

COOPERATIVE REPUBLIC OF GUYANA
Secondary Education Improvement Project
Project ID Number: P147924
THE WORLD BANK

ENVIRONMENTAL ASSESSMENT AND
MANAGEMENT PLAN (EAMP)

March 31, 2014



Executive Summary

The Ministry of Education (MoE) has set the attainment of quality Universal Secondary Education (USE) as a major objective in its current Education Strategic Plan (ESP).

This Environmental Assessment and Management Plan (EAMP) has been developed for the civil works proposed as part of the Government of Guyana's Secondary Education Improvement Project, to be financed by the World Bank. The proposed projects are the construction of 4 new Government Secondary Schools (GSS) which are listed below:

- 1. La Parfaite Harmony GSS. In Region 3, a 1000 student school (Grade A+)**
- 2. Yarrakabra in the Upper East Bank. In Region 4, a 800-student school (Grade A+)**
- 3. Good Hope/Lusignan GSS. In Region 4, a 800 student school (Grade A).**

The Ministry of Education (MoE) will be the implementing agency responsible for the Project. Coordination, technical and fiduciary aspects of the Project would be overseen by a Project Coordinator (PC), to be located in the MoE Planning Department, Buildings Unit, who would report to the Permanent Secretary of the MoE.

The proposed project in its current configuration will trigger the World Bank's Operational Policy: OP/BP 4.01: Environmental Assessment. The objective of this policy is to ensure that Bank-financed projects are environmentally sound and sustainable, and that decision-making is improved through appropriate analysis of actions and of their likely environmental impacts. This policy is triggered if a project is likely to have potential (adverse) environmental risks and impacts on its area of influence. OP 4.01 covers impacts on the natural environment (air, water and land); human health and safety; physical cultural resources; and trans-boundary and global environment concerns. The proposed project is categorized as Category B: Partial Assessment - assigned to projects that are likely to have impacts that are site-specific and limited in number, and for which mitigation measures are readily identifiable.

The Project Technical Team (PTT) will be responsible for the environmental supervision of the implementation of project components and the Environmental Assessment and Management Plan. The PTT will have access through the World Bank to an Environmental Specialist (ES) who will support the PTT in conforming to the requirements of the EAMP and in assisting with development of the PTT's technical capacity to address the environmental issues associated with the project.

The main environmental impacts expected from the Project would be those connected to the proposed construction activities planned under Component 1 of the Project.

The construction works proposed will generate environmental and social impacts common to this type of civil work: dust, noise and waste from the construction site, traffic congestion and the risk of accidents. It is intended that these environmental and social impacts will be mitigated through the implementation of this EAMP. Additionally, health and safety measures will be recommended during the construction by way of:

- the MoE's HSSE (Health Safety Security & Environment) Policy
- the MoE's HSSE Management Plan
- the Project HSSE Management Plan (to be developed by the project's supervising consultants)
- the HSSE Management Plans of the selected contractors
- the Site Waste Management Plans of the selected contractors

The list of potential environmental and social impacts will be further informed and updated as part of the proposed consultation with internal (GoG, MoE) and external (Community) stakeholders during the pre-contract and construction phases.

The Environmental Assessment process will include public information and communication strategies with beneficiary students and families, as well as other stakeholders in the project area. A grievance mechanism is also included as part of the Environmental Assessment process to hear concerns, and address concerns as appropriate in a timely and transparent manner.

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Introduction

This Environmental Assessment and Management Plan (EAMP) is the applicable safeguard instrument and its main objectives are:

- To reduce environmental and social impacts due to the Project activities and components
- To minimize risk to the community during the construction works
- To ensure Health, Safety, Security & Environmental (HSSE) measures are implemented throughout project development and construction activities
- To increase environmental management capacity at the MoE
- To ensure internal and external stakeholder participation in the project development and execution.

The EAMP consist of mitigation and prevention measures and programs considered necessary for implementation by the Moe, the PTT, consultants, contractors and suppliers to ensure the proper environmental management of the overall project. The Environmental Specialist of the Project (ES) will be available to the PTT to assist in developing the procedures that will verify compliance of these measures included in the EAMP, Guyanese legal requirements and the World Bank Safeguards Policies.

In addition, spot inspections will be performed by the ES without previous notice to contractors. The ES will revise the EAMP as deemed necessary in the light of any changes in the dynamics of environmental processes of the Project and the World Bank.

PURPOSE OF THE PROJECT

The purpose of the Secondary Education Improvement Project is to assist the Government of Guyana in its plan to make secondary school education available to the vast majority of the accessible population and is a major objective its 2008-2013 Education Strategic Plan.

The purpose of this EAMP is to assess and mitigate potential negative environmental impacts from the Guyana Secondary Education Improvement Project.

DESCRIPTION OF THE PROJECT

The project scope and activities are divided into three components:

Component 1: Strengthen the capacity of secondary school mathematics teachers nationwide – This component includes three sub-components:

- (i) Teacher Training and Upgrading in Mathematics.
- (ii) Teacher Appraisal Instrument
- (iii) Technology – Assisted Learning in Mathematics.

Component 2:

Expansion of Secondary School Facilities – Two sub-components would be supported:

- (i) New School Construction
- (ii) New School Furnishing and Equipment.

Component 3:

Institutional Capacity Building and Project Management – Two sub-components would be supported:

- (i) Education Management Information System (EMIS).
- (ii) Project Management.

Only Component 2 (new school construction) will need to have mitigation measures addressed in this EAMP. Therefore this EAMP will focus primarily on the assessment and management activities to mitigate such effects as related to this Component.

Relevant Component Details

Component 2 - Expansion Secondary School Facilities

These new secondary schools will be constructed to accommodate a total of 2600 students with each school accommodating eight hundred to one thousand (800-1000) students each. Each GSS will be fully outfitted with furniture and laboratory equipment. When completed, they will be classed as Grade A+ secondary schools by the MOE.

The construction will include the following:

- Information Technology Laboratory
- Industrial Technology Department (Electrical, Mechanical and Wood Work)
- Agriculture Department
- Science Department
- Home Economics Department (Food & Nutrition, Clothing and Textile and Home Management)
- Library
- Sick Bay
- Guidance and Counseling Unit
- Classrooms
- Staff Room and Facilities
- Head Master's (HM) Office
- Deputy H.M Office
- Canteen
- Sanitary Facilities (Students & Staff)
- Assembly Area/All Weather Playing Area
- Playground

Ancillary Works

- Guard Huts
- Car Park and Cycle Shed
- Septic system
- Water trestle & Reservoirs
- Auditorium
- Boundary Fence
- Bridge(s)
- Internal and External Drainage System
- Sidewalks with signage
- Speed Bumps and Pedestrian Crossings
- Barriers and Bollards

Proposed Construction Works

The construction will be carried out by a general contractor under contract to the GoG. Once the contract has been signed and the contractor has been given possession of the site, the contractor will be legally responsible for the performance of the works in the manner required by the contract which will include this document as an appendix.

Site Areas

A total ground floor area (covered area) of approximately 32,000 square feet (2972.89 meter square) would be utilized for the construction of these schools.

Design

The proposed GSS will be designed by the selected Consultants, with all social and environmental considerations.

- *Administrative Block – this will accommodate the H. M office, Deputy H.M office, library, sick bay, guidance and counseling unit, I.T laboratory, staff roof and facilities, sanitary facilities (staff) and storage room.*
- *Teaching Blocks – approximately three (3) teaching blocks to accommodate 1000 students, science laboratories and home economics department.*
- *Technical Block – to accommodate Industrial Technology*
- *Sanitary block – two independent sanitary blocks (male and female students)*

Sub-structure

The sub-structure will be constructed using reinforced concrete for foundation in a strip and pad combination. The curb walls will be designed to prevent flooding with respect to each site.

Superstructure

The superstructure will be constructed using reinforced concrete for columns, beams, floor slabs, stairs and rails.

Cladding: Walls will be constructed using hollow concrete blocks

Roofing: Roofing will be done using timber members to form trusses and alu-zinc sheeting.

Materials

A combination of local and imported materials will be used during construction e.g. aggregates, steel, cement, white sand, timber, PVC, plywood, Alu-zinc sheeting, paint, glass, aluminum and ceramic tiles and fixtures.

Drainage

Both internal and external drains would have to be included as a major component of the design for this project. Internal surface water drains leading to external perimeter drains and then to primary channels to ensure effective drainage of the project area. Rainwater harvesting will be employed to reduce surface runoff and the project will incorporate hydraulic designs for the drainage network. Laboratory wastes will not be connected to the main drains, to avoid the unintentional discharge of potentially hazardous chemicals from the school grounds during operation.

Utilities

Utilities (water, electricity and telecommunication) exist at the proposed sites selected for the construction of this school. Therefore the respective utility providers (GWI, GT&T and GPL) will be notified by the MOE/PTT of the construction and agreements made for the provision of the required services.

Internet Access

All areas are currently in receipt of telephone service via the Guyana Telephone and Telegraph Company (GT&T) land line service, thus internet service can be accessed via the DSL broadband service offered by GT&T.

Special Provisions

Special provisions under this project will include:

- ✓ **Science Laboratories** – Physics, Chemistry and Biology
- ✓ **Industrial Technology** - (*Electrical, Mechanical and Wood Work*)
- ✓ **Disabilities Facilities** – *to accommodate the physically and mentally challenged persons (both students and teachers)*

Traffic Management Plan

The contractor will be responsible to formulate a traffic management plan in synchronous with his work schedule. The purpose of this plan is to maintain a smooth and safe flow of traffic henceforth. This traffic management plan must be in accordance with the local traffic regulations, thereby must be approved by the respective Police Traffic Department.

During the operation of the school the Ministry of Education Department in the locality will ensure that the school complies with all traffic regulations governing the location.

Proposed Project Locations

La Parfaite Harmonie Secondary School

This proposed project site is located in Parfaite Harmonie on the West Bank of the Demerara River, Region # 3 (Essequibo Islands – West Demerara). This community is a relatively new housing development (or Scheme) through the Central Housing and Planning Authority (CHPA) of the Ministry of Housing and Water.

Due to the large size of this proposed new housing development, the MOE has recognized the importance to construct a new secondary school in the vicinity.

Site Topography

The site/location is generally flat with mostly clayey soils and light vegetation.

Accessibility and Traffic

The project site is easily accessible via all weather roads from two points: through the La Grange Independence Street road and the Canal Number 1 access road. It should be noted that these roads were not designed to cater for the specific needs of the Scheme since they were all existing roads serving the older communities. The overall distance to the main road is just less than one mile. The traffic volume on the access road to the site is considered light at present.

Drainage

The site is presently surrounded by an earthen perimeter drain. The perimeter drains form a network that then discharges into the primary drainage canals which flows to the outfall of the Demerara River via sluice gates.

Current Site Use

The proposed site is presently reserved the CHPA's housing master plan for educational development.

Previous Site Use

These areas were previously used for agriculture (sugar cultivation) and cattle rearing.

Surroundings

The surrounding lands are mainly used for residential development. La Parfaite Harmonie is one of the larger housing schemes to be established by the Central Housing and Planning Authority (CH&PA) within the past Ten (10) years. While the Scheme is generically referred to as La Parfaite Harmonie, in actual fact the development area comprises several plantations, namely: (1) Schoonord, (2) La Parfaite Harmonie, (3) Westminister, (4) Onderneeming, (5) Recht-Door-Zee and (6) Lust-En-Rust

Yarrakabra in the Upper East Bank Secondary School

This proposed project site is located on the Eastern Bank of the Demerara River in the vicinity of Yarrowkabra, Region #4. (Demerara – Mahaica). This proposed school will serve the communities of Soesdyke, Kuru Kururu, Timehri, Hararuni, Yarrowkabra, Swan, among several other communities.

Site Topography

The site/location is relatively flat with slight sloping hills that comprises of mostly sandy soils and light vegetation.

Current Site Use

The proposed site is presently surrounded by the Primary School and the Community Center.

Previous Site Use

This site might have been used previously for cash crop farming.

Surroundings

The site is surrounded by the residential community with Governmental Facilities.

Accessibility and Traffic

The site is accessible by vehicle via Sand-Clay roads.

The traffic intensity along the access and residential roads is considered very light. However, the traffic intensity along the Linden-Soesdyke Highway is considered high.

Good Hope/Lusignan Secondary School

This proposed project site is located in Good Hope, East Coast of Demerara, Region # 4 (Demerara – Mahaica). This community is a relatively new housing development through the Ministry of Housing and Water. This proposed school will capture students from Lusignan, Paradise, Annandale, Enterprise, Enmore and Enmore-Hope Primary Schools; it will also reduce overcrowding at the Buxton Secondary School.

Site Topography

The site/location is generally flat with mostly clayey soils and light vegetation.

Current Site Use

The proposed site is presently not in use, since same was identified by the housing master plan for educational development. However, a small portion of the plot is currently occupied by the Good Hope Nursery School. The surrounding lands are mainly for residential proposes.

Previous Site Use

These areas were used in the past for mainly agriculture development.

Surroundings

The surrounding lands are mainly used for residential development.

Accessibility and Traffic

The site is accessible by vehicle via all weather roads and a main access bridge across the main drainage canal. The traffic volume on the access road to the site is considered light at present.

The traffic intensity along the access and residential roads is considered light. However, the traffic intensity along the East Coast Demerara Highway is considered high.

LEGAL FRAMEWORK

THE WORLD BANK SAFEGUARDS POLICIES

During project preparation and in its current configuration, one Environmental Safeguard Policy will be applicable to the project, the World Bank's Environmental Assessment: OP/BP 4.01. The objective of this policy is to ensure that Bank-financed projects are environmentally sound and sustainable, and that decision-making is improved through appropriate analysis of actions and of their likely environmental impacts. This policy is triggered if a project is likely to have potential (adverse) environmental risks and impacts on its area of influence. OP 4.01 covers impacts on the natural environment (air, water and land); human health and safety; physical cultural resources; and trans-boundary and global environment concerns.

The Policy when triggered requires that an Environmental Assessment be conducted, at a level of detail commensurate with the projected negative impacts. For the Secondary Education Improvement Project, this EAMP document represents the appropriate level of analysis, and development of the corresponding mitigation measures, as determined by the World Bank Environmental Specialist and the project team. This EAMP follows Policy OP4.01 by providing a description of the project; basic information on existing environmental and social baseline conditions of the selected project sites; an assessment of the potential environmental and social effects likely to occur and generic mitigation measures to mitigate those impacts; specific environmental and social measures where applicable to address any site-specific problems; legal and institutional provisions; and, a grievance redress mechanism. In accordance with World Bank policy, the EAMP must be disclosed and consultation carried out to incorporate the concerns and views of stakeholders involved in the Project.

The only other World Bank Safeguard Policy triggered is OP 4.10, which covers effects on Indigenous Peoples. Given the project's intended intervention areas include those inhabited by indigenous groups, an Indigenous Peoples Plan (IPP) was prepared and associated consultations took place. The expected impacts of the project on indigenous communities are both positive and discrete; the main impact is expected to be improved learning of mathematics among indigenous youth, which should increase their secondary level completion rates and opportunities to continue on to higher education and/or succeed in the labor market. There is no school construction or rehabilitation planned in indigenous areas.

It should also be noted that no private land acquisition will occur under this Project, so World Bank Policy OP 4.12 on Involuntary Resettlement is not triggered. All schools will be constructed on existing Government land and the Government will provide proof of land ownership prior to project appraisal.

NATIONAL LAWS AND REGULATIONS

The Secondary Education Improvement Project implementation is also expected to comply with the Guyana national legal framework. Table 1 shows a preliminary list of the national environmental regulatory framework of Guyana that may be applicable in part of whole to this project. As the project is developed, we expect that the table will be updated to reflect any changes to the existing legislation, new legislation and the specificity of the projects which is to include by-laws and provisions made at a Regional level.

Table. The Guyana Environmental Legal Framework.

National Regulatory Framework
Environmental Protection Act, 1996
Environmental Protection (Air Quality) Regulations, 2000
Environmental Protection (Noise Management) Regulations, 2000
Environmental Protection (Water Quality) Regulations, 2000
Environmental Protection (Hazardous Waste Management) Regulations, 2000
Pesticides and Toxic Chemicals Control Act, 2000
Pesticides and Toxic Chemicals (Amendment) Regulations, 2007
Pesticides and Toxic Chemicals Control (Amendment) Act, 2007
Pesticides and Toxic Chemicals Regulation, 2004
Occupational Health and Safety Act
Food & Drug Act, 1971

The following information summarizes some of the environmental regulations of Guyana included in Table 1. However, it is recommended that the project personnel in charge of the environmental and social supervision of this Project and the contractors comply with this EAMP and to consult directly with the Environmental Protection Agency with regard to the applicable regulations, procedures and permits (<http://www.epaguyana.org>).

- **THE ENVIRONMENTAL PROTECTION ACT, 1996 (AS AMENDED BY THE ENVIRONMENTAL PROTECTION (AMENDMENT) ACT, 2005**

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

Section 68 of the Act provides for the elaboration of regulations to articulate specific areas of environmental management, and of relevance are the Regulations on hazardous waste management, water quality, air quality, noise management and environmental authorization which were established under the Environmental Protection Act in 2000. These pollution management regulations were developed to regulate and control the activities of

developmental projects during construction and operation. Standards establishing the permissible parameters under these regulations are being developed.¹

- **ENVIRONMENTAL PROTECTION (AIR QUALITY) REGULATIONS 2000**

These Regulations were formulated to protect the air quality and provide the necessary infrastructure for controlling the amount of contaminants by stipulating specific allowable levels of emissions that are released into the atmosphere at any given time. Parameters are specified for several contaminants including smoke, solid particles and carbon monoxide.

- **ENVIRONMENTAL PROTECTION (WATER QUALITY) REGULATIONS 2000**

These Regulations were developed to manage the discharge of waste matter into inland and coastal water bodies. They provide for minimizing the contamination of potential and existing water supply sources.

- **ENVIRONMENTAL PROTECTION (NOISE MANAGEMENT) REGULATIONS 2000**

These regulations are concerned with the control and management of noise emissions. In practice, the EPA (Guyana) combines these requirements with the GNBS *Noise Standard*.

- **INTERIM GUIDELINES FOR NOISE EMISSION INTO THE ENVIRONMENT, 2009**

Developed to assist the Environmental Protection Agency in the enforcement of the Environmental Protection (Noise Management) Regulation 2000 and to reduce the level of noise emanating from commercial, residential, institutional, educational, industrial, construction, transportation and recreational activities. The EPA currently uses a previous Draft in its noise, environmental and operational permits.

- **ENVIRONMENTAL PROTECTION (HAZARDOUS WASTE MANAGEMENT) REGULATIONS, 2000**

These Regulations cover the management of waste² including chemical waste and cover industrial, commercial and any other activity that produces waste. Some of the key activities which are covered under the Regulations are generation, treatment and disposal³ of hazardous waste. The Regulation is read and construed as being in addition to, and not in contravention of the Pesticides and Toxic Chemicals Control Act 2000 (No. 13 of 2000).

¹ For example the *Interim Guidelines for Noise Emission into the Environment, 2009*

² Hazardous waste is any “waste or combination of wastes which, because of its quantity, concentration or physical, chemical or infectious characteristics, may pose a substantial hazard to human health, and belong to any category contained in Schedules I, unless they do not contain any of the characteristics contained in Schedule II and includes waste that is hazardous industrial waste, acute hazardous waste chemical, hazardous waste chemical, severely toxic waste, flammable waste, corrosive waste, reactive waste, radioactive waste, clinical waste, leachate toxic waste or polychlorinated biphenyl waste.

³ Under the Regulations, disposal is defined as “the discharge, deposit, injection, dumping or placing of any hazardous waste into or on any land so that it may enter the environment, be emitted into the air or discharged into any waters, including groundwater”

Based on the definition all chemical wastes including persistent organic pollutants (POPs) are covered under these Regulations for the purposes of management.

- **THE ENVIRONMENTAL PROTECTION (AUTHORIZATIONS) REGULATIONS, 2000**

These Regulations are concerned with the guidelines for granting authorization for projects that can have medium to high environmental impacts in Guyana. Guidelines and procedures are specified in its contents and a fee structure in its schedule.

- **PESTICIDES AND TOXIC CHEMICALS CONTROL ACT, 2000 AND ITS ASSOCIATED REGULATIONS**

- **Pesticides and Toxic Chemicals Control Act, 2000**

The management of chemicals in Guyana is governed by the Pesticides and Toxic Chemicals Control Act 2000 (No.13 of 2000). This Act provides for the establishment of the Pesticides and Toxic Chemicals Control Board, which comprise representatives from the Ministry of Agriculture, Ministry of Health, Environmental Protection Agency and other representatives from the private sector and non-governmental organization.

- **Pesticides and Toxic Chemicals (Amendment) Act 2007 (No. 13 of 2007)**

This Amendment provides for the regulating of exports and accession to international Agreements governing pesticides and toxic chemicals⁴ management by providing for the adoption of Agreements containing legally binding instruments.

- **Pesticides and Toxic Chemicals Regulations 2004 (No. 8 of 2004)**

These Regulations were established under Section 32 of the Act and provide the instruments and requirements for the implementation of the Act in the following areas:

- (a) Pesticide and Toxic Chemical Registration and Classification Procedure;
- (b) Pesticide labeling;
- (c) Certification of Pesticide Applicators;
- (d) Pesticide Manufacturing and Distribution Certificate;
- (e) Experimental Pesticides and Toxic Chemicals Studies;
- (f) Transportation, Storage, Disposal and Recall of Pesticides and Toxic Chemicals;
- (g) Ministerial Emergency Registration and ExEMPTions;
- (h) Pesticide Residues; and
- (i) Pesticide Worker Protection.

Pesticides are classified as Prohibited, Restricted or General Use. A prohibited pesticide is not allowed for use and is classified based on toxicity, use pattern under local conditions and the respective decisions of the following international agencies:

- (a) United Nations Food and Agricultural Organization (FAO);

- (b) Rotterdam Convention;
- (c) Stockholm Convention;
- (d) United Nations Environmental Programme; and
- (e) World Health Organization.

A restricted pesticide is permitted for use only on certain stated crops.

- **Pesticides and Toxic Chemicals (Amendment) Regulation 2007 (No. 8 of 2007)**

This Amendment provides the instruments for regulating exports of pesticides and toxic chemicals. It covers prohibited, restricted and registered products along with information on monthly import of any chemical into Guyana, vending premises, legislations, reports, and news pertaining to current and ongoing developments. Other methods of dissemination of information include the publication of a Quarterly Newsletter, and the use of the print and television Media for public and general notices.

- **OCCUPATIONAL SAFETY AND HEALTH ACT 1997 (NO. 32 OF 1997)**

The provisions for registration and regulation of industrial establishments and for occupational safety and health of persons at work are enshrined in the Occupational Safety and Health Act 1997. The Act covers hazardous chemicals at workplaces which can endanger the health of workers, and allows for the limited or restricted use of such chemicals. It also covers the introduction of new chemicals in the workplace. Implementation of this Act is the responsibility of the Occupational Safety and Health Department of the Ministry of Labour.

ENVIRONMENTAL PERMITS AND REQUIREMENTS

The Environmental Protection Agency of Guyana (EPA) was created through the Environmental Protection Act, No 11 of 1996. The EPA web site indicates: “The Act mandates the Agency to oversee the effective management, conservation, protection and improvement of the environment. It also requires that the Agency takes the necessary measures to ensure the prevention and control of pollution, assessment of the impact of economic development on the environment and the sustainable use of natural resources.” The Minister of the Environment is the President of Guyana.

EPA is responsible to evaluate project development in the country and to classify each project according to the potential environmental and social impact. EPA is also responsible to undertake proper supervision and monitoring of the project environmental and social outcomes.

EPA is responsible to supervise compliance of several of the environmental regulations set up in the country such as the Environmental Protection Act (2000 updated in 2005), which aims to control and prevent noise, air, water, hazardous waste and soil contamination. These regulations as well as others indicated in the Section of Guyana Legal Framework

should be carefully reviewed by the Project Implementing Unit (PIU), the ES and future contractors of this project. The main environmental regulations applicable to the civil works planned by this project are:

- Environmental Protection Regulations, 2000, 2005
- Environmental Protection (Air Quality) Regulations, 2000
- Environmental Protection (Noise Management) Regulations, 2000
- Environmental Protection (Water Quality) Regulations, 2000
- Environmental Protection (Hazardous Waste Management) Regulations, 2000

The environmental permit process starts by filling out the Application Form “Environmental Authorization” which can be downloaded from the EPA website (<http://www.epaguyana.org>) and providing the information requested by EPA (Table 3). After the EIA approval, fees will be payable to the EPA following which the EPA will issue the environmental permit.

Although it is uncommon in Guyana that EAMPs are required for small civil works of the type to be undertaken for this proposed project, it is recommended that as soon as possible, the MoE and the PTT consult with the EPA as to extent of their requirements and the associated timelines, or confirm that an Environmental Permit is not needed. Where applicable this information must be included in any subsequent tender documentation. In the event that EPA does request an EIA or any other type of assessment for the proposed civil works or for any other activity related to this Project, the current EAMP can be presented to EPA with the necessary additional information that the agency might request. The PTT will at all times, consult with EPA and other national agencies in order to comply with the applicable regulatory and statutory requirements.

Environmental Information Required by EPA to Grant an Environmental Authorization.

Part III. Article 17. (1, 2). An application for an environmental authorization shall be made to the Agency pursuant to section 11, 19 or 21 of the Act. (Environmental Protection Act 1996).
(a) shall be completed in triplicate and shall be submitted to the Agency together with the fee as specified in the Schedule;
(b) shall be in respect of one project or facility;
(c) shall contain the following information:
(i) the company or corporate name, the names of directors if any, the name and position of the applicant, the name of the owner or occupier and exact location of the facility;
(ii) proof that the applicant either owns the facility or has a lease or other agreement with the landowner or occupier to enable the applicant to conduct the activity on the facility or has the legal right or ability to conduct the activity without the consent of the landowner or occupier;
(iii) topographic map showing the location of any existing or proposed intake and discharge structures and the location of any discharge;
(iv) a detailed description of the process or activity generating the discharge;
(v) existing or proposed effluent discharge rates;
(vi) map and description of the existing or proposed outfall locations;
(vii) a description of any substances discharged, their environmental impact, the sources of the substances, the method by which the substances will be discharged and the steps to be taken to reduce the amount of the substances discharged or to mitigate their impacts;
(viii) a summary of required environmental monitoring information gathered during any previous approval period which has not already been submitted to the Agency;
(ix) an identification of the receiving water or waters;
(x) an indication whether or not the facility is proposed or is in existence and an indication whether the application is a new application or application for renewal or variance;
(xi) an indication whether or not the facility has ever has ever violated any environmental requirement under the Act;
xii) an indication whether or not a permit or license from any other government entity is required under written law and whether such permits or licenses have been obtained;
(xiii) copies of existing environmental authorization, permits or certificates or licenses relating to the activity, that have been granted to the applicant by the Agency or any government entity;
(xiv) copies of any Environmental Impact Assessment study or reports relating to the activity;
(xv) characteristics of discharge, including quantity, conditions and concentrations of constituents;
(xvi) the proposed or actual dates of construction commencement, construction completion, commencement of operation and project completion;
(xvii) an account of the measures undertaken to avoid, mitigate or remedy the water pollution caused by the operation of the facility;
(xviii) proof that the applicant can financially mitigate or carry out remedial work; and
(xix) any other information deemed necessary by the Agency.

EPA Permitting Process

Application for Environmental Permit is submitted to the EPA with a summary of the proposed project, including information on:

- (a) site, design, size and duration of the project
- (b) possible effects on the environment
- (c) a non-technical explanation of the project



EPA, in collaboration with the sector agencies, reviews application and project summary



Duration: 14 days

The EPA notifies the developer of the findings of the review and publishes in a daily newspaper whether or not the project will significantly affect the environment.



The public has 60 days to lodge appeals with the Environmental Assessment Board (EAB) against the EPA decision. The EAB will either confirm or reject the decision within a reasonable time.



Duration: 60 days

EPA publishes in a daily newspaper notice of the project and makes available copies of the project summary. The public has 28 days to make written submission on issues/concerns they wish to be considered by EIA



Duration: 28 days

EPA and the EIA consultants, facilitated by the EAB, carry out scoping exercises and develop the Terms of Reference for the EIA, taking into account both written submissions from the public and concerns raised at any public consultation during the 28-day period.



EPA will provide the developer with a list of consultants for selection. The developer will submit to the EPA for approval, the choice of consultants to conduct the EIA.



EPA reviews the team of consultants so as to ensure that the required expertise is present and notifies the developer as to whether the consultants have been approved



EIA study is prepared and completed

Figure. Application for Environmental Permit process at EPA.

ANALYSIS OF PROJECT IMPACTS

The potential environmental and social impacts from the Project activities are for the most part, those related to the planned construction activities under Component 2. It is therefore important to manage the construction activities so as to reduce impacts on the community and environment, although it is acknowledged that some disruption will be unavoidable.

There are also possible ongoing impacts to the community as the schools become operational but the anticipated benefits suggest that any possible negative impacts are outweighed by the positive impacts.

The following Table indicates the potential adverse impacts with mitigation and prevention measures, which will be necessary to implement during project duration.

Activity	Impact Category	Potential Impact	Mitigation
CONCEPTUALIZATION PHASE Design and planning (Four (4) Secondary Schools)	Social	Lack of consultation and participation of stakeholders.	The PTT will prepare and review the construction design proposal. The MOE and Design Consultants will be responsible to design proper consultation sessions to include all stakeholders for all phases of the Project.
		Lack of information/data in preparing designs to meet the need of the end users.	It is proposed that all stakeholders will be a part of the design; this includes the National Commission on Disability among many other important agencies.
CONSTRUCTION PHASE			
Construction	Environment	Loss of vegetation	See Waste Management Prerequisites
		Generation of particulate matter, particularly due to demolition activities, storage of materials and operation of cement mixers	
		Generation of construction and other waste materials (including hazardous) generated by construction activities	
		Overload of current capacity of waste disposal facilities	
		Generation of noise from machinery and construction activities	See Waste Management
Traffic congestion due to delivery of material supply			

		Increased emission of gases and particulate matter from increased traffic	Prerequisites
		Decreased quality of surface water due to discharge of fuel, engine oil and transmission or hydraulic fluids into surface water	
		Decreased quality of soil due to discharge of fuel, engine oil and transmission or hydraulic fluids	
	Social	Social conflicts arising from presence of construction personnel	See Grievance Mechanism and Resolution of Conflicts
		Increased risk of accidents arising from increased traffic	The contractor must submit a Traffic Management Plan to be approved by the local Police Traffic Department and be in accordance with the same.
Disruption of utilities		The contractor is responsible for the preservation (and restoration) of all utilities.	
Health and Safety risk to workers and community to construction activities		The contractor must submit a Health and Safety Plan to be approved by the PTT and be in accordance with the same.	
OPERATION PHASE	Environment	Improper disposal of laboratory wastes into waste disposal facilities	Include provisions for separate drains or storage areas for liquid and solid laboratory wastes

The table above show that construction activities have the most potential to create negative impacts. These are minor impacts such as dust, noise, storage and disposal of debris, traffic and utilities disruption, and safety of workers and road users, and are to be managed as indicated in the table above. These effects are minor and temporary, and can be mitigated using the measures listed above, which are described in more detail below.

The table also shows that there are mitigation measures applicable during design. To avoid community misunderstandings and to enhance acceptance of the facilities, more information is needed by the stakeholders in the design phase. The table above recommends that the MOE and Design Consultants are responsible to design property consultation sessions to include all the stakeholders of the Project. Stakeholders would include the National Commission on Disability, among other important agencies. In the case of any historic structures, or of any effects upon sites or materials deemed to be of historical or cultural value by the community, consultation should be undertaken with the community to get input on the final design.

Impacts may also occur during operations and must be properly addressed. For example, waste management activities will be implemented to make provisions for the proper

disposal of laboratories and specialist rooms required under the secondary education curriculum, in particular correct design of drains so that any potentially hazardous wastes are not discharged into the wastewater disposal systems but instead are collected and managed appropriately.

Following is a broader discussion of the mitigation measures pertinent to the construction phase of the project. **Waste Management Prerequisites**

To act in accordance with the provisions of the Occupational Health & Safety Act of 1997 and all applicable statutes, ordinances and bye laws. In addition, the following will form the project baseline for prevention and mitigation measures:

Solid waste management

The contractor will place wastes bins and containers for each specific type of solid waste: paper-cartoon, glass (windows), metals (pipes, etc), electrical (old wires, etc), plastic (all types), wood (all types). All containers will be properly labeled and will have lids which will not easily fall.

No burning all any type of materials will be allowed for the wastes generated by this Project.

Type 1. Demolition materials (if any)

All demolition materials will be classified according to the type of materials and place accordingly in labeled containers and in agreed sites with the ES and the Engineer Supervisor of the works. Transportation: all waste transported to the final disposal sites will be transported with care (loads will be covered with heavy tarps or plastics) and truck will drive at speed of 25 km/h within the compound and 50 km/h outside the compound.

Type 2: Recyclables

The Contractor will implement a program to classify waste materials to ensure that those waste that can be recycled (paper, cardboard, aluminum, metals, glass) can be collected and donated to interested parties of the adjacent communities provided that those parties demonstrate a working knowledge and application of the requirements of responsible environmental behavior.

Type 3: Domestic Materials

The Contractor will collect all this wastes in the designed containers and will dispose the wastes of in an area designated by the Authority (such as the EPA/Georgetown M&CC) or other site (e.g. the Haag Bosh landfill).

Type 4: Hazardous Wastes

Hazardous wastes (for example, old chemicals from labs, waste oils, grease, fibers, hydrocarbons etc.) that arise during contraction works will be carefully collected, characterized, labeled, stored, and if possible, recycled or transported and disposed of in accordance with World Bank standards, to avoid soil contamination. Hazardous wastes will be placed in proper ventilated sites and with impermeable floors. Additionally, the school administration, in collaboration with the ES shall consult the EPA for advice on the disposal of such wastes in keeping with the Draft Management Strategy for Hazardous Wastes.

Type 5: Soils affected by accidental spills, oils or mal-functioning vehicles

Oil changes will not be permitted on campus, and therefore should be done at the nearest gas station. The Contractor will restrict the locations of hazardous materials.

In the case that a large spill or uncontrolled release of chemicals, hazardous waste, solvents, fuels, oils, or other liquids should occur on the site, then the matter must be reported to EPA for further instructions and requirements, which could include monitoring and cleanup of the soils and groundwaters. However, such events are not foreseen because of the preventive measures being taken as described in this EAMP and because of the small quantities of such materials that could possibly be used. The Contractor, under the supervision of the PTT, will develop out spill prevention, control, and containment (SPCC) plans for such potential incidents.

Water pollution and effluents

During construction, water pipelines will be changed and restored to good working order. Improvement will provide better water distribution in the building and old pipes will be replaced. Contractors will need to ensure adequate supply and quality of water during project works.

During construction, sanitary systems and bathrooms will be replaced in different building as needed. Contractors must ensure proper management of the effluents and avoid spills and superficial runoff in the worksites.

Contractors will provide portable toilets and bathrooms to the workers to avoid intervening with the student's bathrooms and avoid potential social issues.

Water quality monitoring will be conducted to ensure compliance with water quality discharge limits as related to prevention of runoff, silt and sediment, and erosion. Visual inspection for excess turbidity or suspended materials at discharge points will be made and documented as part of good construction practices, to make sure that stormwater runoff does not foul, clog or contaminate any drainages in the vicinity of the construction site with excessive sand, silt, or sediments. Fine sediment traps (silt fencing, straw bales, vegetation wattles or rolls, etc.) will need to be set up in the drainage channels and ditches where

water will run in order to capture sediments and fine particulate matter and avoid polluting surface waters with the runoff.

Drains from laboratories will be designed in such a way as to prevent the unintentional discharge of potentially hazardous liquids into the wastewater disposal system. This may be done by having a separate smaller drain system or segregated disposal area which can be accessed for cleaning and maintenance.

Noise

Contractor shall ensure that the equipment is in good working order with manufacturer supplied noise suppression (mufflers etc.) systems functioning and in good conditions. Contractor will make reasonable efforts to schedule heavy noise activities for weekends or in the late afternoon and keep the less noisy activities for normal working hours (between 8 am and 5 pm). Where noise is likely to pose an impact to the normal environment surrounding the school compound and the community, the contractor shall inform the site manager and shall develop a public notification and noise management plan.

Contractors will follow noise limits established by Guyana and those included in this EAMP. The CEI and ES will monitor noise levels frequently during the construction works.

The Guyana National Bureau of Standards and EPA developed Interim Guidelines for Noise emissions into the Environment. Under these Interim Guidelines, noise emissions from the Industrial and construction sources for both day (6AM-6PM) and night (6PM-6AM) will be 65-55 decibels (Construction) at the property limits or 15 meters from the source.

If measurements of noise show more than 65 decibels is found at the property limits, then the World Bank standard will be followed which require no more than a 3 decibel increase above background should be allowed to occur at any particular receptor.

During construction these noise levels will be frequently increased, if noise reaches more than 85 decibels and remain more than an hour, all workers must use hearing protection. The ES will follow the World Bank standards in case necessary.

Dust

Demolition of large areas will be done at night or weekends or break periods so students are not affected by the dust and possible asbestos materials and fine particulate matter. Dust collectors if possible should be use to collect fine dust in closed rooms and labs.

Workers must use protective equipment such as masks, ear plugs, etc. All trucks transporting demolition wastes will cover their load with a heavy tarp. If considered necessary by the PTT, water will be sprayed on the areas of mayor works.

However, fine sediment traps will need to be set up in the drainage channels and ditches where water will run in order to capture sediments and fine particulate matter and avoid polluting surface waters, as described above.

Excavations and demolition activities

Workers will have to use personal safety equipment at all times. During excavations soil (organic layer) should not be contaminated with demolished material or any other type of waste from the construction. Soil must be separated and cover with plastic to avoid soil runoff and contamination. Soil layer will be very important to restore natural areas affected by the works.

If during excavations, archaeological pieces are found, works must be stopped and informed to the CEI and the ES. In the bidding document, it is important to include a clause related to potential chance findings of cultural or archeological, paleontological resource, following the OP 4.11 of The World Bank.

Restoration Plan

All sites intervened by the contractor and construction or rehabilitation works at the compounds will be restore and re-vegetated. Excavations areas, drainage channels will be recovered and any solid waste sites if included will be restored. Plant species that will be preferred for the restoration are native species. The ES will be responsible to guide the CEI in the selection of plants and re-vegetation and reforestation activities.

Pest Management

No pesticides or any agrochemical include in the List 1a, 1b and II of the WHO (Annex 2) will be used for any activity supported by Project such as the Research Fund (Component 1). Any pesticide treatments that are required, such as for termite prevention in the buildings, shall be contracted through a licensed provider of such services.

Contingency and Emergency Plan

Contractors will include in the EAMP co, a section describing the Contingency and Emergency Plan which will be followed during the construction works.

This plan must include the possible contingencies and emergency situations:

- a. Workers possible accidents and injuries related to the construction works where they will be involved
- b. Fires. Fire extinguishers must be placed in working sites and training provided to use them.
- c. Flooding. The contractor must have a plan to address floods during the rainy period and maintain the works on the timeline agreed and reduced environmental and social impact.
- d. Structural collapse. During the demolition and restoration works, some structures could collapse and generate possible accidents.
- e. Chemical spills. If there is a large spill or release of solvents, fuels, or other kind of hazardous material, then the EPA should be notified and other measures taken as will be outlined in the contingency and emergency plan.

Sustainable Development

The project will try to incorporate energy efficient equipment and request the purchase and use of sustainable materials (certified woods, use of low carbon emission equipment).

The project will request to contractors to increase opportunities to people living close to the project sites in order to increase social benefits by targeting recruitment of local people, students, etc. For instance, a lot of the materials to be removed could be recycle, wood, glass, metals, etc. The project is expected to include a strong recycling program which be later adopted by the University. Also, the World Bank seeks opportunities to women in developing countries and contracts must make any efforts to provide opportunities for women as part of the personnel or subcontractors.

Environmental Monitoring Plan

Environmental monitoring will be implemented throughout the construction and operation phases by both the contractor and the PIU. Baseline monitoring shall be conducted early on by the Contractor to establish a baseline of conditions before the works begins and track any changes that could be attributed to the project, in the event of complaints or issues arising in the construction and operation phases. The Contractor will be responsible for implementing this Monitoring Plan and ensuring that construction activities are carried out in compliance with the EAMP. The PTT will also monitor overall works performance and will use Environmental Datasheets (EDS) developed to monitor the project environmental and social management. The PTT as soon as appointed by the PIU will need to prepare additional EDS to monitor all parameters agreed upon in this EAMP. The ESDS may consist of checklists for site inspections that will document that all applicable and relevant procedures are being followed.

The objectives of the Environmental Monitoring Plan are to:

- control impact generating activities or actions;
- monitor impacts and verify that, where applicable, environmental parameters/indicators are acceptable;
- verify that recommended mitigating measures are effective in protecting the environment; and
- Response to environmental impacts.

Monitoring Activities

The primary monitoring activities are highlighted below:

- Vegetation monitoring activities will include maintaining records on vegetation re-growth after clearing activities for dining room, storage site and new parking sites; and area cleared/vegetation destroyed.
- Air quality and particulate (dust) monitoring will include ensuring that the implemented dust suppression methods are effective and will be visual or the particulate concentrations measured. Any complaints on blowing dust or nuisance dust will be recorded and investigated, and appropriate measures immediately taken to control dust from roads, concrete, bat droppings, rotten wood, or any other kind of dust source.
- Water quality monitoring will be conducted to ensure compliance with water quality discharge limits, at sample locations, which will be discharge points, on a weekly basis to ensure that soil, sediment, silt, or other materials are not fouling or clogging ditches, drains and other runoff from the site. It will include visual observation of any excess turbidity.
- Monitoring of waste from the project will include the preparation of weekly inventories on types and quantities of solid and hazardous waste generated; and methods of collection, storage and disposal.
- Health and safety monitoring will be undertaken weekly through the recording of incidents and accidents.
- Noise monitoring will be conducted by measuring noise levels weekly in the vicinity of construction areas and new parking area and surrounding buildings to ensure compliance with the noise level standards established by the Guyana National Bureau of Standards and/or World Bank standards above background levels.
- Code of conduct. It will be very important for the CEI to inform contractors' workers of the code of conduct and the penalties related if code is broken. The CEI and ES will supervise closely its compliance and will investigate any claim or issue.

The monitoring above may be incorporated into an EDS or weekly checklist for supervision and verification purposes.

Construction Phase

During the construction phase, the Contractor under the supervision of the ES will be responsible for continuously monitoring the following environmental impacts at the construction site:

- loss of vegetation;
- generation of particulate matter;
- generation of solid waste;
- generation of noise;
- traffic congestion;
- decreased surface water quality;
- health and safety risk;
- social conflicts; and
- reduced aesthetics.
- accidents and emergencies

The Contractor should be responsible for the monitoring of various impacts to ensure the proper functioning and implementation of mitigation measures. The Environmental Specialist will be responsible for supervising adequate monitoring by the contractors. During the construction period, the Environmental Specialist will perform monitoring weekly or daily inspections and during operation on monthly basis, as indicated in the Table below.

Construction Period Monitoring Plan.

Impact	Monitoring parameter	Sampling Frequency	Responsible	Monitoring location
Construction Phase				
Loss of vegetation due to the setup of dining room, storage site and new parking sites	Area cleared/amount of vegetation destroyed	Within 3 months of construction	Contractor Environmental Specialist	All intervened sites – workers’ area, storage area, new parking sites
	Total area recovered	Annually		
	Number of plants planted by Contractor(s)	Annually		
Generation of particulate matter, particularly due to demolition activities, storage of materials and operation of cement mixers	Ease of visibility	Weekly	Contractor Environmental Specialist	All intervened sites – construction areas, storage areas, new parking sites
	Number of vehicles arriving covered	Weekly		

Increased generation of emission of gases and particulate matter from increased traffic	Frequency of maintenance of vehicles	Monthly	Contractor Environmental Specialist	All intervened sites – new parking sites
Generation of construction and other waste materials generated by construction activities Overload of current capacity of waste disposal facilities	Quantity and type of waste Waste collection, storage and disposal method/s	Weekly Weekly	Contractor Environmental Specialist	All intervened sites – construction sites, workers’ area, new parking lot, designated waste disposal area
Generation of noise from machinery and construction activities	Level of decibels	Weekly	Contractor Environmental Specialist	All intervened sites - construction sites, workers’ area, new parking lot, designated waste disposal area To be identified by the Environmental Specialist
Traffic congestion due to delivery of material supply	Number of accidents	Weekly	Contractor Environmental Specialist	All intervened sites
Reduction in aesthetics due to construction and storage of materials	Number of sites with waste materials left unattended by contractor	Monthly	Contractor Environmental Specialist	All intervened sites
Decreased quality of surface water due to discharge of fuel, engine oil and transmission or hydraulic fluids into surface water and during clearance of canals	pH Turbidity levels Conductivity pH Oils/Grease Total nitrates Total phosphorus BOD or COD Coliforms	Quarterly	Contractor	At discharge points To be determined by the Environmental Specialist
Decreased quality of soil due to accidental discharge of fuel, engine oil and transmission or hydraulic fluids	Oils	Annually	Contractor Environmental Specialist	At fuel, waste oil storage sites, oil changing areas and areas that show visible signs of contamination
Disruption of utilities	Frequency and type of utilities disrupted	Monthly	Contractor Environmental Specialist	All intervened sites
Difficulty to adopt	Number of duration of	Weekly	Contractor	All intervened sites

to new 'environment' and to concentrate	disruptions to use of classrooms		Environmental Specialist	
Health and Safety risk to workers, students and lecturers arising from construction and from increased traffic	Number of accidents due to construction works	Weekly	Contractor Environmental Specialist	All intervened sites
Social conflicts arising from presence of construction personnel on campus	Number of reported complaints/grievances	Monthly	Contractor Environmental Specialist	All intervened sites

Operation Phase

During the operation phase, monthly monitoring of some critical parameters will be necessary, and will be the responsibility of the MOE Environmental Specialist.

The environmental impacts that will be monitored include: generation of solid waste and hazardous waste, water quality, disposal of chemicals from the laboratories, and other aspects as necessary.

Pesticides may be used in incidental quantities for termite treatments of foundations and ceilings, or for vector control during school operations. For such use, only licensed, authorized pest control specialists may provide these services. Guidelines for the proper selection, application, storage, handling, transport and disposal of pesticides should be developed in accordance with good practice and responsible management by the MOE Environmental Specialist. No pesticides or any agrochemical include in the List 1a, 1b and II of the WHO (Annex 2) will be used for any activity supported by Project such as the Research Fund (Component 1).

The table below shows the operations period monitoring plan. Other parameters will be included as necessary during operation of the new equipment and research activities are developed.

Operations Period Monitoring Plan.

Impact	Monitoring parameter	Sampling Frequency	Responsible	Monitoring location
Operation Phase				
Increased generation of solid waste from the packaging of laboratory equipment	Quantity and type of packaging Waste collection, storage and disposal methods	Monthly	Environmental Specialist UG	All intervened sites
Purchase of new equipment for labs and classrooms	Number of training and capacity building activities to use the new equipment	Monthly	Environmental Specialist Lab technicians	All intervened sites
Exacerbate the storage space problem on campus	Proper cabinets and storage space defined Equipment is clean and properly stored.	Monthly	Environmental Specialist UG	All intervened sites
Generation of hazardous waste from use of new and current lab equipment	Volume of hazardous waste Collection, storage and disposal of hazardous waste according to new Waste Management Manual	Monthly	Environmental Specialist UG	All intervened sites
Possibility for theft	Security locks are placed in all labs. Number of theft incidents	Annually	Environmental Specialist UG	All intervened sites
Disruption to land and landscape due to installation of fiber optic cables around the campus	Landscape was restored and it maintained by UG	Monthly	Environmental Specialist UG	All intervened sites
Generation of wastes due to packaging of software and educational software for statistics and GIS applications.	Waste is collected and properly dispose Recoiling material is donate to interested stakeholders	Monthly	Environmental Specialist UG	All intervened sites

Mid Term Reviews and Closure Phases

As part of any World Bank Project, an evaluation of the project is performed at the middle of the project period (usually third year) and at the end of the project. The ES will be responsible to prepare in report for these evaluations periods in order to highlight main environmental and social challenges during project implementation, main results, products and pending issues to resolve. The ES will report about all project components and safeguards issues.

Some of the topics to be included in these reports are:

- a. Compliance with the EAMP, prepared for the project.
- b. Consultation, participation, the Grievance Mechanism and main claims posted by stakeholders if any.
- c. The World Bank will perform periodical supervision mission on the Project and will request reports of the ES.

Stakeholder Engagement and Consultation

In accordance with World Bank policy, the EAMP must be disclosed and consultation carried out to incorporate the concerns and views of stakeholders involved in the Project. Some consultation has already been carried out as part of the Indigenous People's Plan (IPP).

To avoid community misunderstandings and to enhance acceptance of the facilities, more information is needed by the stakeholders in the design phase. MOE and Design Consultants are responsible to design property consultation sessions to include all the stakeholders of the Project. Stakeholders would include the National Commission on Disability, among other important agencies. In the case of any historic structures, or of any effects upon sites or materials deemed to be of historical or cultural value by the community, consultation should be undertaken with the community to get input on the final design.

Grievance Mechanism and Resolution of Conflicts

The safeguards policies of the World Bank ensure the establishment of a grievance mechanism during project implementation which aims to offer a clear set of opportunities for affected people or any other interested stakeholder to post a claim, request information and have a formal mechanism to communicate with project developers and supervisors.

A project-level grievance mechanism for affected communities is a process for receiving, evaluating, and addressing project-related grievances from affected communities at the level of the company, or project.

Grievance mechanisms will be established and the Contractor Environmental Inspector (CEI) will to act as a point of contact to receive complaints and to foster positive engagement when issues arise in a timely and effective manner.

The Communication method will consist of the following:

- a. The Project require a web site within the MoE existing web site which will contain the project information, and the EAMP,
- b. The Project web site will inform as to reports or consultation meetings, seminars, etc that will be given during the Project implementation period.

c. In the Project web site, a section will be named Project Grievance Mechanism. Here the visitor will find an explanation how to post a claim, recommendations and just a note to the project coordinators. Grievance forms, emails and on line communication will be offered to the visitor.

d. The MoE and the PTT will develop clear tasks and responsibilities for addressing grievances and the way that contractors will respond to any claim.

e. The following steps will be following for the grievance mechanism:

- Step 1 Inform the mechanism and develop accessible ways for use by stakeholders
- Step 2 Receive communications and register.
- Step 3 Review and investigate issue
- Step 4 Resolve issue. Define solutions.
- Step 5 Monitor and evaluate

If necessary, a clear list of tasks and outcomes that an investigation is expected to achieve shall be developed.)

The MoE, PTT and contractors will handle all claims with respect, respond as quickly as possible, and will maintain records of the resolutions since these documents may be requested at any time by the World Bank.

PLANNING AND PREPARATION

The roles and responsibilities of the various actors in the Project are described below. Model contract clauses are also provided for environmental performance aspects.

Roles and Responsibilities

Project Technical Team (PTT)

The PTT will be located in the Ministry of Education (MoE). The Project Coordinator of the PTT will provide support and the necessary equipment to the Environmental Specialist appointed by Project to facilitate his performance as defined.

The Supervising Consultant (SC)

The SC for the works and appointed by the MoE will coordinate closely with ES to ensure that contractors and suppliers follow and comply with the EAMP and all other project HSSE requirements. The PTT will ensure that these requirements are clearly communicated in all tender documents.

Project Environmental Specialist (ES) A suitable qualified individual to be identified by either the MoE or the PCU, with no-objection by WB. The Terms of Reference of the proposed appointment will be agreed upon and will include monitoring, supervision, oversight, and reporting of environmental aspects of the civil works, and such duties could possibly be shared with other agencies or could include other duties as needed.

Project Engineer (PS) A member of the PTT who will perform and report on scheduled and unscheduled observations, reviews and performance evaluations and make recommendations for modification and or improvements as may be required.

Contractor's HSSE Manager

The contractor's HSSE Manager should be a registered professional and a full time employee of the contractor, fully empowered to support the company in the compliance of this EAMP developed for the mitigation and prevention of social and environmental impacts associated with the construction works for which the company was hired.

The PTT is to ensure that all tender documents clearly communicate this and all HSSE requirements. The experience and qualifications of the designated HSSE Manager are to be evaluated and scored as part of the technical evaluation of the bids.

The Site Selection Process

The PTT is to establish effective linkages with the entities responsible for all aspects of national planning and development are needed and this needs to be integrated into the design development process.

The Terms of Reference of the design consultants are to incorporate specific deliverables that address all site specific issues.

The Design Brief

The design brief is to be updated to be reflective of modern, sustainable, cost effective school design and operation.

The MoE will establish a formalized design development process with defined review and sign-off stages that are tied to the payment of the design consultant's fees.

Stakeholder Consultation

Stakeholder consultation is essential and needs to be integrated into the process. The MoE / PTT is to formalize its internal and external stakeholder consultative process and to incorporate the services of the project design consultants into the process.

Statutory & Regulatory Approvals

The PTT will contact the EPA and other local or national agencies and authorities to define and coordinate any environmental permit and approval required for the construction works. The contractor will be required to fulfill all necessary approvals (environmental, construction, noise, etc) to undertake the construction and rehabilitation works described in the bidding document and established in the contract.

The Contractor

The contractor will familiarize themselves with the requirements of the EPA and make all necessary applications to acquire the Environmental Authorizations by EPA and any other permit or approval required.

The Contractor will need to submit a project specific EMP and will be responsible for the implementation of all plans and actions described in this EAMP, in addition to other actions defined by the PTT to ensure adequate environmental and social management during the construction works. The Contractor will closely follow the technical specifications outlined in the EAMP and all related clause of the tender documents.

The Contractor shall verify, adapt, and optimize all the mitigation measures included in this EAMP and prepare their HSSE project plan for the construction works. As a minimum, the following headings must be included with accompanying information:

- Company HSSE Policy
- Company HSSE Manual
- Public Participation and Communication Program
- Code of Conduct Plan
- Environment, Social, Health and Safety Program

- Site Waste Management Plan
- Environmental Restoration Program
- Monitoring Program
- Contingency and Emergency Plan
- Environmental Closure Plan

The completed EAMP once approved by the MoE will be appended to the Contract.

Model Contract Clauses

Bidding documents should contain technical specifications for environmental aspects. The following are general recommendations for the preparation of documents and procedures for the tender documents and construction management by contractors. While construction activities are inherently disruptive, actions can be taken to minimize impacts to the community and the environment. Based on the potential impacts identified, the PTT shall append to the proposed form of contract specific clauses to guide contractor activities during the construction period, modifying them as applicable with the EAMP.

The clauses which form the “Environmental Technical Specifications (ETS), are presented in the following, are preliminary and will be amended as needed by the ES to comply with national legal and World Bank Group Safeguards Policies. Once complete in draft form, the Environmental Technical Specifications that are to be included in the tender documents will be reviewed by the World Bank before giving the ‘No Objection’.

General Environmental Clauses: To be appended in the Contract’s Particular Conditions:

In the tender documents, it must be clearly indicated that the Contractor shall, throughout the execution and completion of the Works:

- (a) have full regard for the safety of persons entitled to be upon the site and keep the Site (secure as possible) and the works in an orderly state appropriate to the avoidance of danger to people present in the working area;
- (b) provide and maintain at the Contractor’s expense, all lights, guards, fencing, warning signs and watching, when and where necessary or required (by the PTT, SC or other) or by duly constituted authority, for the protection of the Works or for the safety and convenience of the community.
- (c) notify the PTT immediately upon the occurrence of any accident which has resulted in a disability or loss of human life, might have a significant impact on the environment or well being of the community and shall submit a summary report to the PTT, no later than 3 days after the occurrence of such an event,
- (d) take all reasonable steps to protect the environment on and off the Site and to limit damage to people and property resulting from pollution, noise and other results from the Contractor’s operations;
- (e) ensure that emissions, surface discharges and effluent from the Contractor’s activities shall not exceed the values indicated by the ES and shall not exceed the

- values prescribed by applicable laws or those stated herein or as advised by the PTT.
- (f) ensure the adequate disposal of construction and excavation wastes in accordance with the approved Site Waste Management Plan.
 - (g) restore the Site to original conditions or to a state after the completion of the Works as set out in the Specifications;
 - (h) complete the work in compliance with the contract and in accordance with the law and the World Bank Safeguards Policies, in respect of health, safety, security and protection of the environment, as described in these Specifications and that any reported and verifiable failure or breach of their contractual responsibility will result in portions of their payment under the Preliminaries section of the Contractor's valuation being withheld until such time as the issue has been rectified to the satisfaction of the MoE and PTT.

Equipment

The contractor will make available to the Environmental Specialist assigned to the environmental supervision of the works a noise meter, camera and other equipment as defined and detailed in the tender document.

Site Security

The contractor shall be responsible for maintaining security over the construction site including the protection of stored materials and equipment. In the event of severe weather, the contractor shall secure the construction site and associated equipment in such a manner as to protect the site and adjacent areas from consequential damages. This includes the management of onsite wastes, construction and sanitary, additional strengthening of erosion control and soil stabilization systems and other conditions resulting from contractor activities that may increase the potential for damages.

Worker Sanitation

Sanitation facilities shall be provided to site workers. All sanitary wastes generated as a result of project activities shall be managed in a manner. The contractor shall provide a site sanitation plan for approval and implementation prior to the commencement of site activities. During the preparation phase, the PTT/ES will approve the sites that will be used to set up all portable toilets and showers.

Noise Control

The contractor shall control noise emissions generated as a result of contracting activities to the extent possible. In the case of site locations where noise disturbance will be a concern, the contractor shall ensure that the equipment is in good working order with manufacturer supplied noise suppression (mufflers etc.) systems functioning and in good repair. Where noise is likely to pose an impact to the community, the contractor shall inform the PTT and shall develop a public notification and noise management plan for approval by the PTT.

Use and management of hazardous materials, fuels, solvents, paint substance, etc.

Any use hazardous materials excluding pesticides, oils, fuels and petroleum products shall conform to the proper use recommendations of the product. Waste hazardous materials and their containers shall be disposed of in a manner approved by the relevant agency and the approved EAMP. The PTT will supervise compliance of the contractors with the proper management and disposal of hazardous wastes and the approved measures.

The contractor's EMP will include the MSDS sheets, the estimated quantities to be consumed in the process, storage plans, spill control plans, and waste disposal practices to be followed. All paints and preservatives shall be used only with the approval of the PTT. MSDS sheets shall be provided to the PTT that describe the essential components of the materials to be used so that an informed determination can be made as to the potential for environmental effects and suitability can be made. Storage, use, and disposal of excess paints and preservatives shall be managed in conformance with the manufacturers' recommendations and as approved by the PTT.

Site Stabilization and Erosion Control

The Contractor shall implement measures at the site of operations to manage soil erosion through minimization of excavated area, preservation of existing ground cover to the extent possible, provision of approved ground cover. Contractors will follow approved mitigation measures of the EAMP. The PTT will supervise and report any issue related to excavations and potential erosion issues. Where excavations are made, contractor shall implement appropriate stabilizing techniques to prevent cave-in or landslide. Erosion control measures will be approved by the PTT.

An erosion management plan will be required where the high potential exists for significant sediment quantities to accumulate in wetlands, mangrove, rivers and near-shore marine systems. The erosion management plan shall include a description of the potential threat, mitigation measures to be applied, and consideration for the effects of severe weather and an emergency response plan. This plan will be approved by the PTT and the SC for the civil works.

Traffic Management

In cases where construction activities result in the disruption of area transportation services, including temporary loss of roadway, blockage due to deliveries and site related activities, the contractor shall provide a traffic management plan including a description of the anticipated service disruptions, community information plan, and traffic control strategy to be implemented so as to minimize the impact to the surrounding community. This plan shall consider time of day for planned disruptions, and shall include consideration for access to essential services such as medical, disaster evacuation, and other critical services.

Management of standing water

Under no circumstances shall the contractor permit the collection of standing water as a consequence of contractor activities without the approval of the PTT. The PTT will supervise

and report any issue related to deficient or poor management of drainage or water resources by the contractor.

Management of trash and debris

The contractor will provide in their EMP a Site Waste Management Plan that conforms to the solid waste management policies and regulations of Guyana, the MoE and the EAMP of this project. Under no circumstances shall the contractor allow construction wastes to accumulate so as to cause a nuisance or health risk due to the propagation of odors, insects and disease vectors. The site waste management plan shall include a description of how wastes will be managed, stored, collected and disposed of in accordance with current law and best environmental practice. Additionally the contractor shall provide for the regular removal and disposal of all site wastes and provide the contracting officer with a schedule for such removal. The PTT will supervise execution of this plan; the SC of the civil works will ensure enforcement of approved plan and if necessary withhold portions of payment under the Preliminaries section of the Contractor's valuation until such time as an identified breach or failure to comply with the requirements of the contract has been rectified.

Behavior and code of conduct

The Contractor shall not engage, and shall cause its personnel as well as any Subcontractors and or Suppliers and their personnel not to engage, either directly or indirectly, in any business or professional activities that would conflict with the activities assigned to them under this Contract. At all times, contractors and their personnel will be respectful to the members of the community alike. The contractor and its staff will follow the Project Code of Conduct described in this EAMP and incorporated in their HSSE Project Plan.

Others

The PTT will include other Environmental and social clauses as needed to the tender document to ensure compliance with the EAMP of this project, applicable national legislation, regional by-laws and orders and the World Bank Safeguards Policies.