these Rules are:

i. A source application must be submitted by any person who discharges any water pollutant as defined by Schedule 1 of the Rules (see Table 2-3).

ii. The application must be submitted 45 days before the release of a water pollutant from a registrable facility.

iii. Where the Authority determines that the applicant is discharging a water pollutant, they shall issue to the applicant a Registration Certificate.

iv. Registration Certificates are effective for a period of 3 years from the date of issue.

v. Where the Authority determines that a person is discharging a water pollutant in excess of the maximum permissible level as cited in the Second Schedule of the Rules, the Authority may notify that person to apply for a Permit.

< Permits may be issued for a period not exceeding 5 years.

Source Registration is the process by which the EMA gathers information on all actual and potential water polluters in Trinidad and Tobago. Based on the information gathered, the EMA will begin notifying persons of their need to apply for a Permit. The Registration Certificate issued under the Source Regulations is not a Permit to discharge water pollutants. When a facility is source-registered, it allows continuation of operations until notifications of a Permit is obtained.

TABLE 2-3: REGISTER OF WATER POLLUTANTS

(Source: Water Pollution Rules, 2001)

PARAMETER OR SUBSTANCE	QUANTITY, CONDITION OR CONCENTRATION AT WHICH SUBSTANCE OR PARAMETER IS DEFINED AS A POLLUTANT (*)
Temperature	Maximum variation of 3°C from ambient
pH	Less than 6 or greater than 9
Dissolved Oxygen	<4
Biological Oxygen Demand (5-day)	>10
Chemical Oxygen Demand	>60
Total Suspended Solids	>15
N-Hexane Extractable Material (HEM)(mg/L)	>10
Ammoniacal Nitrogen (as NH_3-N)	>0.01
Total Phosphorus (as P)	>0.1
Sulphide (as H_2S)	>0.2
Chloride (as Cl^-)	>250
Total Residual Chlorine (as Cl_2)	>0.2
Dissolved Hexavalent Chromium (Cr^{6+})	>0.01
Total Chromium	>0.1
Dissolved Iron (Fe)	>0.1
Total Petroleum Hydrocarbons (TPH)	NIAA
Total Nickel (Ni)	>0.5
Total Copper (Cu)	>0.01
Total Zinc (Zn)	>0.1
Total Arsenic (As)	>0.01
Total Cadmium (Cd)	>0.01
Total Mercury (Hg)	>0.005
Total Lead (Pb)	>0.05
Cyanide (as CN^-)	>0.01
Phenolic Compounds (as Phenol)	>0.1
Radioactivity	NIAA
Toxicity	NATE
Faecal Coliforms	>100
Solid Waste	No Solid Debris

Note: (*) all units are in milligrams per litre (mg/L) except for temperature (°C), pH (pH units), turbidity (NTU), faecal coliforms (counts per 100 ml), radioactivity (Bq/L) and toxicity (toxic units)

Section 4 of these Rules requires entities intending to discharge pollutants from their facility to submit a Source Application to the EMA forty-five working days prior to the intended discharge. Any entity discharging effluent that does not comply with the limits stated in the Rules, may be required (under Section 8) to apply for a permit. This permit allows the discharge of effluent from a facility that exceeds the limits stated in this Rule for a stipulated period while measures to come into compliance are implemented.

Section 4 of these Rules requires entities intending to discharge pollutants from their facility to submit a Source Application to the EMA forty-five working days prior to the intended discharge. Any entity discharging effluent that does not comply with the limits stated in the Rules, may be required (under Section 8) to apply for a permit. This permit allows the discharge of effluent from a facility that exceeds the limits stated in this Rule for a stipulated period while measures to come into compliance are implemented.

The majority of projects in this programme are not expected to discharge wastewater which exceeds the limits in Table 2-3, and these will not require source registration. The few which exceed the limits in Table 2-3 will require source registration as described above. In addition, projects which will discharge sewage or wastewater into existing sewerage systems, will have to comply with the discharge limits in the Trade Effluent Standards for Discharge into Sewers discussed in Section 2.1.4.7.

2.1.4.4 Air Pollution Rules, 2014

The Rules define an air pollutant as any substance listed in Schedule 1 or 2 which is emitted into the air in excess of the maximum permissible level prescribed therein. Schedule 3 contains a list of designated activities from which pollutants may be released, but this does not include the construction industry. However, of relevance to this project is Commercial and Institutional Food Preparation listed under Category 1: Food and Agriculture which is described as “use of equipment that produces grease, vapours, steam, fumes, smoke and odours.”

Air emissions of concern during the proposed construction activities and operation of a commercial kitchen may include Particulate Matter (PM_{10} and $PM_{2.5}$), Carbon Monoxide (CO), Carbon Dioxide (CO_2), Nitrogen Dioxide (NO_2), and Sulphur Dioxide (SO_2). Permissible levels are shown in Table 2-4 below.

TABLE 2-4: AIR POLLUTANTS

(Source: Air Pollution Rules, 2014)

COMPOUND	SHORT TERM MAXIMUM PERMISSIBLE LEVELS		LONG TERM MAXIMUM PERMISSIBLE LEVELS	
	MAXIMUM PERMISSIBLE LEVELS ($\mu g/m^3$)	AVERAGING TIME	MAXIMUM PERMISSIBLE LEVELS ($\mu g/m^3$)	AVERAGING TIME
Total Suspended Particulates (TSP)	150	24 hours	NA	NA
Particulate Matter (PM_{10})	75	24 hours	50	1 year
Particulate Matter ($PM_{2.5}$)	65	24 hours	15	1 year
Carbon Monoxide (CO)	100,000	15 mini	NA	NA
	60,000	30 min	NA	NA
	30,000	1 hour	NA	NA
	10,000	8 hour	NA	NA
Nitrogen Dioxide (NO_2)	200	1 hour	40	1 year
Sulphur Dioxide (SO_2)	500	10 min	50	1 year
	125	24 hours	NA	NA

NA- Not Applicable

2.1.4.5 Draft Waste Management (Registration & Permitting) Rules, 2018

Sections 55 to 58 of the EM Act, 2000, outline responsibilities for the EMA to regulate waste generation and its handling. Several iterations of legislation were developed which included:

- Draft Waste Management Rules, 2008;
- Draft Waste Management (Hazardous Waste) Rules, 2014 (the draft Hazardous
- Waste Rules); and,
- Draft Solid Waste (Non-hazardous) Management Rules, 2014 (the draft Nonhazardous
- Waste Rules).

However, the EMA decided to return to a single piece of legislation to regulate waste management. Therefore, the intent of the Draft Waste Management (Registration and Permitting) Rules, 2018, is to support the current waste management system in Trinidad and Tobago and the objectives defined in national policies on waste management. It should be noted that unlike the previous versions of the Rules, this version has removed the regulation of transboundary movement of hazardous wastes. This will be addressed under separate primary legislation. The Rules also require the EMA to establish a National Register which allows the public to identify persons who are registered or permitted under the Rules and so promote an authorized list of generators and waste handlers.

The Draft Waste Management (Registration & Permitting) Rules, 2019, state that “waste” has the meaning assigned to it by the Act and includes any waste listed in the Schedules to the Rules.
Additionally, the draft Rules define:

*"**generator'** as a person who produces waste above the registrable quantities mentioned in Part II of the draft Rules,*

*"**handler**" as a person who collects, transports, stress, produces, processes, treats, recovers, recycles or disposes of waste received from another person or generated on his own premises or, as a broker, has control of it.*

The salient features of these Rules are:

a) An Application Form (together with an Application Fee) must be submitted to the EMA by a generator or handler.

b) The Application Form must be submitted within 40 days of commencement of the Waste Management Rules.

c) EMA acknowledges receipt within 20 days of submittal of application form, and may or may not request any further information.

d) EMA issues a Waste Registration Certificate valid for a period of 3 years from the date of issue.

e) EMA may at any time after the commencement of the Rules, notify the holder of a Waste Management Certificate to apply for a Waste Management Permit within 45 days of notice.

f) Registrant submits Application Form with Application Fee.

g) EMA acknowledges receipt within 20 days of submittal of application form, and indicates whether any further action is required.

h) EMA issues or refuses to grant a Waste Management Permit, valid for 5 years from the date of issue and subject to renewal for such period deemed by the EMA.

All wastes encountered during any project under this programme will need to comply with the requirements of these draft Rules.

2.1.4.6 Trade Effluent Discharges into Public Sewerage Systems

The Trade Effluent Discharges into Public Sewerage Systems – Requirements (TTS 638-2015) were developed to address concerns by WASA regarding the inadequate pretreatment of industrial and commercial wastewater (trade effluent) discharges into public sewerage systems, which may choke or damage sewers and impair the proper operation of wastewater treatment plants. The establishment of these discharge limits is the first step towards the development of a comprehensive pollution control programme within the Authority. Table 2-5 lists the maximum permissible limits for selected parameters. In addition, the standard includes the methods of

sampling and testing to be used by the discharger. Any project under this programme which discharges into a public sewer must comply with this standard.

TABLE 2-5: MAXIMUM PERMISSIBLE LIMITS FOR TRADE EFFLUENT DISCHARGES INTO PUBLIC SEWERAGE SYSTEMS

(Source: TTS 638:2015)

PARAMETER	DISCHARGE LIMIT
5-day/ 3-day Biochemical Oxygen Demand (BOD_5)(BOD_3)	300 mg/L
Chemical Oxygen Demand (COD)	600 mg/L
pH	5.5 - 9.0
Temperature	35°C
Total Dissolved Solids (TDS)	2,000 mg/L
Total Suspended Solids	350 mg/L
Chloride	250 mg/L
Total Residual Chlorine	1.0 mg/l
Oil and Grease	20 mg/L

2.1.5 Summary of Environmental Approvals

Table 3-5 presents a summary of the relevant environmental approvals required for the activities associated with proposed projects in this programme.

TABLE 3-5: LIST OF RELEVANT APPROVALS

AUTHORITIES	PERMIT/LICENSE	DESCRIPTION
Environmental Management Authority	Certificate of Environmental Clearance	Environmental approval.
Town & Country Planning Division	Final Planning Permission	Planning approval of overall land use and project specifics.
Local Government Authority	Approval	Required for development works.
Highways Division, Ministry of Transport	Consultation/ Approval	Pertains to transportation of heavy equipment and material on the roadways/ highways
Traffic Management Branch, Ministry of Transport	Consultation/ Approval	Pertains to rerouting of traffic (including construction vehicles) during construction
Chief Fire Officer, Fire Services Division	Approval	Pertains to fire prevention and safety and emergency response plans.
Water and Sewage Authority	Approval	Pertains to the operation and maintenance of an STP

2.2 IDB Policies and Guidelines

Four IDB Guidelines will apply to an EMFP which are described below:

- OP-703 Operational Policy on Environment and Safeguards Compliance and Guidelines;
- Meaningful Stakeholder Consultation: IDB Series on Environmental and Social Risk and Opportunity.
- OP-761 Operational Policy on Gender Equality in Development and Guidelines;
- OP-765 Operational Policy on Indigenous Peoples; and
- OP-710 Operational Policy on Involuntary Resettlement and Guidelines.

2.2.1 Environment and Safeguards Compliance

The Environmental and Safeguards Policy is meant to ensure that projects adhere to the principles of sustainable development as set out in the Declaration of Rio 92, Agenda 21, and in the World Summit on Sustainable Development in Johannesburg. This policy requires the examination of physical and biological changes associated with the project. This policy requires the mainstreaming of environmental concerns across all sectors, as a means to implement the IDB's commitment to promoting corporate environmental responsibility. The following sub-sections relate to:

i. Project Screening,
ii. Environmental and Social Assessment, and
iii. Environmental and Social Management Plans.

Stakeholder Engagement is an important component of IDB projects, as will be documented in Section 2.2.2 and Chapter 3. Also, in addition to the ESMP, the preparation of other plans to manage potential environmental and social impacts may be specified in the ESA and the more common types of such plans will be described in Chapter 5.

2.2.1.1 Screening

Screening is an initial environmental and social evaluation which will be used to categorize projects on this programme. This is normally based on the project description, an understanding of the receiving environment and experience of the Screening Team on similar projects in the past. Conversely, the IDB team may decide on the project category, as was done for the two example projects on this programme.

IDB classifies projects into three categories, as described in Section 1.3, with levels of environmental assessment based on the predicted level of adverse impacts. Thus:

- Category A projects, which are likely to have significant negative environmental or social impacts, require a full environmental assessment. This is likely to include instrumental measurement to establish baseline conditions, and quantification of impacts where appropriate.

- Category B projects, with more limited adverse impacts, require more focussed assessments. For these projects, the description of environmental and social baseline conditions is based on field observations and published information, without original instrumental measurements. In addition, the assessment of potential environmental and social impacts is based on qualitative descriptions rather than numerical analysis (quantification).

- Category C projects, with no significant adverse impacts, do not require an assessment beyond the scoping study.

Regardless of the project category, it is prudent to prepare an Environmental Management Plan (EMP), but the level of detail of this plan will depend on the project category (see Section 5.1). IDB's requirements for ESMPs will be described further in Section 2.2.1.3).

2.2.1.2 Environmental and Social Assessment

According to the Guidelines to the Environmental and Safeguards Policy, environmental and social risks can undermine the achievement of the IDB's development goals and targets. Identifying such risk early on in proposed programs and projects will allow the enacting of timely and adequate measures to minimize risks, enhance benefits, and foster broad social and political acceptance. Typical contents of an Environmental and Social Assessment (Guidelines) include:

Section 1 – Executive Summary,

Section 2 – Project Objectives and Description,

Section 3 – Policy, Legal and Regulatory Framework,

Section 4 – Environmental and Social Conditions,

Section 5 – Environmental Impacts and Mitigation Measures,

Section 6 – Analysis of Alternatives,

Section 7 – Environmental and Social Management Plan, and

Section 8 – Public Consultation and Disclosure.

As noted in Section 2.2.1.1, above, Category A projects require the most detailed assessment, Category B projects less so, and Category C projects do not require an assessment. Notwithstanding, the output of the Assessment (or of the Screening Exercise in the case of Category C projects) is to provide information on the systems and measures that will be used to manage environmental and social impacts to ensure that they do not exceed permissible limits.

2.2.1.3 Environmental and Social Management Plans

The contents of an IDB ESMP, as set out in the Guidelines to the Environmental and Safeguards Policy, are as follows:

- Listing of key direct and indirect impacts and risks of the proposed operation;
- Design of social/environmental measures to avoid, minimize, compensate and/or mitigate those impacts and risks;
- Institutional responsibilities to implement these measures;
- Schedule and budget allocated for the implementation and management of such measures;
- Consultation or participation program agreed for the operation; and
- Framework for monitoring social and environmental impacts and risks throughout the operation.

ESMPs are intended to be “living documents”, with provision for revision over the life of the project. As a result, specific mechanisms for corrective action to address feedback from inspection and monitoring programs should be included in the ESMP. Provision for periodic review and revision (as necessary) of the ESMP should also be specified, as well as provision for *post mortems* on specific incidents which may occur to test how well the provisions of the plan functioned during the incident.

Reporting requirements must also be specified within the ESMP, including:

- Reporting within the Project Management Organization,
- Reporting to Parent Organizations, and
- Reporting to Regulatory Agencies.

The specifics of the first two types of reporting will be decided based on organizational policies and principles, but requirements to reporting to regulatory agencies is often specified by law or in the respective approvals. For example, Certificates of Environmental Clearance (CECs) typically specify what incidents or test results must be reported to the EMA, and within what time.

2.2.2 Stakeholder Consultations

The IDB Technical Note entitled "Meaningful Stakeholder Consultations" identifies the following ten elements of stakeholder consultation:

1. Identification of priority issues: The likely risks and opportunities arising from the project to people and the environment.

2. Stakeholder analysis and consultation plan: Identify those affected by the project and those who can influence outcomes and how the project will engage with them.

3. Prior information: Dissemination of information prior to consultation meetings

4. Appropriate forums and methods for the consultation process: Use of 'town hall' style meetings at each location

5. Grievance redress mechanisms: Development of an accessible mechanism to report any aspect of the project perceived to be causing harm to affected stakeholders or the environment.

6. Design and implementation decisions considering stakeholder perspectives: Using feedback from the meetings to feed into the ESMP and where fitting, design of the schools.

7. Feedback to stakeholders and transparency in decision-making: Devising a method to report to stakeholders continually during the project and incorporate their views.

8. Baseline data, action plans, and management systems: Description of the mitigation, management and monitoring planned to ensure that the project meets its environmental and socio-economic objectives.

9. Documentation and public disclosure: A mechanism for the public to access information on the project.

10. Ongoing stakeholder consultation during implementation: Use of a Stakeholder engagement plan to maintain communication with the stakeholders during the life of project execution.

Projects in this programme will require effective stakeholder engagement, using techniques that will be described in Chapter 3.

2.2.3 Gender Equality

The IDB's Operational Policy on Gender Equality in Development is based on the premise that gender equality contributes to poverty reduction and higher levels of human capital for future generations. Evidence confirms that equality within the household, labour market, access to financial services and technology, civic and political participation contribute to the effectiveness of its development efforts. The objective of the Policy is to promote gender equality and the empowerment of women.

The Policy pursues two types of action:

i. Proactive action: which actively promotes gender equality and the empowerment of women through all the Bank's development interventions. These include direct investment in areas strategic to gender equality and mainstreaming the gender perspective in development interventions; and

ii. Preventive action: which introduces safeguards to prevent or mitigate adverse impacts on women or men due to gender resulting from the Bank's actions through its financial operations.

According to the IDB's Policy gender equality means that women and men enjoy the same conditions and opportunities to exercise their rights and reach their social, economic, political, and cultural potential. Gender mainstreaming is the process that seeks to have gender equality and the needs of women and men be heard and addressed in the design, implementation, monitoring, and evaluation of the Bank's interventions, with special emphasis on public- and private-sector loan operations, given their importance within the institution.

The Bank conducts its financial operations so as to identify and address adverse impacts and the risk of gender-based exclusion, include women and men in consultation processes, and comply with applicable legislation relating to equality between men and women. In its public consultation processes, the Bank will seek the equitable participation of women and men, as well as the participation of civil society organizations. In project-related consultations, the Bank will seek the inclusion of the women and men affected in a gender-sensitive and socio-culturally appropriate manner.

The Policy also looks at the way that gender inequalities interact with other inequalities that are based on socioeconomic, ethnic, and racial factors, exacerbating the barriers; specifically, vulnerabilities of poor, indigenous, and women of minority groups. The design of projects under this program must include pro-active practices to foster gender equality.

2.2.4 Indigenous People

In 2006, the Bank formalized its support for the development of indigenous peoples by establishing the Operational Policy on Indigenous Peoples (OP-765) and the Strategy for Indigenous Development (GN23875). The purpose of both the policy and the strategy is to "enhance the Bank's contribution to the development with identity of indigenous peoples" by including issues specifically directed to indigenous peoples in the Bank's strategic and operational processes. This principle focuses on recognition that indigenous peoples are the ones who must determine their process of development based on their worldview and culture. Due to their crosscutting nature, both instruments apply to all sectors of the Bank.

The Operational Policy on Indigenous Peoples (or "Indigenous Peoples Policy" – IPP) defines as indigenous peoples those that meet the following three criteria:

i. they are descendants from populations inhabiting Latin America and the Caribbean at the time of the conquest or colonization;

ii. irrespective of their legal status or current residence, they retain some or all of their own social, economic, political, linguistic and cultural institutions and practices; and

iii. they recognize themselves as belonging to indigenous or pre-colonial cultures or peoples."

In Trinidad and Tobago, the only group which is generally recognized as fitting this description is the Carib Community in Arima. Projects in this program in Arima will therefore need to explore effects on the Carib Community.

The IPP defines the long-term objectives and conditions for implementation of the strategy as focussing on:

i. supporting the development with identity of indigenous peoples by incorporating specifically indigenous issues in national development agendas through independent operations, and including the specific character of indigenous peoples in operations with a general approach; and

ii. establishing safeguards "designed to prevent or minimize exclusion and adverse impacts" of Bank financed operations.

2.2.5 Involuntary Resettlement

Specific projects in this programme may require that persons be temporarily or permanently relocated from their places of work or (less frequently) from their places of residence. IDB Operational Policy 710, on Involuntary Resettlement, sets out two fundamental principles for resettlement:

i. Every effort must be made to avoid or minimize the need for involuntary resettlement; and

ii. When displacement is unavoidable, a resettlement plan must be prepared to ensure that the affected people receive fair and adequate compensation and rehabilitation.

Other considerations when planning for involuntary resettlement / relocation include:

< Affected persons must be consulted when planning resettlement and compensation measures.

< Affected persons must not be disenfranchised simply because they do not have clear title to property or contracts for use of places of work.

Several other factors must be considered when planning for involuntary resettlement/ relocation, such as:

- Loss of employment or means of production,
- Loss of access to or increased distance from traditional sources of goods and services,
- Loss of access to education, and
- Disruption of social networks.

3 STAKEHOLDER ENGAGEMENT

Consultation with key stakeholders is an important part of the environmental and social studies for any project under this programme (see Sections 2.1.4.1.4 and 2.2.4). Such consultation may be conducted with the following objectives:

- to inform stakeholders about the project, its justification and its components;
- to collect information concerning the environmental and socio-cultural setting of the project;
- to receive suggestions on the manner that the project may be made more effective;
- to hear concerns on how the project may affect specific stakeholders, and
- to receive suggestions concerning the mitigation of negative effects (including compensation where appropriate).

This chapter begins with information on a Stakeholder Engagement Protocol, and then provides general guidance concerning four methods of engagement which may be used for the projects under this programme.

3.1 Stakeholder Engagement Protocol

For each project under this programme, planning for stakeholder engagement begins with the preparation of a Stakeholder Engagement Protocol. The contents of this Protocol are listed in Table 3-1. Stakeholder engagement on these projects, the language to be used will be Standard English, but vernacular will be used where necessary to enhance understanding of what is being presented and asked.

TABLE 3-1: STAKEHOLDER ENGAGEMENT PROTOCOL

	ITEM	APPROACH
1	Information Base	List the information to be disseminated to, or collected from stakeholders.
2	Whom to Consult	Identify various stakeholder groups to be consulted. These will include those directly affected by the project, those who have a special interest in the project and, in some cases, the general public.
3	How to Consult	Select the method of consultation for each group, noting that different methods will be more appropriate for different groups. Four consultation methods will be discussed later in this chapter.
4	Electronic Methods	Information dissemination via e-mails or on a project-website may also be considered. However, such methods should only be used if a significant majority of the target stakeholder group has access to computers and the internet.

	ITEM	APPROACH
5	Timing	Select the time for consultation based on the specifics of each group. Some groups prefer to be consulted during normal working hours, and others outside of business hours. Similarly, some groups prefer to meet on weekdays, and others on weekends. The objective is to maximize participation by selecting meeting times which are most convenient to the group being engaged.
6	Venue	As with timing, the selection of venues for meetings should be selected based on convenience to the group being engaged. Some groups prefer to meet "on their own turf", while others prefer a more neutral venue. In general, though, the project team goes to the stakeholders, and not vice versa.
7	Contents	To engender meaningful engagement, it is important that stakeholders understand the project that is being discussed. It is therefore useful to either make a presentation or distribute handouts early in the process. The objective of the consultation exercise must also be clearly communicated to stakeholders.
8	Gender Approach	The engagement protocol must be designed to eliminate gender bias.
9	Register	For each consultation event, a register must be kept documenting the name, address and phone number of each participant.
10	Results	For each consultation event, the results / outputs must be documented.

3.2 Consultation Methods

This section provides guidance on four consultation methods which may be considered on the projects in this programme:

- Individual Meetings,
- Questionnaire Surveys,
- Focus Group Meetings, and
- Public Meetings.

3.2.1 Individual Meetings

Some Government Employees and Subject-matter Experts prefer to meet individually rather than in a group. In most cases, the term "individual meeting" refers to an individual organization rather than an individual person; so that such a meeting can include two or three representatives of the organization or community being consulted.

The Date, Time and Venue for individual meetings are normally chosen by the organization being consulted. In the interest of time management, the project representatives should prepare an Agenda so that all parties are aware in advance of the topics to be covered and can come prepared to discuss those topics. If a handout is to be used at the meeting, this should be sent to the organization being consulted ahead of the meeting. Notwithstanding the agenda, the organization being consulted may wish to introduce other topics as the meeting progresses, and this should be accommodated if the members of the project team have information on those topics which they are at liberty to disclose. If the organization being consulted agrees to supply documents or information, it is important to agree on a delivery date. Notes of each meeting should be circulated to all attendees in draft form and finalized based on comments received.

3.2.2 Questionnaire Survey

Questionnaire Surveys can be used to obtain specific information from members of a group. Unfortunately, mailed-out questionnaires tend to have a very poor response rates, often as low as 10%, and e-mailed questionnaires fare little better. The response rate can be improved by the design of the questionnaire and the method of administration, as will be discussed below.

3.2.2.1 Design of the Questionnaire

Out of respect for the respondent's time, questionnaires should not be overly long, nor should they ask questions which are too open-ended to elicit a focussed response. Specifically:

- Questions should be phrased in non-technical language which can be easily understood by the responder.
- Questions should not seek information which can be obtained from national data-based, except where the validity of the national data is being tested on a local scale.
- Questions should be simple, direct and to-the-point. Compound or complex questions should be avoided.
- Questions should be worded to request information and opinions of the responder (or his or her household), but not information concerning others.

Persons administering the questionnaire should be prepared to explain questions when such explanation is requested by the interviewee. However, interviewers must scrupulously avoid suggesting answers to interviewees.

3.2.2.2 Method of Administration

The success of a questionnaire will be determined, to a great extent, by the method of administration. Questionnaires administered via face-to-face interviews usually yield a high rate of response, which can be in excess of 80%. This success rate, in turn, depends on carefully selected and properly trained persons conducting the interviews. It will also depend on the selection of suitable days and times based on the target population. Answers are recorded

directly onto the questionnaire form by the interviewer. It is not a common practice to audio record responses during a questionnaire survey.

Persons selected to conduct interviews must be able to:

- confidently approach persons they have not met before;
- speak clearly in standard English: and
- read and explain the questions being asked, without introducing their own opinions.

Interviewers must know what information they can share with the persons being interviewed, and what must be kept confidential. They must also manage their time, since they will meet persons who simply want to chat on a variety of subjects which are not related to the questionnaire. They must also be able to politely terminate the interview when the exercise is complete.

3.2.2.3 Reporting

The results of the questionnaires must be aggregated in order to understand key characteristics of the group that was interviewed and form a consensus of the various pieces of information provided and the opinions which were expressed. This is normally documented in detail in a Consultation Report, and the results used in analysis in the ESA.

3.2.3 Focus Group Meetings

Public Meetings (see Section 3.2.4) are open to all interested parties, but focus groups consist of a small group of selected persons who are knowledgeable about a specific subject. This is a qualitative data collection method resulting in descriptive information rather than numerical data.

3.2.3.1 Design of the Group

The main items to be decided in designing a focus group are:

- What are the topics to be addressed by the Group? and
- Who would be included in the Group?

The selection of topics should be based on the objectives of the exercise. Typically, this will take the form of about 5 basic questions to be answered by the group. These questions should be framed to be neutral, sensitive and understandable, and to encourage discussion (that is, they should require more than just a yes/no answer).

The concept of a focus group is a discussion between people who are knowledgeable on a particular subject area. It is useful to include persons with differing view on the topic, but not if these persons have developed an antagonistic relationship with each other. The optimal number of participants in a focus group is the number which will yield representative results but can be managed to allow all parties to meaningfully participate; typically, 7 to 12 members. Invitees should be discouraged from bringing other persons who were not selected for the focus group, since this could result in unmanageable numbers is probably optimal in our region.

3.2.3.2 Arrangements

Physical and administrative arrangements to be made for the Focus Group include:

- Choice of Venue,
- Date, Time and Duration,
- Inviting the Participants,
- Handouts, and
- Arrangements to Capture and Document Feedback (see Section 3.2.3.5).

The venue should be easily accessible to all participants, with adequate parking and toilet facilities should also be reasonably close to the room. It should be large enough to comfortably accommodate the participants, the moderator and the note-takers, a table for refreshments and some “walking-around” room for participants. As with the venue, the Date and Time of the meeting should be based on the collective preference of participants. The Duration of the meeting be planned in advance, since participants would want to know how much time they are committing to. Typically, a meeting to address five questions with a focus group of about 10 persons can be completed within two-and-a-half hours.

Once a date, time and venue have been decided, Invitations should be issued to participants in writing (e-mails are quite effective in this regard), and reminders issued two days or so before the meeting. Invitations should include a brief (one paragraph) introduction of the project under consideration, as well as key notes on the focus group technique. Where appropriate, these notes should indicate that, because of the format of focus group, additional participants or observers cannot be accommodated. Participants should be asked to confirm whether they will be attending.

Handouts may be included with the invitations where it is considered useful to provide more details on either the project or the focus group. These would normally be limited to about 6 pages and should include a location map of the project area. Because some participants will (accidentally or otherwise) fail to bring the handouts with them to the meeting, it is useful to have printed copies available at the meeting room.

3.2.3.3 The Moderator

An effective moderator is critical to the success of a focus group. She or he must at all times be aware of what is being discussed, and manage the discussion in such a way that views are not stifled but time is properly managed. At the very start of the discussion, the moderator must introduce and seek agreement on certain ground rules, such as the need to address others

politely, the need to stay on topic, etc. During the discussion the moderator must be alert to snide or insulting comments; and must actively discourage such behaviour. The Moderator must ensure that the available time is effectively divided between the various questions that are to be addressed and must balance the discussion between different participants (so that one or a few participants are not allowed to dominate the discussions). Balancing also requires that even unpopular views are heard, and the moderator must guard against "shouting down" views which are not held by the majority.

Moving the Discussion Forward from one question to the next is another key function of the moderator. Sufficient time must be allowed to allow the Group to explore a particular topic so as to derive the full benefit of interaction between participants. However, there will also come a time when the topic is "talked out", and further discussion will only mean repeating points which have already been made.

One approach would be to allocate a time for each question in advance, as a means of ensuring that all questions will be addressed. However, this would not be a hard, alarm-clock deadline. It is at the moderator's discretion whether discussion extends beyond the allotted time (or even curtailed before the allotted time), based on how the discussion is proceeding.

3.2.3.4 Agenda

A Typical Agenda for a Focus Group Meeting is:

- Welcome by the Moderator,
- Introductions and Agreement on Ground Rules,
- Overview of the Project and Objectives of the Focus Group,
- Agreement on Questions,
- Discussion of Each Question, and
- Wrap-up by the Moderator,

Following words of welcome and introductions, the moderator will provide an Overview of the project based on a slide presentation or by reference to the handout. The moderator will then indicate the Objectives of the focus group, and specifically what information is being sought. The final step before the start of discussions is agreement on the questions to be answered. The draft questions designed by the organizers should be presented to the participants, and they should be allowed to modify the questions based on their experience. They may also suggest additional questions.

Once these preliminaries are completed, the group can begin discussing each question in turn. The moderator will manage the use of time to ensure that all questions are discussed in the available time. When all questions have been discussed, the moderator will conduct the wrap-

up session, to key points of agreement and/or disagreement regarding each question. The moderator should then inform the group of the way that the information that was gathered will be used, and also advise them of ways in which they can continue to be involved in the project if they so wish.

3.2.3.5 Documenting the Discussions

The discussions will be recorded by note-takers, and (if agreed by all participants) by audio recording. Following the meeting, these notes and recordings will be used to prepare a report of the meeting, which will be documented in detail in a Consultation Report and used in the analysis of impacts in the ESA.

3.2.4 Public Meetings

Unlike Focus Group Meetings, Public Meetings are open to all who are interested in the project. Such meetings have become mandatory under the EMA's EIA Process. Public Meetings are quite effective in presenting information about the project to a large audience, and in receiving their general feedback to what has been presented. On the other hand, they have proved less useful in obtaining detailed information.

3.2.4.1 Preparatory Tasks

Preparatory tasks for any Public Meeting include:

- Selection of Venue, Day and Time,
- Availability of Electronic Equipment,
- Presentation and Handouts, and
- Invitations.

The Selection of the Venue is based on the location, capacity and comfort; that is, invitees should be able to easily access it, and it should be large enough to accommodate the expected number of attendees. There should be adequate parking and toilet facilities. The meeting room should have a computer and projector for the presentation, as well as a public address system for use by the head table. There should also be floor microphones for use by attendees during the discussion session.

Handouts should summarize key aspects of the project in printed form, and these are made available to attendees at or before the meeting. Generally, handouts will contain a description of the project, in language that is readily understandable by the target audience, as well as a summary of key issues to be discussed at the meeting. Handouts should be 5 to 10 pages long.

The content of the slides in the Presentation is very similar to the content of the handout, except that the information on each slide would briefly summarize each point of interest. Graphics should be readable and properly understood. Presentations should be completed within one hour (ideally within 45 minutes).

Invitations will be sent to specific invitees at least two weeks ahead of the meeting, by e-mail or by regular mail. Advertisements will also be placed in local newspapers, and flyers posted at central locations in the project area. Where appropriate, loudspeaker announcements will also be made in the project area.

3.2.4.2 At the Meeting

A typical agenda for a public meeting is as follows:

- Commencement of Meeting and Introductions (Chairperson),
- Words of Welcome (Project Proponent),
- Description of Project (Project Proponent or Designers),
- Presentation on Environmental Aspects (EIA Practitioner),
- Question and Answer Period,
- Summary of any Commitments which were made (Chairperson), and
- Conclusion of Meeting (Chairperson).

Choice of an appropriate Chairperson goes a long way toward having a successful meeting. Their role is not to champion the project, but rather to serve as a neutral arbiter and to maintain control of the proceedings. The Chairperson moderates the Question and Answer Period, ensuring that as many persons as wish are allowed to speak, by managing time allotted to each speaker. The Chairperson must also decide when it is time to bring the proceedings to a close.

3.2.4.1 Documenting the Proceedings

It is now fairly common practice to audio record the proceedings of public meetings, but there are normally note-takers in attendance as well. Based on these, two types of written record will be prepared:

- A Verbatim Transcript of the Meeting, and
- Notes of the Meeting.

The Verbatim Transcript is typed from the audio recordings of the meeting, to provide a word-for-word record of presentations and discussions. The Notes seek to capture the key points discussed and views expressed in a more easily readable and understandable form. Both written records will be documented in detail in a Consultation Report and used in the analysis of impacts in the ESA.

4 ENVIRONMENTAL AND SOCIAL ASSESSMENTS

The IDB's regulatory requirement for an ESA was presented in Section 2.2.1.2, and the EMA's requirement for an EIA was presented in Section 2.1.4.1.3. The first Section of this chapter provides guidance on the preparation of specific aspects of those documents for projects on this programme, while the second Section lists selected adverse impacts which may arise from such projects and mitigation measures which are available to address them.

4.1 Preparing the ESA or EIA

This section provides guidance for the preparation of specific chapters in ESAs or EIAs for projects under this programme, under the following headings:

- Project Description,
- Baseline Conditions, and
- Impact Assessment.

Information on the Regulatory Framework was provided in Chapter 2, and Guidance on Public Engagement was provided in Chapter 3.

4.1.1 Project Description

Experience with the example projects on this programme (Eastside Plaza, Factory Road, Sahadeen Trace, and Bois Bande Settlement C) suggests that the ESAs will be prepared when there is a design concept for the activity, but before detailed Architectural and Engineering designs are completed. The EMA also accepts EIAs based on preliminary designs, on the rationale that the findings of the EIA are intended to influence the final designs of the project. It is therefore anticipated that the ESAs to be prepared for the IDB as well as any EIAs mandated by the EMA will be based on conceptual designs.

In the context of the foregoing, the following details must be included in the ESA or EIA Project Descriptions, to allow a proper assessment of impacts:

- Project Location and Layout (host community, overall facility area and positioning of components);
- Project Objectives and Facility Operations,
- Land Acquisition Requirements (areas to be acquired and present owners if available),
- Temporary Displacement (numbers of persons to be removed permanently, and those who will be allowed to return after construction);
- Necessary Construction Works (including likely construction methods),

- Haulage of Equipment and Material during Construction (likely sources, and methods of haulage);
- Utility Demand during Construction (water supply, electricity, etc);
- Waste Generated during Construction (sewage, wastewater discharges, solid waste and hazardous waste if present);
- Utility Demand during Operation (water supply, electricity, etc);
- Waste Generated during Construction (sewage, wastewater discharges, solid waste and hazardous waste if present).

4.1.2 Baseline Conditions

4.1.2.1 Level of Detail

The type of data collection to establish environmental and social baseline conditions depends on the type of assessment which is being prepared (see Section 2.2.1.1). Specifically:

- ESAs for Category A Projects may require instrumental measurements or detailed field surveys for both environmental and socio-cultural baseline information;
- ESAs for Category B Projects will rely on published information and field reconnaissance for environmental baseline information, and on stakeholder engagement (see Chapter 3) for socio-cultural information; and
- EIAs requested by the EMA normally require instrumental measurements or detailed field surveys for both environmental and socio-cultural baseline information.

The following sub-sections list the types of information that is normally accessed from national databases, as well as the type of instrumental measurements that may be required to collect specific types of data.

4.1.2.2 National Databases

Table 4-1 lists the type of information that is commonly accessed from national databases.

TABLE 4-1: TYPICAL INFORMATION ACCESSED FROM NATIONAL DATABASES

INFORMATION / DATA	METHOD
Meteorology (Wind Roses, Wind Speed and Direction, Relative Humidity at Piarco International Airport)	Meteorological Office
Rainfall (at rainfall stations throughout the country)	Water Resources Agency
River Flows (at stream gauges throughout the country)	Water Resources Agency
Geology and Faults	Geological Maps of Trinidad and

INFORMATION / DATA	METHOD
	Tobago
Seismic Records	Seismic Research Unit, UWI
Topography and Aerial Photographs	Lands and Surveys Department, Ministry of Agriculture, Lands and Fisheries
Topography (1:25,000, 1:10,000, 1:5000)	Ordinance Survey Maps
Agricultural Soil Types	Soil Type Mapping
Tide Times (Tide Tables)	Available On-line
Population by Enumeration District (including age and gender)	Central Statistical Office
Unemployment Rates	Central Statistical Office
National Prevalence of Illnesses	Ministry of Health
Traffic Flows on Major Roads and Highways	Highways Division, Ministry of Works and Transport (MOWT)
Water Sources and Availability	Water and Sewerage Authority (WASA)
Electricity Sources and Availability	Trinidad and Tobago Electricity Commission (T&TEC)
Property Ownership (Cadastral Maps)	Lands and Surveys Department, Ministry of Agriculture, Lands and Fisheries

4.1.2.3 Collecting Original Data

Table 4-2 lists methods for collecting original data which may be necessary on specific studies on projects which are part of this programme.

TABLE 2: EXAMPLES OF METHODS OF ORIGINAL DATA-COLLECTION

INFORMATION / DATA	METHOD
Geology and Engineering Soil Parameters	Geotechnical Investigation
Air Quality (Total Suspended Particulates, PM_{10}, Oxides of Carbon, Nitrogen and Sulphur, Volatile Organic Compounds)	Air Quality Meters
Water Quality (Temperature, pH, Dissolved Oxygen, Turbidity)	Water Quality Meter
Water Quality (Biochemical Oxygen Demand, Chemical Oxygen Demand, Nutrients, Metals, etc)	Sampling and Laboratory Testing
Marine Parameters (Currents and Waves)	Acoustic Doppler Current Profiler (ADCP)
Employment by Type and Duration	Stakeholder Consultation
Income Levels	Stakeholder Consultation
Education Levels Attained	Stakeholder Consultation
Local-area Prevalence of Illnesses	Stakeholder Consultation
Property Ownership	Cadastral Survey

4.1.3 Impact Assessment

4.1.3.1 Level of Detail

The type of impact assessment (qualitative or quantitative) depends on the type of document which is being prepared (see Section 2.2.1.1). Specifically:

- ESAs for Category A Projects are typically based on quantitative impact assessment;
- ESAs for Category B Projects typically rely on qualitative impact assessment; and
- EIAs requested by the EMA normally require quantification of selected adverse impacts.

4.1.3.2 Impact Classification

It is useful to classify / rate impacts on a standardized basis. There are several classification methods which may be employed, of which one was used in the ESA for an example projects for this programme Eastside Plaza). This method is described in this sub-section, purely by way of an example.

4.1.3.2.1 Parameters

In this system, environmental impacts are rated on the basis of three parameters:

- Extent,
- Intensity, and
- Duration.

"**Extent**" describes the geographical area likely to be impacted by a project. In this rating system, three (3) classes of extent have been defined:

On-Site	The study area
Localized	Within 500m of the study area
Regional	Beyond the limits of the localized area

"**Intensity**" describes the degree of change which may result from the potential impact. In this rating system, intensity has been based on ecosystem effects. Four (4) classes have been defined:

Very Small	Effects on an individual organism, but no significant effects on the functioning or sustainability of social groups, specific ecosystems or services.
Minor	Marked effects on several individuals, and limited effects on the functioning or sustainability of specific ecosystems, or resources.
Medium	Significant effects on the functioning or sustainability of specific ecosystems, or resources.
Major	Serious impairment on the functioning or sustainability of specific ecosystems, or resources.

"**Duration**" considers the length of time that the potential impact is expected to last. In this rating system, three classes of duration have been defined:

Short Term	Limited to the construction phase of a project, or
	Occurring intermittently during the operation phase but for no more than two (2) years
Medium Term	Extending from the construction phase into the operation phase, but not for more than one (1) year
	Occurring intermittently during the operation of a project for a period of two (2) years or more.
Long Term	Extending from the construction phase into the operation phase by more than one (1) year, or
	Occurring continually during the operation of the project

4.1.3.2.2 Rating of Impacts

Impacts can then be rated depending on length of impacts depending on their intensity and area affected, as seen in Tables 4-1 through 4-3.

TABLE 4-1: POST MITIGATION RATING OF SHORT-TERM IMPACTS

INTENSITY	AREA		
	ON-SITE	LOCALIZED	REGIONAL
VERY SMALL	LOW	LOW	LOW
MINOR	LOW	LOW	MODERATE
MEDIUM	LOW	MODERATE	MODERATE
MAJOR	MODERATE	MODERATE	HIGH

TABLE 4-2: POST MITIGATION RATING OF MEDIUM-TERM IMPACTS

INTENSITY	AREA		
	ON-SITE	LOCALIZED	REGIONAL
VERY SMALL	LOW	LOW	MODERATE
MINOR	LOW	MODERATE	MODERATE
MEDIUM	MODERATE	MODERATE	HIGH
MAJOR	MODERATE	HIGH	HIGH

TABLE 4-3: POST MITIGATION RATING OF LONG-TERM IMPACTS

INTENSITY	AREA		
	ON-SITE	LOCALIZED	REGIONAL
VERY SMALL	LOW	MODERATE	MODERATE
MINOR	MODERATE	MODERATE	HIGH
MEDIUM	MODERATE	HIGH	HIGH
MAJOR	HIGH	HIGH	EXTREME

4.1.3.2.3 Appropriate Response and Prioritization

Environmental Impacts are evaluated following the implementation of appropriate mitigation and control practices. Assigning a consequence severity and likelihood to each event qualitatively rates the risk of each environmental impact. The risk level is determined by the position on the risk matrix where the event falls.

An appropriate response and prioritization to each environmental risk has been developed:

- **Extreme**: Intolerable environmental risk with significant and urgent actions required to reduce risk.
- **High and Moderate**: Implement actions necessary to reduce risk to as low a level as reasonably practical.
- **Low**: Monitor and manage risk to the extent necessary.

4.2 Typical Impacts and Mitigation Measures

The describe sub-sections relate to selected impacts which may arise during the construction and operation of projects under this programme, and list mitigation measures which may be applied to manage such impacts. This is not intended to be an exhaustive listing, but instead discusses the types of adverse impacts which are most likely to be encountered on several projects. Similarly, the listing of mitigation measures is intended only to indicate what is generally available. The recommendation of particular measures must be made on a case-by-case basis, recognizing the specifics of the project and its site. Because of the urban settings for the projects under this programme, no adverse impacts on the biological environment are listed.

4.2.1 Physical Environment

4.2.1.1 On-site Erosion

On-site erosion is a general concern when bare soil or material stockpiles are exposed to rainfall and wind. These concerns typically result from clearing, grading and cutting activities which remove vegetative cover and expose soils on slopes and ground surfaces; and to the extablishment of stockpiles. The potential for soil erosion is dependent on rainfall frequency and intensity, slope, infiltration rate, and vegetative cover. Wind erosion can occur if there is little rainfall and the soil is dry.

Mitigation measures which may be considered to address this concern are:

- Schedule clearing and earthworks for the Dry Season to the extent practical.
- Minimize the area of exposed soil by clearing only the areas needed for construction at one time.
- Store stockpiles of topsoil which have been removed during excavation or slope regrading at a suitable location on the site for re-spreading on completion of works or transportation from the site for beneficial use elsewhere.
- Provide adequate temporary drainage of slopes and cleared areas (where applicable). Temporary silt traps (for example stilling basins or barriers of straw bales) may be placed in drainage paths to reduce the migration of silt into the watercourse.

4.2.1.2 Slope Instability

Slope instability concerns arise from construction activities such as excavation for foundations and the grading and terracing of slopes. If the side slopes of excavations are cut too steep, they may collapse. Slope instability may be delayed or progressive, so this concern can extend into the operation phase of the project.

Mitigation measures which may be considered to address this concern are:

- Maintain natural vegetative cover as far as practical. Areas not required for development works should not be cleared.
- Determine the safe angle of repose of fill material within a site. Where required, if there is sufficient space at a site, the side slopes of excavations are cut flatter than this safe nature angle of repose to effectively eliminate the possibility of slope failure.
- If it is not possible to design slopes at stable angles, provide retaining structures to prevent failure. These could take the form of rubble masonry retaining walls.
- Re-vegetate, or otherwise cover cleared areas as early as practical.

- Avoid stockpiling excavated material at the edges of excavations or on the top of slopes as this could result in slope instability.

- Dewater excavations to prevent softening of the bases due to groundwater, trapped or ponded water and/or prevailing weather conditions.

4.2.1.3 Increased Surface Runoff

The concern for increased surface run-off arises when the paved areas on a site are increased, and when vegetation is removed. This results in an increased rate and volume of runoff, and may lead to flooding downstream if the drainage is inadequate to convey this increase.

The appropriate mitigation measure to address this concern is to check the adequacy of receiving drains to convey the expected rate and volume of runoff. If it is found to be inadequate, provide retention basins on the site to ensure that the peak rate of runoff is not increased, but that the outflow is extended over a longer period.

4.2.1.4 Air Quality Impairment: Exhaust Emissions

Air quality is affected by the products of combustion from the routine use of construction equipment and machinery, trucks off-loading or loading materials at a work site, as well as from vehicles at a standstill during traffic disruptions. Exhaust emissions from construction vehicles, equipment and vehicles consist of combustion products (Oxides of Carbon, Nitrogen and Sulphur), dust (soot and particulate matter) and unburnt fuel (Volatile Organic Compounds).

Mitigation measures which may be considered to address this concern are:

- Properly service all vehicles and equipment to ensure that there are no visible sooty emissions.

- Defective vehicles should be taken out to service and should not be permitted to operate until they are repaired.

- Require the Contractor to prepare and implement a Traffic Management Plan prior to the start-up of any works

4.2.1.5 Air Quality Impairment: Dust

Dust/ particulate matter is the primary air contaminant of concern during construction activities; arising from demolition of structures and exposed stockpiles of construction materials or waste are sources of dust. When exposed to winds, dust can be blown off from these unprotected sources.

Mitigation measures which may be considered to address this concern are:

- Cover materials on all transport vehicles moving granular materials to and from a site (with tarpaulins, etc.) to prevent dust being blown off.

- Cover all material stockpiles and use the material in such stockpiles efficiently to reduce the time that the stockpiles are in place.

4.2.1.6 Air Quality Impairment: Solvents, Paints, Asphalt Paving, etc

The application of paints and their solvents that contain VOCs will result in the release of limited amounts of VOCs and laying of hot asphalt for paving works (roads, parking lots) may also result in the release of limited amounts of VOCs as well. Such releases will be largely limited to the construction phase of the project. Because these releases typically disperse rapidly under local conditions, no specific mitigation measures are implemented. Instead, every effort is made to complete these works in a minimum time and to close paint and solvent containers as soon as they are no longer in use.

4.2.1.7 Noise and Vibrations

During construction activities, noise is emitted by heavy equipment as well as trucks transporting equipment and material. Such noise can be a nuisance in residential areas and near sensitive receptors along transport routes. Construction activities can also result in varying degrees of ground vibration, depending on the type of equipment and methods being employed.

Mitigation measures which may be considered to address this concern are:

- Regularly inspect and maintain construction vehicles and equipment (including mufflers on this equipment) to ensure noise emission control systems are properly functioning.

- Schedule on-site construction activities for during normal working hours to the extent possible.

- Schedule movements by trucks for between 7 a.m. and 7 p.m., to the extent practical.

- Inform the public of noisy construction activities in the area.

- Schedule construction activities near places of worship so as to avoid times of services.

- If night work involving noise intense activities is necessary, obtain a Variation from the EMA.

- Ensure that all construction vehicles and equipment are in compliance with the Noise Pollution Control Rules, 2001.

- Inspect surrounding areas and properties in order to verify susceptibility to vibration. This will allow verification of claims of damage.

4.2.1.8 Impaired Water Quality: Siltation and Sedimentation

The concern for sedimentation is related to erosion due to rainfall (see Section 4.2.1.1, above). As rain falls, exposed soil can be washed into drains and eventually reach nearby drains, streams, rivers, causing siltation of the water and sedimentation on watercourse bed. Mitigation measures which may be considered to address this concern are:

- Where clearing is necessary, the work site should be cleared on a phased basis so as to minimize the area of soil that is exposed at one time.
- Temporary stockpiles of excavated material or fill material, sand and gravel should be confined using straw bales or other means such as wooden 'cribs'.
- Specific to re-grading of slopes, temporary drainage should be provided during construction.
- Revegetation should take place immediately after construction.
- Silt traps should be placed within drains to minimize the downstream transport of eroded soil; these should be regularly inspected and cleaned, particularly during the rainy season, to maintain their effectiveness.

4.2.1.9 Impaired Water Quality: Spills and Leaks of Hydrocarbon and Chemicals

Another concern for water quality during site preparation and the construction phase relates to accidental spills of fuels and lubricants from vehicles and equipment and fuel storage areas (if required), as well as improper disposal of spent lubricants. Hydrocarbons and chemicals are harmful to aquatic animals and at higher concentrations can also result in the die-off of aquatic plants. Oily films on water surfaces are aesthetically unpleasing.

Mitigation measures which may be considered to address this concern are:

- Minimize spills of hydrocarbons by "good practice" construction techniques (such as use of appropriate containers, avoiding overfilling, etc.).
- Absorbent material should be kept on site to respond to spills, rather than "washing-down" the area.
- Vehicles and equipment should be continuously maintained to ensure no leakage.
- Appropriate pumps and nozzles should be used for refuelling.
- Conduct any fuelling and servicing at a designated site away from on-site drains and nearby watercourses.

- Fit fuel tanks (if required) with secondary containment (bund walls and impervious flooring).

- Disconnected hoses should be placed in containers after refuelling to prevent spills of residual fuel.

- Remediate any soil which may have become contaminated during the course of construction. This can be done on-site or removed from site for disposal at an approved location.

- Spent lubricants from equipment and vehicle maintenance should be collected, labelled, and securely stored and transported off-site for recycling or for disposal at an appropriate facility.

4.2.1.10 Impaired Water Quality: Fats, Oil and Grease

During the operation phase of a project, a similar concern arises from the generation of Fats, Oils and Greases (FOGs) as a result of kitchen facilities. The accumulation of these FOGs causes the build-up of scum along the lining of pipes, drains and within sewer systems. Subsequently, this often causes the clogging of drainpipes, drains and the overflow of sewers.

Mitigation measures which may be considered to address this concern are:

- Install grease traps and grease interceptors in proposed kitchen facilities.

- Routinely clean undersink grease traps and grease interceptors to ensure that accumulated grease does not allow for improper functioning.

- Use absorbent pads or other material to clean up spilled material around equipment, containers or dumpsters.

4.2.1.11 Impaired Water Quality: Improperly Treated Sewage

This concern arises from improper storage or disposal of faecal matter during construction, as this can result in the contamination of on-site or adjacent watercourses. The presence of faecal matter can reduce water quality by increasing the quantities of faecal coliform bacteria within watercourses. This can lead to an increase in pathogenic diseases (among downstream users), as well as a reduction in dissolved oxygen levels (enough to kill fish and other aquatic life). This concern can be effectively by ensuring that the contractor(s) either install portable toilets for use by their workers or use existing toilets which are connected to a central sewerage system or to adequately-sized septic tanks or soakaways. If portable toilets are used, they must be removed from site for emptying at an approved facility.

4.2.1.12 Impaired Surface Water: Spillage of Paints and Solvents

During construction, paint and paint wastes (including solvents, rags, paint chips/dust, paint containers, solvent containers, etc.) may be used, and spills of these materials can be transported beyond the limits of the project site. Due to their chemical composition, paint and paint wastes can be toxic to aquatic life if released into the environment. Mitigation measures which may be considered to address this concern are:

- Bring to a project site only the amount of paint required for the job.
- Keep all paint products and wastes away from drainage courses and highly trafficked sections of a site.
- Never clean brushes or rinse paint containers into drainage that leads to surface water.
- Use drip pans and tarp to collect any spilt paint and/or solvents.
- Sawdust or other such absorbent material should be added to unused paint (oil based and water based) and left to dry prior to disposal.

4.2.1.13 Impaired Water Quality: Concrete Washings

Concrete washings arise mainly from the rinsing of concrete trucks after they have dispensed their load at a site. The chemical content of cement and concrete slurry - especially lime, can be lethal to fish, insects and plants. Concrete washings can have a high pH (12 – 13) and so causes alkali burns. This high pH also renders dilution of concrete washings impractical, and a single bucket of concrete washings could result in a fish kill.

Mitigation measures which may be considered to address this concern are:

- Prohibit the discharge of concrete washings into adjacent drains or nearby watercourses.
- Establish a well-identified pit on site into which concrete washings will be allowed to enter. This pit should be lined with plastic to avoid potential groundwater contamination. After evaporation of the water, the hardened material should be regularly removed and sent for disposal at an approved landfill.
- Wash all tools and equipment that came into contact with concrete or cement and ensure that the wash water flows into the pit. They can also be washed in a designated area where the wash water can similarly be allowed to evaporate, and the hardened material sent for disposal at an approved landfill.

4.2.1.14 Soil Contamination

During the construction phase of a development, there is the potential for soil contamination from hydrocarbon spills and leaks that may arise from leaking or faulty construction equipment, refuelling and maintenance activities, leaks from stored hydrocarbons and spills of sewage. Where the level of soil contamination is relatively high, exposure to such soil can be injurious to plants, animals and human beings. The mitigation measures listed in Sections 4.2.1.9 and 4.2.1.11, above, are also applicable here.

4.2.1.15 Improper Disposal of Solid Waste

The following solid wastes are likely to be generated during construction:

- Unused Sand and Gravel,
- Concrete Fragments,
- Other unused Building Materials (steel, glass, cladding panels, roofing materials, etc),
- Packaging (wood, plastic, paper), and
- Domestic Garbage.

Accumulation of such solid waste on the site can lead to blocked drains and adversely affect aesthetics. This concern can be mitigated by requiring the contractor(s) to prepare and implement a Waste Management Plan, which would require removal of such waste to an approved disposal facility (landfill) at regular intervals. Solid waste generated during the operation of the facility should be similarly disposed.

4.2.2 Human Environment

4.2.2.1 Land Acquisition

If land is to be acquired for any project under this programme, a Land Acquisition Plan must be prepared and implemented to ensure that there is timely and adequate compensation in accordance with applicable laws.

4.2.2.2 Resettlement

If persons are to be temporarily or permanently relocated as a result of any project under this programme, a Resettlement Plan must be prepared and implemented. That plan may consider:

- Providing alternative accommodation for the persons to be relocated, or

- Paying compensation so that the affected persons may arrange for their own relocation.

Further compensation may be necessary if there is a loss of earning power at the new location.

4.2.2.1 Population/Demographic Movement

This refers to changes in the size and composition of the population in the project area related to the project; for example, inward or outward migration or an influx of workers related to the project as a result of potential economic opportunities which are created. These impacts tend to be associated with very large project, and so are considered unlikely on projects in this programme.

4.2.2.2 Economic Impacts

During project construction or operation there may be economic impacts that affect the host populations; for example, impacts on local businesses, competition for employment or impacts on the ability to sustain livelihood (especially when these impacts disproportionately affect women or vulnerable groups). To manage these impacts, the design of the project must include measures to identify when these impacts are likely to arise and recommend measures to promote fairness.

4.2.2.3 Traffic Congestion

Traffic congestion concerns arise during the construction phase, due to the transport of large loads of equipment and material to the site. This concern may extend into the operation phase, if there is a permanent increase in traffic serving the site. This concern would best be addressed by preparing and implementing a Traffic Management Plan in consultation with the Trinidad and Tobago Police Service.

4.2.2.4 Road Safety

Road safety concerns arise from project-related vehicles using public roads, particularly trucks transporting equipment and material during the construction phase. The danger to members of the public relates to road accidents. The following measures can be implemented by the contractor(s) to minimize the risk to the travelling public due to heavy equipment accessing a site during construction:

- Comply with the Vehicles and Road Traffic Act.
- Prepare and implement a Traffic Management Plan for the construction works in consultation with the Police Service in the affected areas.
- Train drivers of the haulage vehicles in Defensive Driving.
- Notify the travelling public in advance of the start of construction and keep them updated with respect to the movement and transportation of heavy equipment, machinery and materials.
- Schedule transport of material and equipment for off-peak hours, to the extent practical.

- Provide designated areas for off-loading material so as not to affect other users. In addition, designate an area for the parking of construction vehicles and storage of construction equipment.

4.2.2.5 Increased Utility Demand

During the construction and operation phases on any project under this programme, there may be an increase in demand for utilities (electricity, water supply, etc). It is important to verify with the utility companies to ensure that adequate additional supplies are available, so as to avoid overdemand which would affect others in the project vicinity. Consultation with the utility companies should be part of the responsibility of the design Architects and Engineers.

4.2.2.6 Increased Demand for Services

During the construction and operation phases on any project under this programme, there may be an increase in demand for services (police service, fire service, health services and waste disposal services). It is important to verify that this increased demand can be adequately met, so as to avoid adverse effects on others in the project vicinity. Consultation with the service providers should be part of the responsibility of the design Architects and Engineers. Where necessary, the facility may be required to supplement the national services, for example by providing on-site fire fighting equipment and first aid facilities.

4.2.2.7 Public Health and Safety

This concern arises if members of the general public gain unauthorised access to the construction site, exposing them to hazards such as open trenches, heavy equipment and machines, movement of heavy vehicles etc. Protection against injury or fatality would include:

- Use 24-hour security officers or dogs to prevent the unauthorized entry of persons after working hours.

- Fencing areas and strategically place safety warning signs near construction works to inform the public of prohibited activities. These signs should include both printed words and international symbols.

- Install adequate signage, guardrails and warning tape to caution members of the public, particularly children, from wandering into working areas during the construction period.

- Publish notices in the media to alert the public of the proposed construction works. This should be done at least two weeks prior to the start of construction works.

- Leave potentially hazardous areas within and adjacent to the site in a safe condition (e.g.: securing all materials and equipment, fencing off or preventing entry into excavations or trenches).

5 MANAGEMENT PLANS

As noted in Section 2.2.1.1, it is prudent to prepare an Environmental and Social Management Plan (ESMP) for all projects under this programme. In addition, a number of other management plans may be recommended in the ESA, and/or the ESMP. This chapter describes the contents of ESMPs, and then introduces several other types of plans which may be required for particular projects on this programme.

5.1 Environmental and Social Management Plans

It is considered prudent to prepare an Environmental and Social Management Plan (ESMP) for all categories of projects, but the level of detail will depend on the project category:

- Category A projects will require the most detailed ESMPs;
- ESMPs for Category B projects will be less detailed; and
- Category C projects will require only a simple listing of safeguard and monitoring requirements.

Each ESMP prepared on this programme will include the following:

i. Description of the likely Organization Structure for implementing the Project(s);

ii. Discussion of responsibilities for and timing for Managing Environmental and Social Aspects of the Project(s);

iii. Identification of Verification Methods; and

iv. Reporting Requirements and Response Mechanisms.

These items will each be described in the sub-sections below.

5.1.1 Organization Structure

As any project progresses, a number of agencies and organizations will have responsibilities for different aspects of planning and execution. This will include:

- The Project Proponent (the Tobago House of Assembly, a Ministry, a State Agency or a Company,
- Various Regulatory Agencies,
- Contractors, etc.

Each ESMP will provide an understanding of the various agencies/organizations which will be involved on the project, and their inter-relationships.

5.1.2 Managing Environmental and Social Aspects

For each project, a number of mitigation measures will have been identified to manage environmental and social aspects of each project; some at the planning/design stage of the project, some during construction/implementation, and others during the operation of the facility. The ESMPs will identify which agency/organization will be responsible for implementing each measure, the timing of the measure, and specialized training and/or equipment which will be required (if applicable). An example of a procedure for managing a particular impact is shown in Table 5-1.

TABLE-1: EXAMPLE OF A PROCEDURE FOR MANAGING A PARTICULAR IMPACT

A.5.2.1.1	**POTENTIAL IMPACT**	**Impaired Air Quality**
MITIGATION MEASURES		< Cover waste materials on all transport vehicles moving materials away from the site to minimize dust emissions. < Properly service all vehicles and equipment to ensure that there are no visible sooty emissions. < Defective vehicles should be taken out to service and should not be permitted to operate until they are repaired. < Require the Contractor to prepare and implement a Traffic Management Plan prior to the start-up of any works, to reduce congestion along Charlotte and George Streets.
ACTION BY		< The Construction Manager to send vehicles and equipment for maintenance. < Construction Supervisors and Contractor's HSE Manager to implement all other mitigation measures.
TIMING		Throughout the construction phase
SPECIALIZED EQUIPMENT OR MATERIAL		< Tarpaulins to cover truck trays in transit, firmly fixed to the tray.
HSE COMPETENCE AND TRAINING		HSE Manager must have a Bachelor's Degree in Health, Safety and Environmental Management, and at least five years experience in this field. HSE Inspectors must be trained for work of this kind, and must have at least two years experience in inspections of this kind.
MONITORING / VERIFICATION		
HOW / BY WHOM/, WHAT / WHERE/, FREQUENCY		▸ The Contractor's HSE Manager to conduct daily inspections to ensure that all dust control measures are implemented and maintain a complaint register. ▸ The Contractor's HSE Manager (in collaboration with the Construction Manager) to maintain a logbook of records of vehicle and equipment maintenance. ▸ The Contractor's HSE Manager to maintain complaints register relating to exhaust emissions from the passage of vehicles and equipment. ▸ The HSE Inspector to undertake daily inspections on the site and note any instances of vehicles and equipment emitting abnormal quantities and quality of exhaust. The HSE Inspector

A.5.2.1.1	POTENTIAL IMPACT	Impaired Air Quality
		will also review maintenance records for vehicles and equipment.
SPECIALIZED EQUIPMENT OR MATERIAL		
HSE COMPETENCE AND TRAINING		HSE Manager must have a bachelor's degree in Health, Safety and Environmental Management, and at least five years of experience in this field. HSE Inspectors must be trained for work of this kind and must have at least two years of experience in inspections of this kind.
RECORD KEEPING		HSE Manager to keep Registers of Complaints, Accidents and Incidents, Waste Manifests and Leaks and Spills. HSE Inspector to prepare and file Inspection Checklists.
REPORTING		HSE Manager to report all non-compliances to Construction Manager. Ministry of Housing and Urban Development to report specific incidents and non-compliances to the Environmental Management Authority, as set out in the Certificate of Environmental Clearance.

5.1.3 Verification

Verification of Mitigation Measures is twofold:

- Verification that the measure has been implemented, and at the appropriate time; and
- Verification that the measure is achieving its objectives.

The first aspect is a management function, while the second normally involves some sort of monitoring (observation or with instruments). The ESMPs will assign responsibilities for both aspects of verification from among the various agencies/organizations identified in Section 5.1.1.

5.1.4 Reporting Requirements and Response Mechanisms

Finally, each ESMP will set up a reporting system to ensure that the results of the verification exercises reach the necessary parties; including Managers of the Project(s), Regulatory Agencies, the IDB, etc. In parallel with the reporting requirements, the ESMPs will set up procedures and responsibilities to be followed in the event that it is found that mitigation measures are not achieving the required levels of control of adverse impacts, or that un-anticipated adverse impacts have come to light.

5.2 Other Management Plans

This sub-section introduces the following types of management plans which may be stipulated for particular projects in this programme:

- Resettlement Plans,
- Other Compensation Plans,
- Emergency Response Plans,
- Traffic Management Plans, and
- Waste Management Plans.

5.2.1 Resettlement Plans

On projects in this programme, relocation plans may be required for temporary loss of access to places of work or (less frequently) loss of residences). Planning for such relocation would require the following information-collection:

i. Verification that relocation necessary; that is, there are no practical methods of avoiding it.

ii. Determination whether relocation must be permanent, or whether there can be temporary relocation with return to the site after, say, construction.

iii. Characteristics of the affected population vis-à-vis numbers, legal documentation of tenure, economic status, gender distribution, whether they include indigenous people, and whether they include socially disadvantaged groups.

iv. Determination whether there exist institutions or free market forces that can cater to the provision of replacement workplaces or homes.

v. If affected persons are expected to make their own arrangements for relocation, replacement costs for the properties to be relocated; whether the relocation is permanent or temporary.

vi. In addition to property costs, direct relocation costs and other bona fide costs associated with the move.

Items v and vi will be used to determine levels of compensation. Throughout the planning process for relocation, there must be meaningful consultation with affected parties; ideally leading to agreement on the approach to property relocation and compensation.

5.2.2 Other Compensation Plans

Resettlement is not the only factor which may lead to the need for compensation on projects in this programme. Neighbouring businesses may be inconvenienced by construction work, for example, to the extent that they suffer financial losses. Similarly, aged or infirm persons may require additional assistance getting to medical facilities if there are protracted periods of traffic congestion or impeded access. Planning to address such impacts would require the following information-collection:

i. Identification of the types of impacts / inconveniences that can be experienced which may require compensation.

ii. Recommendation of mitigation measures that can be implemented to minimize, or where possible eliminate, these impacts or inconveniences. As with relocation, the primary objective should be to reduce the impact to an acceptable level rather than to compensate for it.

iii. Characteristics of the affected population vis-à-vis numbers, legal documentation of tenure, economic status, gender distribution, whether they include indigenous people, and whether they include socially disadvantaged groups.

iv. Determination of bona fide financial losses that may result from impacts or inconveniences that cannot be successfully mitigated.

Throughout the planning for other compensation, there must be meaningful consultation with affected parties; ideally leading to agreement on the approach to property relocation and compensation.

5.2.3 Emergency Response Plans

An Emergency Response Plan (ERP) describes the approach and procedures to be followed by the project proponent and the contractor(s) when responding to emergencies that may arise from the project. The objectives of the ERP are:

- to Safeguard Life and Property,
- to Maximize the Use of Available Resources,
- to Minimize the Effects of Emergencies, and
- to Promote Self-efficiency and Encourage Personal Preparedness for emergency response.

EMPs on this programme will be prepared on a project-specific basis, jointly by the project proponent and the prime contractor in consultation with the Police Service and the Fire Service.

ERPs typically divide emergencies into three levels:

Level 1: Small incidents which can be brought under control using on-site resources;

Level 2: Larger incidents which have the potential to spread to neighbouring properties or public areas, and which require the resources of those neighbours to be brought under control; and

Level 3: Even larger incidents which require the intervention of national emergency response services (Police Service, Fire Service, Ambulance Service, etc) to be brought under control.

Each ERP will provide the following information:

i. A Listing of the types of Emergencies, including Natural Disasters, covered by the Plan.

ii. Personnel to assume the roles of Incident Commander and Emergency Responder, and the training that such personnel must receive in advance.

iii. Emergency Response Equipment to be kept on site, and responsibility for verifying that this equipment is functional at all times.

iv. Communication Requirements and Channels in the event of an Emergency.

v. Response Procedures in the event of an Emergency.

5.2.4 Traffic Management Plans

Traffic Management Plans (TMPs) are intended to minimize inconvenience due to traffic congestion and to ensure that project personnel and other road users are not put at undue risk as a result of the project. They require information on the existing traffic in the project vicinity (volumes, peak hours, existing pinch points, etc); as well as an understanding of additional traffic that would be generated by the project during the construction and operation phases (types and sizes of vehicles, numbers of vehicles and trips, loading and off-loading requirements, etc). By their nature, it is necessary that TMPs on this programme will be prepared on a project-specific basis, jointly by the project proponent and the prime contractor.

TMPs for projects in this programme will always be prepared in consultation with the Trinidad and Tobago Police Service. Key items to be addressed in each TMP are listed and described in Table 5-2.

TABLE 5-2: KEY TOPICS IN A TRAFFIC MANAGEMENT PLAN

TOPIC	DESCRIPTION
Scope of the Plan	< Project to which it applies, < Geographical Extent, < When Applicable (construction phase, operation phase or both).
Responsibility for Implementation	Based on an Organization Chart, identify responsibilities to be assumed by persons in different posts.
Qualifications / Training	If persons require special qualifications or training to operate under the plan, thus must be stated. For example, it is common practice to stipulate that all drivers of project vehicles must have received training in Defensive Driving.
Traffic Control Devices	These will include signs, barricades, delineators, flashing arrow boards, changeable message signs, cones, etc. The TMP must indicate where they are to be placed, and over what period.
Traffic Control Personnel	These will include Police Officers, Police Outriders, Flagmen (contractor's workmen), etc. The TMP must indicate where they are to be deployed, what vehicles they are to accompany, and over what period.
Speed Controls	< Indicate roadways where temporary speed limits will be established, and over what period. < Establish a speed limit within the site.
Verification	Name the person or post responsible for verifying that measures set out in the TMP are being effectively implemented.
Response to Incidents	Should a road or traffic incident occur, the TMP must indicate: < Incident Commander, < Response Personnel, < External Resources to be called, < Available Equipment, etc.
Reporting of Incidents	After a road or traffic incident has been brought under control, the TMP must indicate: < Person responsible for preparing Incident Report, < Time Frame for Report Preparation, < To whom should copies of this Report be circulated, < Person responsible for correcting any deficiencies in the TMP that were revealed during the Incident.
Periodic Review and Updating the TMP	TMPs intended to remain effective for more than 2 years must be periodically reviewed and updated even if no deficiencies have been identified in the interim. The TMP must indicate: < Time period after which the TMP must be reviewed and updated, < Committee or person responsible for reviewing and updating the TMP, < Time Frame for Review and Updating, < Committee or person who will approve the updated TMP, < Method of withdrawing the current version of the TMP and replacing it with the new TMP.

5.2.5 Waste Management Plans

Several projects in this programme, particularly those which involve construction work, will produce solid waste which must be safely managed and disposed of. In addition to domestic-type waste, construction works will produce packaging waste, off-cuts of reinforcing steel and timber, surplus construction materials and rubble. If there is demolition of existing structures or parts of structures, the volumes of rubble will be significantly higher, and there may also be hazardous waste such as PCB-containing transformers, Asbestos-containing material and Mercury-containing electricity fixtures. All of these materials must be collected and removed from the site so as to protect human health and the environment from the effects of inappropriate releases.

In managing waste, efforts should be made to reduce the volume which is produced. An example of this is planning of judicious cutting of reinforcing steel bars to minimize the offcuts which go to waste. After reduction efforts, a hierarchy of methods for treating with the waste is usually adopted:

Reuse (First Priority): Material is collected for beneficial reuse on the same site or elsewhere, with no significant treatment. For example, topsoil or clean soil which is excavated at the site may be taken to another site where it is needed. Similarly, crates and bags in which material was brought to site may be used elsewhere.

Recycle (Second Priority): This involves the collection and offsite reprocessing of materials such as metals (steel, copper, aluminium, etc), paper and cardboard, glass and some plastics. There are operations in Trinidad and Tobago which will receive each of these types of material for recycling (usually shipped abroad).

Treat and Dispose (Third Priority): Waste which cannot be reused or recycled is either taken directly to a landfill for disposal (domestic type waste), or taken for treatment prior to disposal (hazardous waste). Methods of treatment and disposal of hazardous waste include bioremediation of hydrocarbons, “fixing” of metals and incineration of flammable wastes; all of which are available at facilities in Trinidad and Tobago which are approved by the EMA. Where facilities for other types of treatment are not available locally, wastes can be shipped abroad for treatment but this process requires approval under the Basel Convention on the Transboundary Movement of Hazardous Waste.

On this programme, WMPs will be prepared for projects where the generation of significant volumes of waste are expected, and specifically when hazardous waste is expected. Key topics to be addressed in a WMP are listed and discussed in Table 5-3.

TABLE 5-3: KEY TOPICS IN A WASTE MANAGEMENT PLAN

TOPIC	DESCRIPTION
Scope of the Plan	< Project to which it applies, < Categories of Waste covered (hazardous, non-hazardous or both), < When Applicable (construction phase, operation phase or both).
Waste Inventory	A general listing of Hazardous (flammable, corrosive / corrodible, reactive / explosive and toxic) and Non-hazardous Wastes by type and volume.
Responsibility for Implementation	Based on an Organization Chart, identify responsibilities to be assumed by persons in different posts.
Qualifications / Training	If persons require special qualifications or training to operate parts of the WMP, thus must be stated. For example, training is generally required prior to the handling of hazardous wastes.
Waste Reduction	Listing of methods which can be used to reduce the generation of specific types of waste.
Waste Reuse	Identification of the types of waste which are amenable to reuse, and guidance on: < Ways each material can be reused (onsite or offsite), < Handling (including specialized equipment and personal protective equipment), < Storage (types of bins or stockpiles to be used), and < Transport (types of vehicles to be used to transport this material off-site).
Waste Recycling	Identification of the types of waste which are amenable to recycling, and guidance on: < Selection of approved firms which will accept each type of recyclable waste, < Handling (including specialized equipment and personal protective equipment), < Storage (types of bins or stockpiles to be used), and < Transport (types of vehicles to be used to transport this material off-site).
Hazardous Waste Treatment and Disposal	Identification of the types of hazardous waste which require treatment prior to disposal, and guidance on: < Selection of approved firms which will accept each type of hazardous waste for treatment and disposal, < Handling (including specialized equipment and personal protective equipment), < Storage (types of secure storage to be used), and < Transport (types of secure vehicles to be used to transport this material off-site, and spill response procedures).

TOPIC	DESCRIPTION
Non-Hazardous Waste Disposal	< Estimated volume of non-hazardous waste generation, and maximum volume to be stored on site at any time. < Handling (including equipment and personal protective equipment), < Storage (types of bins to be used), < Transport (types of vehicles to be used to transport this material off-site, and frequency of transport), and < Landfill to which this waste will be taken.
Manifest System	This is a system for documenting the volume of waste of each type which is taken from the site, and verification that each load has been received by the approved party and reused, recycled, treated and disposed accordingly.
Verification	Name the person or post responsible for verifying that measures set out in the WMP are being effectively implemented.
Periodic Review and Updating the WMP	TMPs which are intended to remain effective for more than 2 years must be periodically reviewed and updated even if no deficiencies have been identified in the interim. The WMP must indicate: < Time period after which the WMP must be reviewed and updated, < Committee or person responsible for reviewing and updating the WMP, < Time Frame for Review and Updating, < Committee or person who will approve the updated WMP, < Method of withdrawing the current version of the TMP and replacing it with the new WMP.