Technical Assistance for Increasing Resilience of the Education System to Climate Change in Saint Lucia and Antigua & Barbuda

Environmental and Social Impact Assessment and Management Plan

Submitted to

Climate Technology Centre and Network
United Nations Industrial Development Organization

By

ECMC

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Executive Summary

ES1. Project Rationale

Saint Lucia is a Small Island Development State (SIDS) that is highly vulnerable to natural hazards. Hazard impacts are already being magnified by the effects of climate change, including more frequent and severe extreme weather events. These hazards negatively impact the educational system and thus children and youth. The associated vulnerabilities will increase unless the capacity of the population and the education sector to anticipate, prepare, adapt and become more resilient to such events improves.

The GOSL proposes to increase the resilience of school plant to climate and other natural hazards, as well as man-made hazards.

CTN is supporting this technical assistance (TA) to assess the climate risk and the related negative impacts to the educational system and appraise improvement measures for preparation of a project proposal. The main aim of this technical assistance (TA) is to enable the Government of Saint Lucia to strategically assess climate risks to the educational system and to appraise measures required. This will inform a funding proposal to be developed for presentation to potential funding sources to support these improvements. Immediate emergency improvements will be achieved through structural reinforcements of the schools. Actions proposed should also increase resilience of local communities and human settlements to climate change by assessing and planning the implementation of technology and design options for the improvement of critical infrastructure, focusing specifically on increasing the resilience of the education system for short and medium term multi-hazard risk cycle phases, and reducing dual use conflicts.

ES2. Project Scope

The twelve schools targeted through this initiative are:

1. Ave Maria Infant
2. Ave Maria Primary
3. Balata Combined
4. Bexon Primary
5. Corinth Secondary
6. Desruisseaux Combined
7. Fond Assau Combined
8. Micoud Primary
9. Patience Combined
10. Saltibus Combined
11. Vieux-Fort Infant
12. Vieux-Fort Primary

The project considers the following hazards:

1) hurricanes,
2) droughts,
3) floods,
4) Sea-Level rise,
5) Landslides.

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ES3. Purpose of this Report

This report is an Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) for the proposed project activities. The ESIA/ESMP is to ensure that significant environmental and social impacts, both beneficial and adverse, of each of the proposed interventions at the twelve targeted schools have been considered and assessed, and that gender-sensitive mitigation and enhancement measures are outlined where necessary inclusive of an initial assessment of costs and responsibilities for their implementation. This is required to be in line with national requirements, AF Environmental and Social Policy and Gender Policy, and CTCN procedures and guidelines on gender mainstreaming. The fifteen environmental and social principles of the Adaptation Fund are:

1. Compliance with the law
2. Access and equity
3. Protection of marginalized and vulnerable groups
4. Respect for human rights
5. Gender equality and women's empowerment
6. Compliance with core labour standards
7. Respect for the rights of indigenous peoples
8. Minimal involuntary resettlement in accordance with due process
9. Protection of natural habitats
10. Conservation of biological diversity
11. No significant or unjustified contribution to climate change
12. Pollution prevention and resource efficiency
13. Avoid significant negative effects on public health
14. Avoid negative impacts on physical and cultural heritage
15. Lands and soil conservation

ES4. The School Environments

The twelve targeted schools are distributed across the island, in locations ranging from urban, lowlying to sloping, rural areas. All are impacted by climate and climate change, with climate hazard vulnerability varying with location. Typically those in low lying areas are more vulnerable to flooding and sometimes sea level rise, while those on slopes are more landslide prone. Exposure to high wind speeds also varies with location.

As hurricanes become more intense with climate change, climate hazard risks will also increase, other factors remaining equal. All schools will be vulnerable to islandwide drying over time, as this has the potential to adversely affect water supplies for drinking and hygiene, and for irrigation of school gardens used to supplement school meals and for the study of agriculture. As temperatures and number of hot days increase, all schools will also become less comfortable for occupants, unless they are retrofitted with cooling devices.

Ambient noise levels vary with location. Air quality at the schools is assumed to be roughly proportional to traffic volumes in the vicinity.

Some of these schools are accessed by only one motorable access road. All of these schools have waste collection, water, electricity and internet services, with onsite wastewater management.

The natural environment immediately surrounding those schools in urban areas is not significant. Schools in more rural settings have some flora and fauna in close proximity.

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Most of the materials required are readily available locally, although, for some, materials may have to be transported significant distances between material sources and school locations. Some materials may have to be ordered from overseas suppliers for the projects.

ES5. The Proposed Projects

The proposed works at each of the twelve schools include some or all of the following interventions:

1. Structural retrofitting of elements or the entire structure
2. Retrofit and repairs to the roof structure
3. Retrofit and repairs of door and window systems
4. External works (including retaining walls, access roads, septic tank repairs, drainage, tree removal)
5. Water storage, plumbing and accessories (including rain water harvesting)
6. Electrical energy improvement (including solar PV systems, standby generation, improved lighting and re-wiring)
7. Air conditioning systems
8. Installation of intercom systems
9. Installation of fire protection systems (detectors, alarms, suppression and safety)
10. Disability access

Project impacts are determined not likely to be diverse, widespread or irreversible, and may be readily mitigated. As such, the proposed project interventions are categorized as Category B. For Category B projects, the assessment is required to consider all potential direct, indirect, transboundary, and cumulative impacts and risks that could result from the proposed project/programme; assess alternatives to the project/programme; and assess possible measures to avoid, minimize, or mitigate environmental and social risks of the proposed project. The assessment is to be accompanied by an environmental and social management plan that identifies those measures necessary to avoid, minimize, or mitigate the potential environmental and social risks, and this is to inform the monitoring and reporting plan for that project.

ES6. Potential Environmental and Social Impacts Identified

As these projects are typically limited mainly to upgrading existing school plant, there will be very little impact of the proposed works on flora and fauna, eco-systems or bio-corridors, archaeological and cultural resources and natural drainage systems. No land acquisition is envisaged. Potentially significant environmental and social issues include the following:

During construction:

- Safety and convenience of facility and area users (school populations, area drivers, area pedestrians including the differently able, residents and workers in the vicinity) because of construction traffic and equipment operation; storage of materials, equipment and wastes; and public diversion.
- Noise and vibration from equipment operation.

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- Pollution from construction equipment emissions, dust, chemical and fuel spills and surface run-off.
- Occupational safety and health of project staff.
- Disruption of normal traffic by construction traffic within narrow community roads.
- Provision of employment.
- Some core labour standards compromised.
- Disruption of classes depending on the nature of the intervention.
- Transfer of knowledge regarding infrastructural defects to staff.
- Threat of communicable disease including COVID-19 as workers occupy the various sites.

During operation:

- Improved performance and safety of school plant through extreme events and as shelters.
- Reduced frequency and/or duration of interruptions to school operations due to water shortages or other extreme event.
- Reduced flooding in school compounds and environs.
- Changes in government maintenance programme costs and implications for the national budget.
- Enhanced school and community aesthetics.
- Appreciation of the school as a community assets and a place to facilitate community engagement.
- Help in building community social capital.
- Could experience vandalism and theft.
- Greater ability to identify infrastructural defects.
- Greater awareness and appreciation through instuction in formal DRRE.
- Greater collaboration between school and community as adaptive capacity is enhanced.
- The school assumes a leadership rôle in climate change knowledge sharing through its staff and students.
- A more empowered staff and host community.
- Students and staff become champions and advocates for climate resilience.

ES7. Recommended Mitigations

Mitigations recommended are for best practice to be required of contractors through the contractual requirements and supervision of compliance. This will protect the surrounding air, land and water from pollution, noise and dust; the waterbodies from sedimentation; the workers from occupational health and safety issues; and surrounding communities from traffic, health and safety impacts.

ES8. Framework for Implementation

The approach to management of environmental and social impacts is premised on the assumption that environmental management is integrated into the overall project management framework, and that environmental management skills and commitments are worked into the contractual requirements of contractors at the procurement stage. There are lead roles described for the following:

1. Ministry of Education (MOE) and Sustainable Development and Environment Department (SDED)
2. Construction Supervision Consultants

With support from the following agencies with statutory responsibilities:

1. Ministry of Physical Development
2. Ministry of Infrastructure
3. Fire Service
4. Department of Labour
5. Environmental Health Department (EHD) of the Ministy of Health
6. Water Resources Management Agency (WRMA)

In the operational phase, lead responsibility will be that of the MOE.

ES9. Conclusions

It is concluded that this project will yield significant benefits to the education sector and the communities where the schools are located, reducing levels of climate risk and increasing school building resilience, resilience of the education system, and shelter performance.

The projects are individually and collectively assessed to be Category B, with impacts that are not likely to be diverse, widespread or irreversible, and may be readily mitigated. Appropriate mitigation will be achieved primarily through a requirement for compliance with the law and best practice on the part of the contractor.

Building resilience in the education system has several short, medium, and long term benefits for the users of the school in particular the staff and students. Apart from infrastructural improvement, climate reliant schools foster pride among students and members of the community. A conducive and safe environment that reduces exposure to hazard impacts and will induce greater motivation among those involved in the teaching learning process. The project is a timely initiative that will contribute to Saint Lucia's fulfillment of the Sustainable Development Goals aligned to education, climate change, poverty reduction, gender equality, health, safety and security, and leaving no one behind. Most importantly it is a fulfillment of the right to education as enshrined in the Constitution of Saint Lucia.

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Acronyms

AF	Adaptation Fund
AOI	Area of Influence
BMP	Best Management Practice
AMOC	Atlantic Meridional Overturning Circulation
CARCIP	Caribbean Regional Communications Infrastructure Project
CAMMA	Canaries/Anse la Raye Marine Management Area
CARPHA	Caribbean Public Health Agency (formerly CEHI)
CTCN	Climate Technology Centre and Network
CUBiC	Caribbean Uniform Building Code
CCC	Castries Constituency Council
CDC	Centre for Disease Control and Prevention
CCAP	Climate Change Adaptation Policy
CTCN	Climate Technology Centre and Network
CVA	Climate Vulnerability Assessment
CBD	Convention on Biological Diversity
dB	decibel
DJF	December, January, February
DoL	Department of Labour
DCA	Development Control Authority
E&S	Environmental and Social
ECMC	Engineering, Construction & Management Consultation Limited
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and social Management Plan
ESSPP	Environmental and Social Safeguards Policies and Procedures
EAoI	Environmental Area of Influence
EHD	Environmental Health Department
FAO	Food and Agricultural Organisation
GCMs	Global Climate Models
GEF	Global Environment Facility
GCF	Green Climate Fund
GHG	Greenhouse Gas
GMSL	Global mean sea level
GOSL	Government of Saint Lucia

HRDCs	Human Resource Development Centres
IEs	Implementing Entities
IPCC	Inter-Governmental Panel on Climate Change
LMOs	living modified organisms
LPG	Liquid Propane Gas
LED	Light emitting diode
MSDS	Material Safety Data Sheets
MOE	Ministry of Education
MOI	Ministry of Infrastructure
MOPD	Ministry of Physical Development
NAP	National Adaptation Plan
NBSAP	National biodiversity strategy and action plan
NCF	National Community Foundation
NEMAC	National Emergency Management Advisory Committee
NEMO	National Emergency Management Organisation
NEAP	National Environmental Action Plan
NEMS	National Environmental Management Strategy
NEP	National Environment Policy
NIOSH	National Institute for Occupational Safety and Health
NURC	National Utilities Regulatory Commission
NA	Not Applicable
O&M	Operation and Maintenance
OECD	Organization for Economic Cooperation and Development
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
OECS	Organisation of Eastern Caribbean States
OSs	Operational Safeguards
PTA	Parent Teachers Association
PEL	Permissible exposure limit
PPE	Personal Protective Equipment
PV	photovoltaic
RCM	Regional Climate Model
RCP	Representative Concentration Pathway
SWMS	Safe Work Method Statements
LUCELEC	St. Lucia Electricity Services Limited

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SLNT	Saint Lucia National Trust
SLR	Sea Level Rise
SASAP	Sectoral Adaptation Strategies and Action Plan
SON	September, October, November
SIDS	Small Island Development State
SWMA	Solid Waste Management Authority
SAoI	Socio-economic Area of Influence
SDED	Sustainable Development and Environment Department
TVET	Technical and Vocational Education and Training
TA	Technical assistance
TOR	Terms of Reference
UN	United Nations
UN-ECLAC	United Nations Economic Commission for Latin America and The Caribbean
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organisation
UV	ultraviolet
USD	United States dollars
WMSP	Wastewater Management Strategic Plan
WASCO	Water and Sewerage Company Ltd
WRMA	Water Resources Management Agency
WHS	Work Health and Safety

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The Consulting Team

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1.0 Introduction

1.1 Overview

The Climate Technology Centre and Network (CTCN) is the operational arm of the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism. The mission of the CTCN is to promote accelerated deployment and transfer of climate technologies at the request of developing countries for energy-efficient, low-carbon, and climate-resilient development.

The GOSL proposes to increase the resilience of school plant to climate and other natural hazards, as well as man-made hazards. CTCN is supporting this technical assistance (TA) to assess the climate risk and the related negative impacts to the educational system and appraise improvement measures for preparation of a project proposal to be submitted to the Adaptation Fund (AF).

The GOSL requires that an Environmental and Social Impact Assessment (ESIA) and a Climate Vulnerability Assessment (CVA) be undertaken to inform the design phase and that an approach be developed to inform the assessment of existing schools and the future design of schools in Saint Lucia. This report presents the potential environmental risks screening and impacts assessment in line with Adaptation Fund (AF) Environmental and Social Policy of the proposed interventions. These interventions will focus specifically on increasing the resilience of the education system for short and medium-term multi-hazard risk cycle phases, and reducing dual-use conflicts, for twelve specified schools in Saint Lucia.

1.2 Project Rationale

Like other Eastern Caribbean countries, Saint Lucia is a Small Island Development State (SIDS) that is highly vulnerable to natural hazards mainly due to its location along the north Atlantic hurricane corridor, small surface area, geographic location in an area exposed to the impact of geological and hydro-meteorological hazards, and economic reliance on climate-sensitive sectors (tourism and agriculture). The variety of natural hazards exposed to include hurricanes, floods, landslides, droughts, and fires. Because of small geographic size and dependence on natural resources, any extreme weather event can have implications on a national scale.

Hazard impacts are already being magnified by the effects of climate change, including more frequent and severe extreme weather events. Other factors exacerbate Saint Lucia's vulnerability to climate change, including infrastructure in coastal settlements, poor land use practices that result in persistent land and natural resource degradation, high levels of unemployment, reliance on imported food and fuel, and limited capacity for economic recovery after climate-related shocks. According to Saint Lucia´s Third National Communications to the United Nations Framework Convention on Climate Change (UNFCCC), with climate change, Saint Lucia faces the prospects of a multi-level risk:

- worsening impacts of sea-level rise,
- more unpredictable climate,
- drier conditions,
- heat waves,
- recurrent drought in the dry season, and
- torrential rains and flooding in the rainy season, compounded by more frequent and intense hurricanes.

These hazards negatively impact the educational system and thus children and youth. The associated vulnerabilities will increase unless the capacity of the population and the education sector to anticipate, prepare, adapt and become more resilient to such events improves.

87 of Saint Lucia's 103 public schools are also designated emergency shelters. Many of them are deemed insufficient in terms of structural condition to meet this need. To facilitate safe use of schools as emergency community shelters, they are required to, among other things, withstand a category 5 hurricane and heavy precipitation events. The post-event use of schools as emergency shelters currently disrupts normal education activity, and consideration must be given to an approach that minimizes this disruption to the education system.

The main aim of this technical assistance (TA) is to enable the Government of Saint Lucia to strategically assess climate risks to the educational system and to appraise measures required. This will inform a funding proposal to be developed for presentation to potential funding sources to support these improvements. Immediate emergency improvements will be achieved through structural reinforcements of the schools. Actions proposed should also increase resilience of local communities and human settlements to climate change by assessing and planning the implementation of technology and design options for the improvement of critical infrastructure, focusing specifically on increasing the resilience of the education system for short and medium term multi-hazard risk cycle phases and reducing dual use conflicts.

1.3 Project Terms of Reference

The TA will:

1. Conduct a rapid climate change vulnerability assessment of the country and twelve schools, to identify the most vulnerable areas and schools.
2. List, rank, and select the most climate change vulnerable areas and schools.
3. Develop school by school 'resilience improvement' packages showing options for upgrading, retrofitting, or replacement to increase school resilience and function as shelter (in line with OECD guidelines). A capacity gaps and needs assessment will be conducted.
4. Identify ways to replicate and upgrade the technique and approach in the target countries and in the region.
5. Conduct potential environmental and social risks screening and impacts assessment of the proposed interventions (in line with AF Environmental and Social Policy and Gender Policy, as well as with CTCN procedures and guidelines on gender mainstreaming).

This report is in response to the final Terms of Reference (TOR) requirement, to conduct environmental and social risks screening and impact assessments of proposed project activities. This is to be in line with national requirements, AF Environmental and Social Policy and Gender Policy, and CTCN procedures and guidelines on gender mainstreaming. The TOR requires development of an Environmental and Social Risks Management Plan (ESMP), to include:

- risk mitigation measures,
- monitoring requirements and roles, and
- budget.

Consultations are to be conducted with key stakeholders to inform the assessment, and to ascertain possible concerns related to potential risks and impacts.

The gender mainstreaming factor is to be transversally incorporated. Due to CTCN´s unrestricted commitment to gender equality, the active inclusion of women in each phase must be considered throughout this process, ensuring their participation at all decision-making levels. Dignity and respect for women must also be considered, complying with SDG 5 on gender equality.

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Deliverables include:

1. Environmental and social risks screening and impacts report of proposed project activities (ESIA)
2. Environmental and Social Management Plan (ESMP)
3. Consultations report

Priorities for climate change resilience criteria are identified in the TOR as:

- Ensuring service provision of schools pre-, during, and post-hurricanes, including as shelter for community if needed.
- Resilience construction of schools to:
    a. Hurricane wind (category 5)
    b. Water scarcity/lack of water supply (droughts)
    c. Floods
    d. Energy supply interruption
    e. Sanitation service interruption (this is a secondary consideration)
- Resilience to non-climatic hazards:
    f. Earthquakes
- Capacity Building for national institutions:
    i. Include national institutions staff in site visits/assessments and other activities to build capacity

1.4 Project Locations

The 12 schools selected by the Ministry of Education for assessment under this project are:

1. Ave Maria Infant
2. Ave Maria Primary
3. Balata Combined
4. Bexon Primary
5. Corinth Secondary
6. Desruisseaux Combined
7. Fond Assau Combined
8. Micoud Primary
9. Patience Combined
10. Saltibus Combined
11. Vieux-Fort Infant
12. Vieux-Fort Primary

A table of coordinates (Table 1.1.) of these is provided, followed by a montage of the 12 schools (Figure 1.1) and a map (Figure 1.2).

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Table 1.1: Coordinates of the 12 Schools in Saint Lucia (Source: ECMC Ltd, 2021)

School	Latitude	Longitude
Ave Maria Infant	14° 0'31.28"N	60°59'18.93"W
Ave Maria Primary	14° 0'31.72"N	60°59'20.00"W
Balata Combined	14° 0'45.28"N	60°57'14.30"W
Bexon Primary	13°57'8.60"N	60°58'30.85"W
Corinth Secondary	14° 2'46.30"N	60°57'57.71"W
Desruisseaux Combined	13°47'53.19"N	60°56'3.15"W
Fond Assau Combined	13°59'47.27"N	60°56'10.91"W
Micoud Primary	13°49'9.90"N	60°54'0.60"W
Patience Combined	13°51'3.47"N	60°54'27.74"W
Saltibus Combined	13°48'17.50"N	61° 0'48.48"W
Vieux-Fort Infant	13°43'51.76"N	60°57'10.26"W
Vieux-Fort Primary	13°43'44.77"N	60°56'58.91"W

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Ave Maria Infant

Ave Maria Primary

Balata Combined

Bexon Primary

Corinth Secondary

Desruisseaux Combined

Fond Assau Combined

Micoud Primary

Patience Combined

Saltibus Combined

Vieux Fort Infant

Vieux Fort Primary

Figure 1.1: Montage of Twelve Schools – Saint Lucia

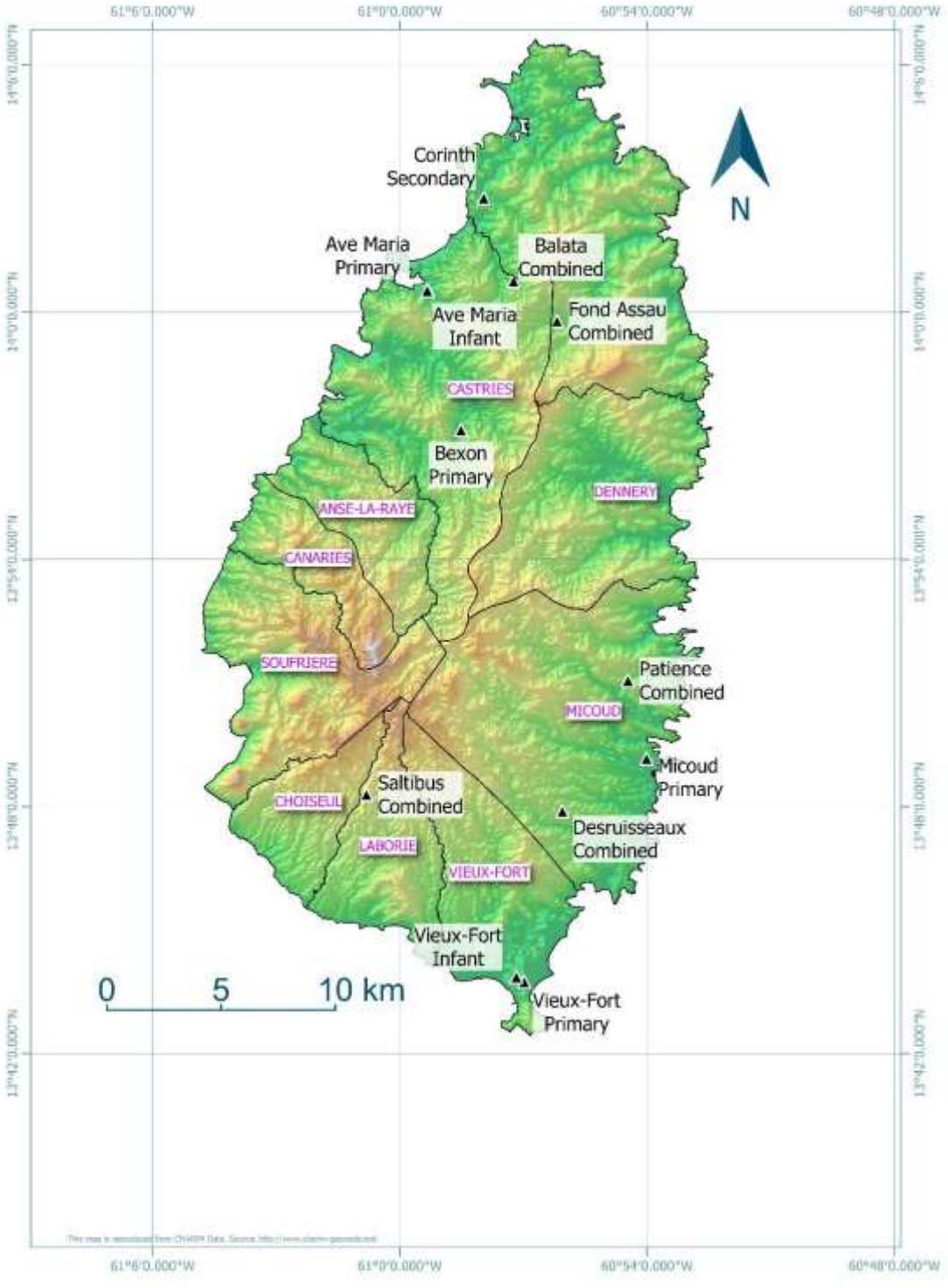

Figure 1.2: Overview map of the 12 schools in Saint Lucia (Source: HR Wallingford, 2021)

Note: Ave Maria infant and primary schools are on the same compound in Castries and appear as one point

1.5 Project Need

The project is needed to reduce the climate vulnerability of the selected schools, and more generally, to develop guidance for increasing the climate resilience of the education system in Saint Lucia and other countries in the region.

A rapid climate change vulnerability assessment has been conducted of Saint Lucia generally and specifically of the twelve schools, to identify vulnerabilities to:

1. hurricanes,
2. droughts,
3. floods,
4. Sea-Level rise,
5. Landslides.

Measures recommended to improve resilience at each school and to facilitate the functioning of the schools as shelters (in line with OECD guidelines) have been developed. These include options for upgrading, retrofitting, or replacement.

1.6 Areas of Influence

The locations of the targeted schools are mapped in Figure 1.2. Each Project AOI comprises an environmental and social component and includes the receptors that may be permanently and temporarily affected by the proposed Project features.

1.6.1 Environmental Area of Influence

The Environmental Area of Influence (EAoI) may be defined as the area and aspects of its environment that are likely to be affected by each of the sub-Project activities during design, construction, and operation of the sub-Project. Potential impacts are expected to be significant within the site boundary and in the areas immediately adjacent to the project sites, including the adjacent land users and developments, including residential, commercial, institutional, and recreational uses; and the section of the road network in close proximity to the school sites, and waterways and coastal areas that could be affected by sedimentation and pollutants originating from the site. Attention has been concentrated mostly in these areas with some consideration given to more distant, off-site impacts such as haulage of construction materials and waste as appropriate. There are no protected areas, heritage sites, or biodiversity concerns in close proximity to any of the sites. Consideration is given to:

1. Water resources
2. Geology and soils
3. Air quality
4. Noise
5. Natural habitats and biodiversity
6. Archaeological and cultural resources
7. Land-use, landscape, and visual character
8. Traffic circulation and safety
9. Utilities and communications systems
10. Solid waste
11. Hazardous materials
12. Natural hazards and climate change
13. Manmade hazards

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1.6.2 Socio-economic Areas of Influence

The Project's Socio-economic Area of Influence (SAoI) includes any area affected by changes to its economic and social dynamics caused by the implementation of an infrastructure project. The socio-economic areas of influence for each school are indicated in Table 1.2.

Table 1.2: Sub-Project Socio-economic Area of Influence

Socio-economic Areas of Influence									
School/Construction and Operational Phases	Local Governance	Social dynamics and demography	Mobility and Transport	Welfare health and safety	Land tenure	Access and use of natural resources	Employment and economic activities	Basic Infrastructure and services	Cultural Heritage
Ave Maria Infant									
Construction Phase									
Construction Activity		✓		✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence			✓	✓			✓		
Waste generation				✓					
Operation Phase									
Ave Maria Primary									
Construction Phase									
Construction Activi		✓		✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence			✓	✓			✓		
Waste generation				✓					
Operation Phase									
Balata Combined									
Construction Phase									
Construction Activi		✓		✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence			✓	✓			✓		
Waste generation				✓					
Operation Phase									
Bexon Combined									
Construction Phase									
Construction Activi		✓	✓	✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence				✓			✓		
Waste generation				✓					
Operation Phase									

Socio-economic Areas of Influence									
School/Construction and Operational Phases	Local Governance	Social dynamics and demography	Mobility and Transport	Welfare health and safety	Land tenure	Access and use of natural resources	Employment and economic activities	Basic Infrastructure and services	Cultural Heritage
Corinth Secondary									
Construction Phase									
Construction Activi		✓	✓	✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence				✓			✓		
Waste generation				✓					
Operation Phase									
Desruisseaux Cbnd									
Construction Phase									
Construction Activi		✓	✓	✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence				✓			✓		
Waste generation				✓					
Operation Phase									
Fond Assau Cbnd									
Construction Phase									
Constr Act		✓	✓	✓			✓	✓	
Veh & Equip			✓	✓					
Labour				✓			✓		
Waste gen				✓					
Operation Phase									
Micoud Primary									
Construction									
Construction Activi		✓	✓	✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence				✓			✓		
Waste generation				✓					
Operations Phase									
Patience Combined									
Construction Phase									
Construction Activi		✓	✓	✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence				✓			✓		
Waste generation				✓					
Operations Phase									

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Socio-economic Areas of Influence									
School/Construction and Operational Phases	Local Governance	Social dynamics and demography	Mobility and Transport	Welfare health and safety	Land tenure	Access and use of natural resources	Employment and economic activities	Basic Infrastructure and services	Cultural Heritage
Saltibus Combined									
Construction Phase									
Construction Activi		✓	✓	✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence				✓			✓		
Waste generation				✓					
Operations Phase									
Vieux Fort Infant									
Construction Phase									
Construction Activi		✓	✓	✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence				✓			✓		
Waste generation				✓					
Viuex Primary									
Construction Phase									
Construction Activi		✓	✓	✓			✓	✓	
Vehicle & Equip't			✓	✓					
Labour Presence				✓			✓		
Waste generation				✓					
Operational Phase									

From the mapping in Table 1.2, it appears that in the construction phase sub-project activities may impact the welfare, health and safety of the daily users of the school. The presence of workers may induce the spread of communicable diseases including COVID-19. Solid waste generation creating dust, the onset of poor air quality, and noise are potential health hazards. The movement of vehicles and equipment presents hazards to access. Labour presence may cause disruption to school operation and pedestrian challenges. Basic infrastructure such as water tanks at the school may be temporarily out of commission due to repairs and other necessary construction activity. Community members may flood the school premises in search of employment. Changes to the dynamics of local governance, land tenure, access and use of natural resources, and cultural heritage as areas of socio-economic influence are not envisaged as a result of activities in the construction phase. The operation phase does not appear to affect the areas of influence identified.

1.7 Purpose and Objectives of the ESIA and ESMP

The purpose of this ESIA is to ensure that the significant environmental and social impacts, both beneficial and adverse, of each of the proposed 'Resilience Improvement' packages, have been considered and assessed, and that gender-sensitive mitigation and enhancement measures are outlined, inclusive of identification of responsibilities for their implementation.

The objectives of the ESIA are to:

- Facilitate an understanding of the existing baseline conditions that are relevant to resources/receptors that could be significantly impacted by the proposed sub-Projects;
- Recommend the means for adequate engagement with affected communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated;
- Document how stakeholders have been engaged during the ESIA process, and how stakeholder feedback has been considered in the ESIA;
- Identify the aspects of the proposed sub-Projects that are likely to result in significant impacts to resources/receptors;
- Determine and assess the significance of the impacts of the proposed sub-Projects;
- Determine and evaluate the significance of residual impacts of the Proposed sub-Projects;
- Identify the environmental, social, health and safety aspects of the Proposed sub-Projects that need to be managed and recommend appropriate and justified mitigation and enhancement measures to be undertaken during and after implementation;
- Develop a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment;
- Recommend cost-effective measures to be used to mitigate against the anticipated negative impacts;
- Identify and analyse alternatives to the proposed sub-Projects;
- Develop a gender-sensitive Environmental and Social Management Plan Framework (ESMP framework) to set out the links between the Environmental and Social Management System (ESMS), a full ESMP, and environmental and social sub-plans compliant with GOSL, CTCN, and AF guidelines.

1.8 Approach to the ESIA and ESMP

The main stages in the ESIA process consisted of:

- Preliminary studies to identify the baseline conditions (including physical, ecological, and socio-economic conditions).
- Review of available literature.
- Participation in meetings with members of the Design Team.
- Consultations with client ministries, other government organisations, staff and students in some of the affected schools, and local community residents and other stakeholders operating in the vicinity.

- Site visits.
- Full ESIA of all options under consideration.
- Identification of mitigation measures for these options.

The assessment approach is rigorous, with potential risks in all project phases (i.e. site investigation, design, implementation, operation and maintenance, and decommissioning) identified and their significance assessed.

1.9 Key Outputs of the ESIA

The key output of this ESIA is a gender-sensitive, participatory and consultative-oriented ESIA report which addresses the following:

- The positive environmental and social impacts, potential negative environmental and social impacts, and the proposed measures for inclusion in the construction and operation of the schools to enhance the positive impacts and mitigate the potential negative impacts.
- The differential impact of the project on the economic and social activities of males and females (effect of increased access to transport, effect of construction phase, employment and/or livelihood opportunities, safety and security, etc.).
- Gender-specific risks and vulnerabilities and gender-specific coping mechanisms, including those linked to projected climate change and project employment or indirect project-related livelihood opportunities.
- Community risks and vulnerabilities and community priorities for potential investments.
- The costs of proposed mitigation measures, and their suitability under local conditions; and the institutional, training, and monitoring requirements for the proposed mitigation measures.
- Institutional assessments as part of the social and environmental impact assessment exercise.

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2.0 Policy, Legal, Regulatory, and Institutional Framework

2.1 Overview

This section provides a legal context for the ESIA, identifies Saint Lucia's legal and policy requirements, and the UNIDO policies and guidance on environmental and social impact assessment.

This ESIA fully complies with environmental and social legislation and procedures in Saint Lucia, the AF E&S Policy and the UNIDO environmental and social safeguard policies.

2.2 Adaptation Fund Environmental and Social Policy

The environmental and social policy of the Adaptation Fund is intended to ensure that projects supported by the fund do not result in significant adverse environmental and social impacts (Adaptation Fund Board, 2016). The policy is consistent with those of other leading financial institutions that seek to enhance sustainable development benefits while avoiding unnecessary harm to the environment, public health, or vulnerable communities.

The policies require identification and management of potential environmental and social risks of proposed activities. The policy does not prescribe the required approach to achieve compliance, but requires the assessment to be comprehensive, evidence- and risk-based, producing recommendations for safeguarding that are commensurate with the identified potential risks. Procedures outlined in the following should be complied with:

- Guidance Document for Implementing Entities (IEs).
- Manual of basic Environmental and Social Management System procedures and functions at National Implementing Entities.
- Reference Materials for Environmental and Social Safeguarding in Adaptation Fund Projects and Programmes.

Implementing entities are responsible for risk management. Implementing agencies are required to have an environmental and social management system to identify and assess risks early in project design; adopt measures to avoid, minimize or mitigate risks during implementation; and monitor and report on the status of measures through implementation. Informed participation of stakeholders must be facilitated through formulation and implementation phases of the project.

All projects are to be screened for environmental and social impacts and categorized according to potential impacts. Consultation must include vulnerable groups including gender considerations. Projects with impacts likely to be diverse, widespread, and irreversible are categorized as Category A. Projects with less adverse impacts are categorized as category B. Category C projects are those with no adverse impacts. Assessment scope must be commensurate with the scope and severity of potential risks. All potential risks should be assessed and all risk management plans developed. All the proposed project interventions should be categorized as Category B.

The fifteen environmental and social principles of the Fund are:

1. Compliance with the law
2. Access and equity
3. Protection of marginalized and vulnerable groups
4. Respect for human rights
5. Gender equality and women's empowerment
6. Compliance with core labour standards

7. Respect for the rights of indigenous peoples
8. Minimal involuntary resettlement in accordance with due process
9. Protection of natural habitats
10. Conservation of biological diversity
11. No significant or unjustified contribution to climate change
12. Pollution prevention and resource efficiency
13. Avoid significant negative effects on public health
14. Avoid negative impacts on physical and cultural heritage
15. Lands and soil conservation

For all Category A and B projects, the assessment is required to consider all potential direct, indirect, transboundary, and cumulative impacts and risks that could result from the proposed project/programme; assess alternatives to the project/programme; and assess possible measures to avoid, minimize, or mitigate environmental and social risks of the proposed project. The assessment is to be accompanied by an environmental and social management plan that identifies those measures necessary to avoid, minimize, or mitigate the potential environmental and social risks, and this is to inform the monitoring and reporting plan for that project.

The results of the screening, assessment, and monitoring are to be available for public consultation in a timely and effective fashion.

A grievance mechanism is to be available.

2.3 UNIDO Environmental and Social Safeguards Policies and Procedures

The United Nations Industrial Development Organisation (UNIDO) identifies environmental and social sustainability as a fundamental aspect of achieving outcomes consistent with its mandate and has published its Environmental and Social Safeguards Policies and Procedures (ESSPP) (UNIDO, 2017), consistent with standard practice in development cooperation. The UNIDO ESPP applies to all UNIDO projects, including those supported by Global Environment Facility (GEF) and Green Climate Fund (GCF).

The UNIDO ESSPP draws on the safeguard requirements and policies of the GEF, GCF, and the United Nations (UN) Environment Management Group and provides tools and guidance to strategically design and implement environmentally and socially sustainable projects. The UNIDO ESSPP consists of four interrelated components in one document:

1. The **Integrated Safeguard Policy Statement** lays out the policy principles and describes the common objectives of UNIDO's safeguards.
2. The **Operational Safeguards (OSs)** consist of a set of ten programmatic and two framework safeguard requirements that the project development team is expected to follow when addressing social and environmental impacts and risks.
3. The **Environmental and Social Safeguard Steps** along the Project Cycle section provides guidance on the specific procedures that the project development team should follow to ensure that operations meet the requirements of the OSs at each stage of the UNIDO project cycle.
4. The **Environmental and Social Safeguard Tools** section provides project development teams with the tools to screen projects for environmental and social risks and develop the environmental and social studies required by the ESSPP.

The ESSPP policy and safeguards are fundamentally similar to the AF policy.

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2.4 Government of Saint Lucia Environmental Policies

2.4.1 Saint George's Declaration of Principles for Environmental Sustainability in the OECS

Regional Governments adopted the Saint George's Declaration of Principles for Environmental Sustainability in the Organisation of Eastern Caribbean States (OECS) in April 2001, proclaiming the principles of sustainable development by which human conduct affecting the environment is to be guided and judged. The twenty-one principles sought to guide national development activities and decision-making at the national and regional levels. These principles are based on the Principles of the UN Conference on Environment and Development Rio Declaration and Programme of Action and the subsequent SIDS Programme of Action from the UN Global Conference on Sustainable Development of Small Island Developing States.

Annex A to the Saint George's Declaration of Principles lists commitments on the parts of Governments, regional organisations, and international agencies. In November 2001, the Environmental Policy Committee of the OECS endorsed the OECS Environmental Management Strategy, which established the mechanisms and actions that would give effect to the Declaration. Principle 19 required OECS countries to develop a National Environmental Management Strategy (NEMS).

The Declaration was revised in 2006.

2.4.2 Relevant National Policies and Plans

There are numerous national policies and plans relevant to sustainable development and the environment. These have had limited success due to the absence of supporting legislation (although an Environmental Management Act was drafted in 2008 in an effort to address this deficiency, it has not yet been enacted). Some national policies and plans of relevance to this project are listed below:

National Land Policy

The Ministry developed the *Proposed Revised National Land Policy for Saint Lucia; Our land, our business, our future* in 2015. This recognised that land is Saint Lucia's main resource for development, that land issues are very complex; and that the country must be guided by clear and progressive measures when dealing with issues pertaining to land and development. The following strategic outcomes were proposed:

1. Conserving and managing land resources while reducing risk and vulnerability.
2. Optimising the contribution of land to economic development and livelihoods.
3. Optimising the contribution of land to social development and cultural identity.
4. Rationalising and optimising land use and settlements.

National Environmental Action Plan (NEAP)

The National Environmental Action Plan (NEAP) was developed as part of an international programme arising out of Agenda 21 and was to serve as the roadmap for implementation of a comprehensive environmental management programme. It had Cabinet approval but was never fully implemented, due primarily to lack of resources, and limited stakeholder buy in.

National Environment Policy (NEP) and National Environmental Management Strategy (NEMS)

The National Environment Policy (NEP) and National Environmental Management Strategy (NEMS) were developed in accordance with the Saint George's Declaration of Principles for

Environmental Sustainability in the OECS. The NEP provides the broad framework for environmental management in Saint Lucia and establishes links with policies and programmes in all relevant sectors of economic and social development. The NEMS aims to provide the specific directions and mechanisms for more effective policy implementation and includes specific results expected and actions necessary to realize the policy objectives.

The NEP NEMS are formal expressions of the nation's commitment to arrest and reverse trends of environmental degradation and to ensure that sound environmental management is fully integrated into the national development policy framework.

National Biodiversity Strategy and Action Plan of Saint Lucia

Saint Lucia has a wide range of habitats on land and in the sea, with diverse communities of plants and animals, some of which are found nowhere else in the world. Saint Lucia's biodiversity is threatened by a range of human activities, such as agricultural, commercial, and residential development, pollution, inappropriate sewage, and solid waste disposal, and over-exploitation of some marine species. Saint Lucia ratified the Convention on Biological Diversity in 1993. The Convention requires preparation of a national biodiversity strategy and action plan (NBSAP). The Biodiversity Country Study report of Saint Lucia (Aug 1998) provided information on the main sectors and resources, to assess the current status of biological diversity, identify issues and propose preliminary directions. This was intended to assist in the strategy and plan preparation. The report addressed socio-economic issues, agricultural biodiversity, forest ecosystems, marine and coastal ecosystems, freshwater ecosystems, and tourism. The ensuing National Biodiversity Strategy and Action Plan sought to address issues of sustainable utilisation and conservation of Saint Lucia's biodiversity.

The second Biodiversity Strategy and Action Plan were published in 2008.

Major recommendations:

1. Preparation of a 10-year action plan with time-bound targets.
2. Promotion of an integrated planning approach to include mainstreaming of biodiversity management into national sustainable development strategies and (sector) plans.
3. Establishment of appropriate frameworks to implement the NBSAP and other related policies such as National Environment Policy (NEP), National Environment Management Strategy (NEMS), and the Biosafety Framework.
4. Enhancement of private sector and community awareness and participation in the conservation and sustainable use of biodiversity.

Saint Lucia Forest Policy (2008)

The objectives of the National Forest Policy are to Conserve and enhance the quality and productivity of the country's forest resources (natural and man-made) for ensuring a sustained flow of goods and services; Encourage and foster the participation of stakeholders in planning and decision making for effective protection, management and development of the forests and wildlife; Educate and maintain a high level of public consciousness regarding the functions of and benefits to be derived from appropriate forest and wildlife conservation (wise use and protection); Conduct research and investigation into all aspects of the flora and fauna of the forests and the influence of forest cover on maintenance of water and soil resources, so as to provide the basis for informed management and development action. Establish and maintain effective institutional arrangements and innovative financial structures to ensure the efficient

implementation of this policy and relevant legislation, plans, and programmes that emanate from it. The Government of Saint Lucia is committed to a number of international and bi-lateral conventions that seek to conserve important ecosystems, including wetlands and wildlife habitats while sustaining the productive potential of the natural forest resource base. The policy will therefore be directed at conserving the biodiversity of plants and animals' life while minimizing and mitigating the impacts of invasive alien species and climate change on the country's natural resources. Emphasis will also be placed on enhancing community-based watershed management to reduce the incidence of excess run-off and pollution on coastal and marine resources, improve the quality of water supplies for domestic and industrial usage, protect rivers and riparian vegetation in critical areas.

National Ocean Policy of Saint Lucia (draft)

The National Ocean Policy (draft- 2019), being developed with OECS support, presents an overarching vision, policy statement, and strategic outcomes for the marine and associated sectors in Saint Lucia. The proposed Marine Spatial Plan for the Blue Economy to follow will establish a long term-plan for Saint Lucia's Exclusive Economic Zone, the entire marine space that the government of Saint Lucia is responsible for managing under the United Nations Law of the Sea. The proposed Coastal Masterplan will articulate actions to be conducted within the coastal region of Saint Lucia, the area that is found immediately around the island and where most marine-related activity currently occurs.

National Water Policy of Saint Lucia

The policy analysed the exiting situation and concluded that Saint Lucia was facing a situation of water stress which will worsen unless urgent action is taken. The policy was driven by a vision of a future in which all users of water resources understand and appreciate the value of water as a fragile, finite and essential resource and are sufficiently empowered whether individually or collectively to perform their respective roles in ensuring access to a safe, secure, adequate and affordable supply of fresh water. The goal of the policy was to sustain economic growth, human development, and environmental sustainability by promoting and facilitating the use and management of freshwater resources in an efficient, sustainable, and equitable manner that is consistent with the social, economic, and environmental needs of current and future generations as well as with the country's international obligations.

Draft Wastewater Management Strategic Plan (WMSP)

The need for a specific national policy and strategic plan to guide Saint Lucia's collection, treatment, and disposal of wastewater is underscored by the deficits, threats, and vulnerabilities associated with poor wastewater management; and its potential as a driver for social and economic development, poverty reduction and improved public and environmental health.

The draft (2016) WMSP's vision is for Saint Lucia to provide affordable, reliable, culturally acceptable, ecologically sustainable and resilient wastewater solutions that protects public health and meets the needs of present and future communities and organizations. The Wastewater Strategic Plan will guide future asset management, service performance, planning, and investment processes for the wastewater system and applies to all public and private wastewater needs and systems in Saint Lucia. Based on the five key Policy objectives, the strategic components for the development of the WMSP are:

- Promotion of demand
- Service delivery levels and technologies

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- Institutional arrangements
- Strengthening of enforcement and expertise
- Financing
- Monitoring.

Saint Lucia National Climate Change Policy and Adaptation Plan (2003)

Saint Lucia ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1993. The policy and strategy were based on an acceptance that climate change is occurring, and will continue even if immediate steps are taken to reduce global warming. It accepted that the effects will have a net adverse effect on the economic, social and environmental aspects of life in Saint Lucia. The policy proposed an integrated, coordinated, holistic and participatory approach to planning for and amelioration the effects of, climate change, to ensure that the quality of life of Saint Lucians and opportunities for sustainable development are not compromised.

Saint Lucia's Intended Nationally Determined Contribution under the United Nations Framework Convention On Climate Change (UNFCCC) (2015)

Saint Lucia developed a Sustainable Energy Plan in 2001 and has committed to providing up to 35% of electricity generation from renewable sources (geothermal, wind, and solar) by 2020. The country's commitment is further reflected in its Energy Policy (2010) and the ongoing review of the Electricity Supply Services Act to help to create an enabling environment to achieve this goal.

Saint Lucia's National Adaptation Plan (NAP)

The GOSL recognises that climate change poses challenges to its population, natural resources and economy, and has taken considerable measures to identify and address current and future climate risks at the policy and operational level. Various sectoral policies address climate change and a wide range of interventions have been established as adaptation measures. The National Adaptation Plan (NAP) process was initiated in 2017 for more effective climate adaptation planning and integration of climate change adaptation considerations into relevant policies and programmes. The NAP process is expected to build adaptive capacity and resilience in all sectors and at all levels of society. It consists of continuous planning and implementation cycles and implies the iterative assessment of sectoral and cross-sectoral adaptation needs, the identification and prioritisation of actions to address those needs, and the implementation of prioritised actions.

Saint Lucia's NAP has been defined as a 10-year process consisting of a Plan with key cross-sectoral and sectoral adaptation measures presented for 8 sectors/areas. The NAP will be complemented with Sectoral Adaptation Strategies and Action Plans (SASAPs) for water, agriculture, fisheries, infrastructure and spatial planning, natural resource management (terrestrial, coastal, and marine), education and health sectors/areas. The SASAPs will be elaborated, as funding becomes available.

The NAP targets policy makers, technical officers and managers within GoSL, and non-state actors interested in supporting the GoSL's efforts to build climate resilience, including regional and international partners and donor agencies. While adaptation is key to reducing risks and impacts of climate change, adaptation cannot prevent all climate change impacts from occurring. Ineffective mitigation at the global level may result in a number of limits to adaptation for Saint Lucia, including the inability of coastal ecosystems to adapt to increased rates and extent of sea level rise; insufficient financial resources to implement required adaptation strategies, and lack of effective or affordable technology to provide coastal protection from impending sea level rise

and extreme events. These limits to adaptation may result in loss and damage-impacts of climate change. For Saint Lucia, loss and damage may affect all aspects of life, including loss of territory, damages to critical infrastructure, loss of income and livelihoods, decreased worker productivity and displacement and migration of communities. Comprehensive climate risk management is aimed at addressing loss and damage through strengthening the resilience of vulnerable people, communities and nations, including mechanisms, for coping with impacts that cannot be avoided. Key actions for risk assessment, reduction, transfer and retention that Saint Lucia may wish to pursue are highlighted and include hazard mapping, early warning systems and continued engagement in regional risk pooling, livelihood protection policies and insurance platforms.

Saint Lucia National Emergency Management Plan

The National Emergency Management Organisation (NEMO) in Saint Lucia is responsible for having the Nation in a state of preparedness in case of an emergency; also, for responding to the needs of the Nation after a disaster and coordinating the response at local, regional and international levels. During an event, NEMO is part of a larger network that comes into existence to respond to a disaster. There are 10 National Disaster Committees in Saint Lucia that belong to NEMO; they are all involved in the planning and response against disasters. There are 18 District Disaster Committees.

System of Protected Areas for Saint Lucia (draft)

A System of Protected Areas for Saint Lucia was first prepared by the Saint Lucia National Trust (SLNT) in 1992 and was reviewed by the SLNT with assistance from the Nature Conservancy in 2009. The plan has never received Cabinet endorsement.

The Saint Lucia National Housing Policy (2008)

The policy acknowledges the right to safe, secure, healthy, accessible and affordable housing. The purpose of the National Housing and Resettlement Policy is to provide a clear framework for addressing housing issues in an efficient and effective manner.

National Occupational Safety and Health (OSH) Policy (draft)

The Department of Labour (DoL) and other relevant stakeholders have recognized the need for greater focus on prevention of occupational accidents and diseases on the part of workers, enterprises and the government, to ensure sustainably safe workplaces. They also recognise that a healthy workforce operating in work environments that meet established standards has numerous potential benefits, including increased productivity, economic and social development, a lower public health bill, and international competitiveness. The Labour Act (No. 37 of 2006) was enacted after rigorous tripartite consultation and came into force in 2012. The Act was intended to consolidate and reform legislation applicable to labour and industrial relations in Saint Lucia. The Labour Act applies to all employees and all workplaces. Part IV of the Act addresses occupational safety and health. The National OSH Policy (draft, 2017) sets out the tripartite vision for OSH, and identifies agreed priorities for action.

2.5 Government of Saint Lucia Social Policies

The domain of social policy is vast. In fact, it largely serves to define a society. It includes most of what a community collectively does to protect its weakest members, but it also has to meet the social needs of all. Saint Lucia has not ratified the ILO Social Policy (Basic Aims and Standards) Convention, 1962 (No. 117) which came into force on April 23, 1964. See Appendix 5 for an extract of the Convention.

2.5.1 Gender

The Division of Gender Relations in the Ministry of Education, Innovation, Gender Relations and Sustainable Development, is mandated to facilitate an enabling environment that addresses gender imbalances through policies, programmes and other initiatives promoting equity and social justice. Its programme strategies include i. Developing and implementing programmes to increase capacity and awareness on gender issues ii. Developing and implementing a comprehensive national response to gender-based violence iii. Promoting the use of gender statistics/data to inform programmes and project development iv. Supporting other agencies'/institutions' programmes that address gender discrimination and inequity.

Gender considerations have assumed more prominence in recent times, from non-inclusion in Saint Lucia's 1st National Communication of 2001 to the UNFCCC, to specific reference to women as a vulnerable group in Saint Lucia's CCAP of 2015, to inclusion of gender considerations in Saint Lucia's NAP and supplements of 2018 and beyond.

Saint Lucia's 2nd National Communication to the UNFCCC of 2011 contains a section on Gender, Youth, Children and Poverty. Saint Lucia's CCAP indicates that:

- "community groups, including women and youth, also identified a number of implementation adaptation measures that focused on water and which were important for their quality of life".
- ".... the success of the CCAP will in part depend on the extent of stakeholder (including women and vulnerable groups) ownership and participation, at all levels of society, in the conduct of vulnerability assessments, in the conduct of implementation adaptation interventions, in participation in facilitation of adaptation interventions and in the monitoring and evaluation of these interventions to determine best practices and lessons learned".
- It also proposes as an action: "Conducting appropriate studies to understand the scope and breadth of vulnerabilities of certain groups, including poor children and the elderly, poor women and men in order to design appropriate response strategies".

Saint Lucia's 3rd National Communication to the UNFCCC of 2017 states that:

- "Existing gender inequalities are increased or heightened by climate-related hazards: gendered impacts result from customary and new roles in society, often entailing higher workloads, occupational hazards indoors and outdoors, psychological and emotional distress, and mortality in climate-related disasters".
- Gender considerations are included at various points of the Communication, including a section on "education and employment".

Saint Lucia's NAP and SASAPs in Water, Agriculture, Fisheries (2018), as well as the more recent REASAP of 2020 all recognise the importance of "Gender Considerations" in the climate change process (specific sections allocated in each), with the understanding that the matter ought to be given due consideration at every stage. Thus, when project concepts are being amalgamated or expanded for funding consideration, every effort would be made to adequately address the matter in project design/developmental, implementation and monitoring stages. The latter consideration is inclusive of an Agricultural Project that was expanded and submitted and received recent approval for funding under the Adaptation Fund.

Saint Lucia's compilation on Guidelines for the Development of SASAPs (2018) indicates that:

- In the preparation of SASAPs, it is important to look for data and reliable information that allows one to answer various questions, including: "Are there gender issues documented for this sector in the country"?
- Likewise, the Cabinet-approved Monitoring and Evaluation Plan (2018) under the NAP process also reflects gender in the information to be captured in the reports. It states that "the main objective of this NAP M&E system is to enable the GoSL to track the progress made in the planning and delivery of effective cross sectoral and sectoral climate adaptation solutions through the NAP process. In practical terms, the M&E will: Review progress in, and steer the implementation of, the NAP process, identifying gaps and solutions to address shortcomings: For example, analysing and proposing interventions for better addressing the needs of vulnerable groups, which may include the collection of relevant gender-differentiated information".
- Saint Lucia's Monitoring and Evaluation Plan (2018) also includes indicative templates for monitoring the implementation of the NAP Process. Templates include questions such as: "Total number of gender-specific sectoral and cross-sectoral measures completed during the requisite calendar year; Of the measures that were completed during the requisite calendar year, which, if any, specifically targeted men or specifically targeted women? List initiative(s) and gender targeted.

Saint Lucia's Country Programme for the GCF (2020) references the 2020-2023 Medium-term Development Strategy. It indicates that:

- This Strategy "focuses on six Key Results Areas (KRA): tourism, agriculture; infrastructure; healthcare; education and citizen security (Government of Saint Lucia, 2020). It also includes four cross-cutting areas: productivity and economic competitiveness; gender mainstreaming and social protection; disaster risk management, resilience and sustainable development; and information and communication technology (Government of Saint Lucia, 2020)".
- The Country Programme also recognises that "Current priorities for a multi-year readiness programme could include gender mainstreaming and sector gender analyses, developing strategic frameworks for low-emission investments including in transport and energy, and the enhancement of Saint Lucia's REDD+ Strategy and action plan".

A number of revised/updated climate relevant policies give due consideration to the gender dimension, including, among others, a Water Policy, and a Fisheries Policy. Quoting from the REASAP of 2020: "...to foster equality in adaptation benefits, Saint Lucia's NAP and associated Adaptation Strategies and Action Plans focus on vulnerable groups. Gender-disaggregated information will be collected and assessed.

Gaps, barriers, and needs:

- Although the NAP and SASAPs include activities focusing on women and men generally based on a number of vulnerability factors, they do not identify activities that are specific to either women or men, owing to the lack of data on differential needs.
- The need for planners and decision makers to understand gender as a dimension to be taken into account in the design, planning and implementation of every project/policy/programme that involves people cannot be overstated.

- Often, projects/policies/programmes pay greater attention to the product rather than on who is impacted. The gender dimension allows planners and decision-makers to consider who will be impacted even before implementation, noting that who is impacted will determine how they are impacted and what provisions need to be made for their direct benefit.

NOTE: Extracted from "Saint Lucia's Climate Policy Environment: Towards Concrete Action-A Discussion Paper" by Dawn Pierre-Nathaniel, Department of Sustainable Development Saint Lucia, pps 14 -16. (Source: https://napglobalnetwork.org/wp-content/uploads/2021/02/Saint-Lucias-Climate-Policy-Environment-UWI-CC-Conference-DPNathoniel-Feb-09-2021.pdf)

2.5.2 Social Protection Policy 2014

The Policy combines a mixture of protective, preventive, promotive and transformative measures aimed at Alleviating economic, social and environmental deprivation, including relief of chronic and extreme poverty (protective); Reducing the consequences and impact of shocks before they occur (preventive); Enhancing human capital, real income, capabilities and assets (promotive), while avoiding damage to the existing natural capital in order to facilitate the transition towards a Green Economy; and Addressing social equity and exclusion concerns, including discrimination and abuse (transformative).

Priority areas have been defined to meet the Policy goals and objectives. The following are the priority areas: Priority Area 1: Modernize the Social Protection systems and strengthen the capacity to deliver services in an efficient and effective way; Priority Area 2: Rationalize, reform and strengthen protective interventions and strategies; Priority Area 3: Rationalize, reform and strengthen preventive and promotive interventions and strategies; and Priority Area 4: Review and develop the institutional, financial and legal frameworks for more coordinated and transformative social protection services.

The Policy and its accompanying Action Plan are being reviewed and updated to bring it more in line with the innovations in the social protection sector and responding to new and emerging needs and conditions such as climate change and health pandemics.

2.5.3 Climate Change Adaptation Policy 2013

The aim of this Climate Change Adaptation Policy (CCAP) is to foster and guide a national process of addressing the short, medium, and long-term effects of climate change in a co-ordinated, holistic, and participatory manner in order to ensure that, to the greatest extent possible, the quality of life of the people of Saint Lucia, and opportunities for sustainable development, are not compromised.

Central to the CCAP is building capacities at the individual, household, community, enterprise, and sectoral levels. It is, however, recognised that irrespective of the level at which they take place, climate change adaptation interventions vary considerably in scope, breadth, and appearance. At one end of the spectrum are actions that respond directly to climate change, such as erecting coastal embankments in areas threatened by rising sea levels. These are impact-centric options. At the other end of the spectrum are adaptation interventions which are approached as an integral part of 'good development'. The premise here is that addressing the underlying drivers of poverty and vulnerability will help people and communities to respond more generally to changing shocks and trends, including climate change.

2.5.4 Saint Lucia's National Adaptation Plan (NAP) 2018–2028

The adaptation measures included in the NAP have been formulated to address identified needs and to directly contribute to the achievement of a series of strategic objectives, 6 cross-sectoral and 26 sectoral outcomes and 2 overarching NAP goals, considered essential for Saint Lucia to realise its NAP vision and impact and the objectives of the Climate Change Adaptation Plan.

Saint Lucia's NAP consists of two sets of implementable actions. The first is a set of cross-sectoral interventions to strengthen the capacity of the country's institutions to identify, prioritise, plan, attract funding for, and effectively implement, adaptation, based on sound evidence and the best practice available. The second is a set of adaptation measures, specific to the 7 sectors/areas prioritised in 2017 (water, agriculture, fisheries, infrastructure and spatial planning, natural resource management (terrestrial, coastal and marine), education and health) and tourism. With respect to education, the NAP focuses on enhanced enabling environment for climate adaptation education 2. Improved and expanded climate change education as the basis for effective adaptation 3. Professional capacities built for leading future climate adaptation planning implementation 4. Strengthened preparedness to climate variability and extremes.

Regarding infrastructure, it focuses on enhanced enabling environment for climate adaptation in infrastructure and spatial planning 2. Strengthened infrastructure to withstand climate impacts 3. Enhanced infrastructure-based climate adaptation 4. Strengthened preparedness to climate variability and extremes.

The NAP is expected to benefit all Saint Lucians, particularly those who are most vulnerable to climate impacts. However, to reach its goals, the NAP requires the collaboration and engagement of civil society, the private sector, academic institutions, and the media, as well as technical and financial support, especially at the international level, consistent with the limitations of SIDS. The mechanisms of engagement with the various stakeholders will be defined by the NCCC and line ministries/agencies on the basis of the activities planned and funded.

2.5.5 Education Policy

Legislation

SAINT LUCIA CHAPTER 18.01 EDUCATION ACT Revised Edition Showing the law as at 31 December 2005. There are plans to review the Act so that it responds to new and emerging issues such as health pandemics, climate change, and shocks.

PART 1. Section 3. Goals and Objectives, Subsection 2:

(a) The establishment of a varied, relevant and comprehensive education system that is characterized by excellence;

(b) The promotion of education by the establishment of educational institutions for the purpose of fostering the spiritual, cultural, moral, intellectual, physical, social, and economic development of the community;

(e) The establishment of a coordinated educational system organized in accordance with this Act.

PART 2. Section 14. Right to Education Subject to all available resources, all persons are entitled to receive an education programme appropriate to their needs in accordance with this Act.

Section 15. Responsibility to Students (1) The chief Education Officer shall provide to every compulsory school-age person who resides in the State an educational programme consistent with the requirements of this Act and regulations made hereunder.

Section 20. Rights and Responsibilities of Parents (1) (c) …. Parents of students attending public schools and assisted schools are entitled to appeal decisions that significantly affect the education, health or safety of their children, and

(d) be consulted in the development of any special educational programmes prepared for their children.

Section 35. Temporary or Permanent Closing of Schools (i) The power and authority to determine the duration of the school year, the school terms and all school days in public and assisted schools is vested in the Chief education Officer and Minister (2) Where:

(a) as a result of the total or partial destruction by a hurricane, earthquake, fire, flood of all the buildings used in connection with any public or assisted school;

(b) as a result of outbreak of any infectious or contagious disease; or

(c) for any other reason.

Section 59. Functions of a Board of Management for a Primary School

(1) … a Board of Management appointed under section 57 shall -

(a) control and manage –

(i) the expenditure of any grants for the repair and maintenance of the school,

(ii) the rebuilding or extension of the school, and

(iii) other matters relating to the organization of the school as may be referred to it by the Minister.

(b) be responsible for the efficient management of the school under its control and management and for the keeping of the buildings in a good state of repair and sanitation;

(c) review, modify if necessary, and approve the school plan prepared by the school administration for each school operated by it;

(d) establish policies for the administration, management, and operation of the school including an attendance policy;

(e) prepare reports, information, and perform any duties as may be required under this Act, its regulations and guidelines, or by the Minister;

Section 65. Functions of the Board of Management for Secondary Schools

(1) The functions of the Board of Management in relation to schools for which it is established are -

(a) to be responsible to the Minister for the management, control, operation, and maintenance of the school;

(b) to receive, disburse, and account for the expenditure of such sums as may be voted by Parliament for the operation of such schools;

(c) review, modify if necessary, and approve the school plan prepared by the school administration for each school operated by it;

(d) establish policies for the administration, management, and operation of the school including an attendance policy;

(e) prepare reports, information, and perform any duties as may be required under this Act, its regulations and guidelines, or by the Minister;

139. Duties of Teachers (and Principals)

(1) Every teacher in a public and an assisted school shall –

(l) perform assigned duties in the school emergency plan developed by the school administration and the teachers to protect the health and safety of students;

(w) make and participate in implementing arrangements for the effective supervision of students during the school day, and the security of school buildings and their contents and of the school grounds;

142. National Curriculum

(2) A curriculum shall be balanced and broadly based and in addition to the goals and objectives specified in section 3.

(b) prepare students for the opportunities, responsibilities, and experiences of adult life.

(3) The Minister may revise the national curriculum whenever the Minister considers it necessary and expedient to do so.

175. Regulations

(2) …the Minister may make regulations –

(b) (iii) the suitability of premises; (iv) the suitability of the curriculum and courses and methods of instruction;

(c) prescribing the standard to which the premises of educational institutions are to conform;

(d) concerning the purposes for which the premises of a public school may be used.

Education Sector Development Plan

In developing the plan, we ensured alignment between the 2015-2020 ESDP and the goals outlined in regional and international frameworks. While at this juncture, Saint Lucia does not have an explicitly stated national development plan, we are aware of several implicit priorities:

1) nutrition and food security;
2) climate adaptability and environmental sustainability;
3) wellness and combating lifestyle diseases;
4) promulgation of ICTs;
5) peace, happiness, and security;
6) employability and entrepreneurship and
7) 21st Century, quality, equitable and affordable education.

Our philosophy of education is articulated in the various statements that follow. We are of the view that a strong philosophical foundation is critical to the success of the education system, and that the philosophical foundation must serve to bind our efforts and energies to bring about meaningful results for all learners and the country as a whole, providing an enabling environment where school leaders and teachers will facilitate learners in constructing their own learning.

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Vision: An education system that shapes the development of a literate, numerate, skilled, life-long learner; one who is values-driven, globally adaptable, and contributing meaningfully to the development of self, community, nation, and the region.

Mission: To enable all learners to realize their full potential in their fields of interest by facilitating affordable, equitable quality educational experiences that empower them with the knowledge, skills, and values conducive to achieving success in a 21st century environment.

Our Core Corporate Principles - Quality

Build a culture of quality across the education system. We must demonstrate an uncompromising commitment to quality: quality of education, quality of facilities and the environment, quality of administrative leadership, quality of instructional leadership, quality of employees, and the quality of our relationships with our partners and community.

Values and Beliefs: SOCIAL JUSTICE • Education is a pillar for self-respect and respect for others. • Education must promote and defend the rights of all citizens, and must promote fairness, justice, and equality for all.

We believe communities should be part of our schools and training institutions as much as these institutions are part of their communities. We will work to enhance the integration of our schools, training institutions and our community. We will endeavour to imbue in our learners, a sense of responsibility for their communities and the need for them to contribute to their development. Likewise, we will create the opportunities for the communities to support their schools and training institutions socially, financially, and emotionally.

A quality education system requires more than world-class curricula and educators in order to be truly successful. It requires safe and secure learning spaces; it requires quality physical plants conducive to learning, and it requires an ICT and learning resource infrastructure that allows the training and educational development of our learners for a 21st century world.

Our stakeholders, in their feedback to us, emphasized grave concerns over the quality of school infrastructure with strong concerns for the safety of children. Students, in their feedback, raised concerns with the inadequate integration of ICT in teaching and learning. They expressed a very strong desire to be taught using many of the ICT tools available today. Finally, parents expressed a strong desire for greater recognition of the role of PTAs, the need for resources, and the need for their integration in school management. Research shows a strong positive correlation between school performance and the existence of effective partnerships between parents, school and community.

Priority 4: Enhancing school climate, structure and promoting a culture of excellence and accountability for performance

Desired Outcomes

- Enhanced motivation and job satisfaction among educators and support staff.
- Enhanced school safety and security.
- Enhanced culture of accountability for school success among all stakeholders.
- Greater recognition for all forms of achievement – both academic and non-academic.
- Continuous improvement in teaching and learning practice.
- Establishment of a professional learning community.

Measures and Indicators

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- % of Schools with SDIPs.
- % of staff receiving satisfactory appraisals annually.
- Compliance rate with safety and security standards.
- Recognition and reward system established and executed.
- Job satisfaction rating among teachers, principals and staff.
- Annual number of professional development initiatives.
- Number of administrative interventions promoting accountability (by school).

Saint Lucia National Technical and Vocational Education and Training (TVET) Policy & Strategy 2019 – 2025 (2019)

The vision of the policy and strategy is to contribute to the development of competent, certified, and globally competitive citizens equipped with knowledge, skills, and attitudes for personal and national advancement. 3.3 Mission The mission of the policy and strategy is to provide equitable, holistic, and integrated lifelong learning opportunities for citizens to realize their full potential and for the achievement of a capable, competent, and competitive labour force. 3.4 Strategic Goal The strategic goal of both the policy and strategy is to develop a dynamic, globally competitive workforce.

Its Policy Statements are: Statement 1: Strengthen governance arrangements and improve coordination and management of formal and non-formal TVET. Policy Statement 2: Promote experiential learning throughout all levels of education and settings in order to integrate theoretical and applied learning. Policy Statement 3: Mobilize adequate financial resources and facilities for the provision, coordination, and delivery of quality formal and non-formal TVET. Policy Statement 4: Make available the requisite human resources for the management and delivery of quality TVET. Policy Statement 5: Provide equitable and flexible TVET learning opportunities for widening participation and addressing social exclusion. Policy Statement 6: Enhance the diversity and articulation of programmes for a more responsive and inclusive TVET. Policy Statement 7: Develop a quality assurance system that ensures that TVET is delivered based on agreed standards and that established mechanisms for provision and delivery of TVET are effective and efficient in various settings as well as relevant to personal and national development. Policy Statement 8: Advocate, promote, and market TVET to better inform policymakers, other key players, and the public of the scope and value of TVET. Policy Statement 9: Employ evidence-based decision-making informed by interdisciplinary knowledge and research. Policy Statement 10: Establish systems for continuous monitoring and evaluation of progress and implementation for the transformation and improvement of TVET.

ICT in Education Policy and Strategy for Saint Lucia 2019–2022

Vision A literate, creative, productive, inclusive, and competitive society engendered through the use of appropriate digital technologies. Mission To enhance and extend access to quality teaching, learning and administration across the entire education system, thereby enabling every learner to be skilled in digital learning and contribute significantly towards national development.

Enablers Infrastructure and Connectivity: Effective use of ICTE requires sufficient quality infrastructure and connectivity. The report on the current state of ICTE5 cites infrastructure and connectivity issues as critical barriers to success. There is a need to improve the bandwidth available to schools, the number of functioning computers in schools, and the availability of technical resources to repair and maintain equipment in schools. Some of the policy areas and goals include the following:

Gender Equity - GOAL: To foster an education system wherein women and men are treated equally and are provided with access and opportunity to realise their full potential. The MOE will develop guidelines and core principles for all schools on gender equity as it relates to access to ICT and ICT integration in schools and in the National ICT Centres (NICTs).

Special Needs Learners - GOAL: To empower special needs learners with appropriate ICT skills that will allow them to achieve their learning goals and enable them to contribute to Saint Lucian society in accordance with their potential. Recognising the unique requirements of special needs education, the special education unit, in collaboration with the Curriculum and Materials Development Unit, will create an ICT curriculum that will cater to special needs learners whilst accomplishing the intended goals of universal education for all.

Community Development - GOAL: To empower communities to shape their existence and create value for themselves in the knowledge economy. The MOE will use ICT to encourage collaboration between communities and foster the sharing of best practices to encourage greater community development.

2.5.6 Food and Nutrition Security Policy for Saint Lucia (2013)

The development goal of the National Food and Nutrition Security Policy (NFNSP) is to contribute to ensuring long-term food and nutrition security in Saint Lucia. The two major objectives are to 1) Reduce hunger especially in the vulnerable groups by increasing access to affordable, nutritious, safe, and quality food. 2) Shifting to sustainable food production systems where the producers receive adequate remuneration for their products enabling them to have an adequate standard of living.

The FNS Policy and Action Plan will be coherent with underlying goals of regional policies and actions and initiatives such as the RFNSP, the RFNSAP, the CARICOM Community Agricultural policy, the Jagdeo Initiative, the Liliendaal Declaration, Caribbean Cooperation in Health III, etc. and relevant national policies, and focus on translating into action these political statements and policies related to and supportive of good health and nutrition, rural and food crop/livestock/fisheries and agro-food production, processing, marketing and distribution.

The FNSP aims to achieve four overarching food and nutrition security objectives: Food Availability - Promote the sustainable production, processing, preparation, commercialization, and consumption of safe, affordable, nutritious, high-quality Caribbean/local food commodities/products. Food Access - Ensure regular access of households, especially the poor and vulnerable, to sufficient quantities of safe, affordable, quality food at all times, particularly in response to diverse socioeconomic and natural shocks. Food Utilization/Nutritional Adequacy - Improve the nutritional status of the national population, particularly with respect to NCDs including diabetes, hypertension, overweight and obesity. Stability of Food Supply - Improve the resilience of the national communities and households to natural and socioeconomic crises. This will entail the formulation and implementation of the activities and programmes set out below in order to:

- Increase household food production and trade
- Improve income generation and job creation opportunities
- Improve nutrition and food safety
- Increase safety nets and food emergency management systems
- Improve analysis and information management system
- Provide capacity building

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- Ensure stakeholder dialogue and consultation.

2.5.7 National Health Sector Policy (NHSP Draft)

The National Health Sector Policy (NHSP) builds upon the commitment of the Government of Saint Lucia in providing a health care system that is accessible, affordable, equitable, sustainable and of the highest international quality standard for the populace of the country. The Government envisages a health care system that is focused on providing care that is integrated, comprehensive, continuous and is accessible at all levels of the health system throughout the live course of individuals.

To this end the National Health Policy will provide a framework for decision making in health and govern the functioning of the Health Sector. The Health Sector Policy will form the basis for national health planning and will provide the guide for all stakeholders operating in the health sector. In addition, it will serve as the roadmap for health care workers, health care providers (public and private) and stakeholders in implementing reforms of the health care system.

The National Health Sector Policy is built on the foundation of the Primary Health Care Approach (PHC). The foundation of the PHC Approach is built upon the principles and values of equity, solidarity, ethics, and the right to health. The PHC Approach places significant emphasis on prevention, health promotion, the use of appropriate technologies and the empowerment of families and communities as equal partners with health professionals in the decision making about health services provision. The PHC Approach means being attentive to and addressing various factors in the economic, social, and physical environment that impact on the health of individuals. These include but are not limited to lifestyles, income, education, workplace, diet, housing culture and the environment.

The policies and programs of the Ministry of Health are guided by a number of legal instruments: - The Public Health Act (1975) covers health care services and practices, occupational health and safety, veterinary services, health risk factors, and notification of certain diseases. - The Mental Health Act (1957 for mental health care services. - The Hospital Ordinance (1992) covers charges and fees for hospital services and establishes responsibility for payment. - The Nurses and Midwives Act (1993) amending the Registration of Nurses - Midwives Ordinance of 1966 governs nursing services - Family Nurse Practitioners Act (1993) authorizes family nurse practitioners to prescribe certain drugs - Pharmacy Act (2000) regulates registration of pharmacists, labeling of pharmaceuticals, and general pharmacy services. - The Health Practitioners Act 2009. - Waste Management Act was amended in 2007.

2.5.8 Saint Lucia National Energy Policy (2010)

A key objective of the proposed National Energy Policy is therefore to create an enabling environment, both regulatory and institutional, for the introduction of indigenous renewable energy to the national energy mix, thus achieving greater energy security and independence.

The national energy sector policy and strategies will be consistent with the Government's overall macro-economic policy directives such as the National Vision Plan and the Medium-Term Strategy. Even under a regime where there is substantial private participation in the energy sector, the Government will continue to play a vital role by setting the legal framework for the entire sector. For such purposes, the Government will continuously analyse the results of its interventions and amend the energy policy, the energy strategy, and/or the legislation, as necessary. As a result, it is anticipated that Saint Lucia's economy as a whole will benefit from the

supply of cost-efficient energy and the protection of certain customer groups, in addition to minimizing negative environmental impacts.

The Government will ensure the development, and/or exploitation, of new and renewable energy resources as an important measure in its efforts to establish Saint Lucia as a "Sustainable Energy Demonstration Country". Although the original target of 2012 is no longer realistic, the Government is committed to making significant strides in energy sustainability.

The following tenets will guide Saint Lucia's energy policy: (i) Procurement of energy supplies at the least cost through liberalisation of the energy sector and broad private sector participation; (ii) Energy security and reliability; (iii) Diversification of the energy base; (iv) Exploitation of indigenous renewable energy resources; (v) Higher efficiency in energy production, conversion and use with the overall objective of reducing energy intensity; (vi) Reduction of adverse environmental effects and pollution by rehabilitating existing energy sector facilities and introducing new standards for energy-related products, as well as mandating appropriate environmental impact assessments of new projects and options; (vii) Implementation of appropriate pricing policies to ensure that adequate energy supplies are efficiently delivered to all economic sectors, and fostering of an environment to facilitate an improved and sustained energy supply network with sufficient incentives to encourage private sector investments; and (viii) Establishment of an appropriate regulatory framework to set clear guidelines for investors and protect the interests of consumers.

2.5.9 Disaster Management Policy Framework for Saint Lucia (2009)

The goal of this policy is to reinforce the development potential of Saint Lucia by reducing risks from all hazards. The fundamental purpose of the policy is to advance an approach to disaster management that focuses on reducing risks - the risk of loss of life, economic disruption and damage to the environment and property, especially to those sections of the population who are most vulnerable due to poverty and a general lack of resources.

OBJECTIVE: To establish necessary systems, structures, programmes, resources, capabilities and guiding principles for reducing disaster risks and preparing for and responding to disasters in order to: 1. Minimize human suffering from natural and man-made hazards 2. Reduce economic loss from hazard impacts 3. Protecting the integrity of the terrestrial and marine environments 4. To reduce loss and damage over the short and long term.

Priorities

1. Timely, coordinated, and focused direction of resources towards the disaster management system's effective operation.
2. Maintaining institutions that are technically capable of efficiently executing the comprehensive disaster management programme.
3. Developing local expertise capable of operating and maintaining the disaster management system.
4. Ensuring that the public is well informed and educated about disasters, their consequences and preventive and mitigation measures.
5. Creating an environment in which the private and non-government sectors contribute meaningfully to the comprehensive disaster management effort.

These priorities give rise to the following strategies:

1. The urgent integration of risk reduction strategies into development initiatives and all development planning.
2. The development and maintenance of a mitigation strategy to reduce the vulnerability of Saint Lucia to disasters.
3. The upkeep of the National Emergency Management Organization and National Emergency Operations Centre to:
    a. Ensure that an effective disaster management strategy is established and implemented.
    b. Coordinate disaster management at various levels of government.
    c. Promote and assist the implementation and institutionalization of disaster management activities in all sectors of society.
    d. Act as a repository and conduit of information pertaining to disaster management.
    e. Ensure that the capacity for tracking, monitoring, and disseminating information on phenomena and activities that trigger disaster events is established and maintained.
4. The introduction of a new disaster management funding system which:
    a. Ensures that risk reduction measures are implemented.
    b. Builds sufficient capacity to respond to disasters.
    c. Provides for adequate post-disaster relief and recovery.
5. The implementation of the Disaster Preparedness and Response Act which:
    a. Brings about a uniform approach to disaster management.
    b. Addresses legislative shortcomings.
6. The establishment of a framework to enable communities to be informed, alert and self-reliant and capable of supporting and cooperating with government in disaster prevention and mitigation.
7. The establishment of a framework for coordinating and strengthening the current fragmented training and community awareness initiatives.

2.5.10 Saint Lucia National Housing Policy (2008)

The Government of St. Lucia remains committed to the provision of adequate, desirable, and affordable housing while pursuing the principles of environmental sustainability.

Vision Statement: Full access by the populace to adequate, affordable, safe, and sustainable housing which is consistent with an acceptable socio-cultural standard of living. The goals to ensure achievement of the vision of the National Housing Policy are to: (i) Develop an effective housing delivery system which aims to meet the needs of the populace; (ii) To establish a housing delivery system that maintains balance in the economic development and environmental sustainability of communities.

The objectives of the National Housing Policy are to: i. Facilitate the provision of adequate and affordable housing that meets the needs of communities; Encourage adequate growth, maintenance, and improvement of housing stock to meet human conditions; iii. Promote sustainable mixed-income housing developments that meet the needs of all socio-economic groups and also takes cognizance of the needs of vulnerable groups; iv. Develop an effective and

comprehensive legislative and administrative framework that supports housing development. v. Promote effective public and private partnership within the housing sector; vi. Increase capacity-building and institutional development within the housing sector; vii. Foster active participation of civil society institutions, community-based organizations, and individuals in the provision of sustainable housing; viii. Promote investment in housing.

2.5.11 Government of Saint Lucia Hazard Mitigation Policy (Draft 2006)

Saint Lucia is vulnerable to a wide range of hazard events that could lead to severe social, economic, and environmental damage to our nation. Sustained hazard mitigation can significantly reduce vulnerability to these hazard events. Therefore, in striving to become resilient, hazard mitigation measures that incorporate the broad principles of sustainable development will be pursued.

Vision Statement: A nation highly resilient to hazard impacts and adaptable to hazard risks. In order to achieve the vision, the goals of the national Hazard Mitigation Policy are to i. Develop social, economic, and environmentally sustainable measures that minimise the risks of hazards. ii. Incorporate hazard risk reduction in everyday activities at every level of society.

The objectives of the Hazard Mitigation Policy are i. To encourage the incorporation of hazard mitigation measures in all public and private sector development planning initiatives and programme budgets. ii. To foster a collaborative approach to hazard risk reduction among all stakeholder groups. iii. To empower local community groups, institutions, and individuals to undertake hazard mitigation measures. iv. To increase the awareness of hazard mitigation at every level of society and encourage their involvement in hazard risk reduction. v. To develop an effective and comprehensive legislative and institutional framework that supports hazard mitigation.

2.5.12 Government of Saint Lucia Diaspora Policy (Second Draft Undated)

The Saint Lucia Diaspora Policy is intended as a transparent and unambiguous statement of Government's Policy with regard to non-resident Saint Lucians and will indicate the areas in which the latter can be incorporated more meaningfully into the development and social agenda. The Policy also seeks to define the rights, privileges, and obligations of Saint Lucian citizens in the Diaspora.

2.5.13 National Youth Policy Saint Lucia (2003), (Revised Draft 2018 - 2023) (Youth Development and Sports Plan 2012 – 2017).

The National Youth Policy will pursue the establishment of a framework and structure that will provide the youth with a voice, equal opportunities, and autonomy, with a view to developing their full potential and ensuring their role and participation in all aspects of nation building. The National Youth Policy will: 1. Provide a vehicle for full participation of youth in national development. 2. Reflect the needs, aspirations, and interests of youth in all spheres and at all levels. 3. Encourage self-assertion and the development of self-esteem. 4. Facilitate the holistic development of youth. 5. Guarantee equal opportunity for all young persons regardless of gender, race, ability, political affiliation, or social status. 6. Support the self-development and autonomous governance of the youth movement.

2.5.14 National Action Plan to Combat Trafficking in Persons (2016–2019)

The Plan identifies the strategic goals and objectives for combating human trafficking, and the means to achieve them. It establishes the coordination of counter-trafficking measures and the adequate cooperation between all actors through the National Framework for Combating Trafficking in Persons.

2.6 Environmental Legislation

Environmental legislation in Saint Lucia is highly fragmented, with many pieces of legislation relating to various aspects of environmental protection, conservation and management. Often, legal provisions remain unimplemented due to a failure to develop appropriate regulations, and consequently do not provide an effective basis for administration and enforcement. Dispersal of responsibility for administering the legislation across numerous entities as well as some overlaps in enforcement responsibilities between entities, dilute the effectiveness of control and enforcement measures and compromise the effectiveness of prevailing legal instruments. It has been recognised that consolidation, rationalisation and modernisation of the environmental legal framework is required to address the deficiencies in the present framework. A draft Environmental Management Act was completed in 2008, to provide for the allocation of administrative responsibilities for environment management, the undertaking and coordination of environmental management and related activities. This has not yet been enacted, and aspects of prevailing legislation which are of most relevance to the present project are summarised in the sections which follow:

2.6.1 Physical Planning and Development Act (Cap 5.12)

The Act makes provision for the development of land, the assessment of the environmental impacts of development, the grant of permission to develop land and for other powers to regulate the use of land, and for related matters. The Fourth Schedule lists matters for which EIA is ordinarily required. This project, given its size, location, level of occupation and type of activity qualifies as a project for which EIA would be required. Section 16 provides that no person shall develop any land without prior written permission of the Head of the Physical Planning and Development Division. Under Section 19, an application is to be made in the prescribed form, for permission to develop land.

2.6.2 Forest, Soil, and Water Conservation Ordinance (Cap 25 of 1946)

The Forest, Soil and Water Conservation Ordinance (Cap 25 of 1946) provides for the conservation of forests, soil and water resources. The Chief Forest Officer is responsible to manage Crown Lands and to administer the provisions of the Act. The Act provides for the establishment of forest reserves on Crown Lands and protected forests on private lands.

2.6.3 Land Conservation and Improvement Act (Cap 5.10)

The Land Conservation and Improvement Act (Cap 5.10) provides for the establishment of the Land Conservation Board which is required to advise the Minister responsible for Agriculture and Lands on the general supervision of land and water resources, stimulate public interest in conservation, and coordinate efforts of other conservation bodies. The Act also provides for making protection orders for conservation and improvement of land and water.

2.6.4 Water and Sewerage Act (Cap 8.14)

The Water and Sewerage Act (Cap 8.14) provides for the management of water resources and to regulate the delivery of water supply services and sewerage services throughout Saint Lucia, and for related matters. The Act establishes a Water Resources Management Agency for the purpose of management of water resources, with responsibilities including promoting the sustainability of the water resources and promoting public awareness concerning the use and management of water resources. The Act provides for the declaration of areas as gathering grounds for water supply, water control areas, and waste control areas.

WASCO is required to, as far as reasonably possible, provide public potable water for domestic purposes, and public sewers and sewage disposal works in compliance with public health laws in force. The Act provides for the declaration of discharges or deposition of wastes onto land, sewer or drain, water or watercourse, and of wastes or classes of waste, as controlled water quality areas, or controlled wastes or classes of wastes respectively. This is to protect public health, established and intended uses of water resources, protection of flora and fauna, and scenic and environmental values. The Minister may take action to prevent polluting matter from entering water, or remove and dispose of polluting matter to remedy or mitigate any pollution.

2.6.5 National Conservation Act (Cap 6.01)

The National Conservation Act (Cap 6.01) establishes a National Conservation Authority to, among other things, conserve natural beauty and topographic features of Saint Lucia; remove derelict objects from a beach or protected area; control, maintain or develop a beach or protected area or a public access to a beach or protected area; secure sanitary conditions on a beach or protected area; advise the Minister on the control of construction in any protected area or beach, beautify protected areas with fauna and flora; and advise the Minister on declaration of protected areas. Protected areas include any area of land or water so declared under Section 3, for the purpose of preserving or enhancing its natural beauty, flora or fauna, and creating recreational, national or marine parks.

2.6.6 Waste Management Act

The Waste Management Act (No 8. of 2004) provides for the management of waste. It establishes the Saint Lucia Solid Waste Management Authority (SWMA), provides for waste management planning, licensing of facilities including waste haulers, regulation of operations, and for powers of authorized officers.

2.6.7 Public Health Act (Cap 11.01)

The Public Health Act (Cap 11.01) makes the Minister of Health responsible for the prevention, treatment, limitation and suppression of disease; abatement of nuisances and removal or correction of any condition injurious to public health; prevention, treatment, limitation and suppression of disease; control of food and drugs in the interest of the public health; publishing reports, information and advice concerning public health; and public education on public health issues. The Minister has power to make regulations for the proper carrying out of the provisions of the Act. Regulations under this Act include Nuisances, Communicable and Notifiable Diseases, Water Quality Control, Sewage and Disposal of Sewage and Liquid Industrial Waste Works, Transportation of Human Remains, Disposal of Offensive Matter, Sewage and Disposal of Sewage, etc, Foods Regulations, Clothes Washing in Streams, Disposal of Corpses and Mosquito Control.

The Public Health (Water Quality Control) Regulations set standards for the purity of the water supply.

2.6.8 Disaster Management Act (Cap 16.06)

The Act was passed in 2006 establishes a National Emergency Management Organisation to provide for a more effective organization of the mitigation of, preparedness for, response to, and recovery from emergencies and disasters.

2.7 Land Use Planning Legislation

2.7.1 Physical Planning and Development Act (No. 29 of 2001)

The Physical Planning and Development Act (No. 29 of 2001) repeals the Town and Country Planning Ordinance (Cap. 175), and the Land Development (Interim Control) Act 1971, and makes provision for the development of land, the assessment of environmental impacts of development, the grant of permission to develop land, and for other powers to regulate the use of land. The Act (save for Part I) took effect on July 1, 2003. The Development Control Authority (DCA) has not been dissolved, and reference to the Head of the Physical Planning and Development Division is to be construed as reference to the DCA. The Act seeks to ensure that appropriate and sustainable use is made of all publicly and privately-owned land, to maintain and improve the physical environment, provide for the orderly sub-division of land and the provision of infrastructure and services, maintain and improve building construction standards to secure human health and safety, and protect the natural and cultural heritage of Saint Lucia. The Act imposes a duty to prepare physical plans on the Head of the Division in consultation with stakeholders, such plans are to be reviewed as least every five years. Once plans are approved by the House of Assembly, the prescriptions of the plan must be given principal consideration in determination of applications, and the government shall be guided by the prescriptions of the plan in the preparation of public sector projects or programmes.

Any development requires the prior written permission of the Head of the Physical Planning and Development Division. The Act stipulates certain uses or operations that are not deemed development in Section 17, and lists in the Third Schedule, classes of development that are permitted and may be undertaken without the approval of the Head. The Act also provides for modification or revocation of permission in the interest of national security, economic policy of the Government, or other material consideration, with compensation for expenditures on abortive work. The Act provides for reservation of open space and declaration of zoned areas for specific purposes. It provides for the service of Enforcement Notices and Stop Notices where development has been carried out without permission, or where there has been non-compliance with conditions of approval. The Head may enter upon the land to remedy and may recover costs if the notice has not been complied with. There is provision for fines for obstruction of the Head in the exercise of his powers and for non-compliance with notices. The Head may also institute injunctions. The Minister may Gazette Special Enforcement Areas to prevent squatting or other unauthorised development.

2.7.2 Manual for Developers

The 1988 Manual for Developers was prepared by the Physical Planning Section and is still widely used by the Department and designers. This outlines development policies, standards and

guidelines, application procedures, and specific requirements of development or building activities.

2.7.3 OECS Building Code and Guidelines

The draft OECS Building Code and Building Guidelines acknowledged the natural hazards to which OECS countries are subjected. The Code sought through introduction of building standards, to prevent or mitigate damage of extreme natural events. Codes are based on the Caribbean Uniform Building Code (CUBiC) and other regional and international codes. The code advocates development of an adequately staffed building inspectorate to ensure compliance, and to assist developers. The draft Code was revised in 2013 and 2015.

2.7.4 Works and Roads Act Cap. 8.05

The Chief Engineer is responsible for construction, repair and supervision of all works. The Authority may alter or regulate the course of any river, stream or watercourse as it deems necessary for the preservation and maintenance of any road, and compensation may be agreed. Canals are to be maintained by the landowner. Owners and occupiers of premises adjacent to the highway may be required by the Chief Engineer to install gutters, downpipes, channels so as to prevent water from the roof or any other part of the premises from falling on persons using the highway, or onto the highway. It is an offence to impede the free flow of water in any ditch or drain adjoining the road, from any road, on land receiving road drainage, or under any road.

2.8 Social Legislation

There are several pieces of legislation which are relevant to this Project. They include legislation on labour, social protection, public health, and community development.

Constitution of Saint Lucia

Chapter I provides protection of fundamental rights and freedoms, including protection of the right to life, liberty, freedom of conscience, expression, assembly and association, as well as protection from inhuman treatment, slavery, forced labour, and deprivation of property.

2.8.1 COVID-19 (Prevention and Control) Act No. 9 of 2020

This Act requires that a Command Centre be established to serve as an advisory body to Cabinet on matters related to COVID-19. The Command Centre has oversight of activities required to reduce or prevent the spread of COVID-19. It deals with the Prohibition of Assembly (Section 16), Physical Distancing (Sections 17, 21, 25), Restriction of Access to an Area (Section 18), COVID-19 Protocols (Section 20), Temperature Screening (Section 22), COVID-19 Certification (PART III – Sections 27 – 35), Detention of Persons (Section 39), Isolation of Persons (Section 41), Non-Compliance (Section 48), Power to Stop, Detain, and Arrest (Section 58).

COVID-19 (Prevention and Control) Act. 2021. Amendment of Section 36. This Amendment reduced the number of days for a negative test result to travel to Saint Lucia from 7 days to 5 days.

2.8.2 Public Health Amendment Act No. 19 of 2019

An Act to Amend the Public Health Act Cap.11.01. These are amendments should be noted as there are implications for this Project. Amendments were made to Sections 2, 4, 5, 7, 8, 9, 11, and

15. New sections were added - 2A, 24, 25. A key amendment relevant to this Project is a redefinition of "public health hazard" as follows:

1. condition of premises
2. a substance or thing, plant, animal or organism, other than a human
3. a solid, liquid or gas
4. radiation. Noise, vibration, or heat, or
5. an activity that presents or may present a threat to public health

2.8.3 The Anti-Gang Act, No.4 of 2014

The Act is aimed at curbing gang activity and ensuring safe communities. It criminalizes gang-related activity, including gang membership, facilitating gang-related criminal activity, and advising and recruiting for gangs.

Indictable offenses include committing an offence at the direction of, or in association with a gang; possessing a bullet proof vest, firearm, ammunition or any equipment, instrument, material or device, whether lawfully or unlawfully obtained, with the intention to commit an offence in association with a gang; and aiding and abetting, whether directly or indirectly, any person to commit an offence identified under the Act.

The Act further stipulates that the Court may impose a more severe penalty on the convicted person if the person was a minor at the time of the offence; if the gang-related activity occurred within one mile of a school, place of worship or health institutions; and if the person convicted was a law enforcement officer or gang leader at the time of the offence.

A person who is indicted under Section 4 is liable on conviction of indictment to a fine of $100,000.00 and imprisonment for up to 10 years.

2.8.4 Child Justice Act No. 9 of 2018

The Act sets out to protect the rights of the child. Repeals the Children and Young Persons Act (Cap. 3.01). Among the purposes of the Act relevant to this Project is to ensure that the best interest of the child, the safety, welfare, and well-being of a child are of paramont importance.

2.8.5 Poverty Reduction Fund Act (Act 7 of 1998)

AN ACT to establish a poverty reduction fund to provide assistance to alleviate socio-economic problems; to establish a mechanism for delivering basic services and infrastructure to the poor and the needy; to finance small-scale projects in selected areas to improve living conditions; to promote community participation in development projects; and to provide for related matters.

OBJECTIVES OF THE FUND The objectives of the Fund include the following— (a) establishing an efficient, complimentary and demand-driven mechanism for delivering basic services and infrastructure to the poor and the needy, utilising non- governmental organisations, community organisations and local government organisations; (b) financing small-scale projects in the following areas, namely, basic infrastructure and small-scale productive activities; (c) providing assistance for the improvement of living conditions, promotion of community participation and improvement of infrastructure for health and education; (d) providing assistance or employment opportunities to poor and needy persons to alleviate socio-economic hardship or otherwise.

FUNCTIONS OF THE FUND (1) The Board shall, subject to the availability of resources, approve projects and programmes and provide, either wholly or partially, financial and technical assistance

to nongovernmental organisations, community groups with development goals, and local government organisations, for the execution of such projects or programmes which will serve to provide basic services to the most severely affected groups in the country.

2.8.6 Poverty Reduction Fund (Amendment) Act, 2009 (No. 4 of 2009)/Saint Lucia Social Development Fund Act

The SSDF is a statutory body. It was established by an Act of Parliament, The Poverty Reduction Fund (Amendment) Act 2009, and its powers are defined by the Act which created it. This Act amends the title of the principal Act by deleting "Poverty Reduction Fund Act" wherever it appears and replacing it with "Saint Lucia Social Development Fund Act". The vision of SSDF is a Saint Lucian society where socio-economic vulnerability and imbalances in communities and families are reduced. The organization also aims to provide services that will facilitate the highest social and economical well being of disadvantaged citizens and marginalized communities, through beneficiary involvement, the efficient use of resources, fostering social integration, towards social cohesion and national prosperity.

2.8.7 Malicious Communications (Computer Misuse Act of Saint Lucia 2011)

In light of recommendations being made to enhance ICT as part of adaptive capacity measures in schools, careful note should be taken of provisions in the laws of Saint Lucia s safeguard measures in respect of malicious communications by users of the technology.

Malicious Communications

Section (15. — (1) A person shall not use a computer to send a message, letter, electronic communication or article of any description that —

(a) is indecent or obscene; (b) constitutes a threat; or (c) is menacing in character, with the intention to cause or being reckless as to whether he or she causes annoyance, inconvenience, distress or anxiety to the recipient or to any other person to whom he or she intends it or its contents to be communicated.

(2) A person who contravenes subsection (1) commits an offence and is liable on summary conviction to a fine not exceeding ten thousand dollars or to imprisonment for a term not exceeding three months or both and in the case of a subsequent conviction, to a fine not exceeding twenty thousand dollars or to imprisonment for a term not exceeding six months or both.

Please note: In this Act “computer” means a device that accepts information, in the form of digitalized data, and manipulates the information for some result based on a program or sequence of instructions on how the data is to be processed.

2.8.8 Legal Aid Act No. 6 of 2008

This Act provides for the grant by the State of legal aid and advice to persons of insufficient means in civil and criminal cases in Saint Lucia. The Saint Lucia Legal Aid Authority shall, to such extent and in such manner as it considers appropriate, disseminate for the benefit of those for whom its services are made available, information in relation to those services and their availability. The Authority shall provide legal aid in civil and criminal cases to persons that satisfy the requirements outlined in the Act. A person who cannot afford to obtain legal services from a private attorney-at-law may apply to the Board for legal aid. A person aggrieved by a decision of the Authority shall have the right to appeal before the Appeals Tribunal.

2.8.9 2.8.10 Education Act

Refer to Section 2.5.5 for selected details of the Act.

2.8.10 National Community Foundation Act No. 26 of 2002

The NCF was established in August 2002 and is a philanthropic, non-profit organization that grants funds to deserving citizens in the following areas: education scholarships, healthcare, youth at risk, older persons, persons with disabilities, the homeless, and the Chess in Schools Programme.

The mission is "to support initiatives that engender self-empowerment and social upliftment through assistance to a wide area of benefactors for emerging and community needs in education, health, social services, arts and culture, community development, environment, and civic affairs".

Objectives of Foundation 5. The objectives of the Foundation include the following — (a) to receive and distribute philanthropic funds for the benefit of targeted individuals, groups, organisations or other charitable causes in a manner consistent with specific interests of contributors and the objectives of the Foundation; (b) to facilitate the empowerment of individuals and groups living in challenging circumstances.

Functions of Foundation 6.— (1) The Board shall — (a) mobilise resources from private citizens and local, regional or international contributors; (b) evaluate and help coordinate the services of community-based agencies so as to ensure that the support provided by the Foundation is being used effectively to fulfill the most critical needs within the community; (c) identify and creatively address established needs in the areas of education, social services, community development and environment and civil affairs. (2) In performing its functions pursuant to section (1), the Board may — (a) make grants directly to approved institutions; (b) make funds available through an intermediary; (c) accept grants that may be distributed according to specific wishes of the contributor; (d) operate programmes directly; or (e) offer grants for research that is relevant to the work of the Foundation.

2.8.11 Labour Code 2006 – Hours of Work, Wages, Employment of Children and Young Persons

The Labour Code addresses several areas related to the protection of workers. The following Division/Sections of the Code are relevant to the Project. However, the entire Code should be consulted and other relevant areas noted.

DIVISION 3 – Hours of Work – Sections 27. Duration of working week 28. Weekly rest 29. Maximum ordinary work day 30. Split shifts and occasional shifts 31. Meal intervals 32. Overtime 33. Prohibition of work on public holidays 34. Pay for public holidays for daily paid workers 35. Employees may opt to perform night work 36. Reasonable alternative for discontinuing night work.

DIVISION 4 - Wages – Sections 38. Wages to be paid in legal tender 39. Agreements as to place and manner of spending wages 40. Payment of wages by cheque 41. Wages to be paid directly to employees 42. Employee's right to recover 43. Pay periods 44. Employer to fix pay days 45. Wages to be paid on completion of contract 46. Wages to be paid on termination of contract 47. Interest on advances prohibited 48. Advances by way of loans 49. Recovery of advances and excess in payment of wages 50. Payment of outstanding balance advances and excess in payment of wages 51. Deductions of payment in respect of fines restricted 52. Deductions for obtaining employment prohibited. Deductions authorized in certain cases 54. Saving as to judgement debts 55. Agreements of cooperation 56. Remuneration other than wages 57. Wages not to be paid on

certain premises 58. Sale of goods or services by employer to employees 59. Special provision for service charges, share of profits or commission 60. Employees in the employment of contractors 61. Limitations on attachments or seizure of wages 62. Wages to be priority debt 63. Employers to issue details of wage payments 64. Offences under this Division 65. Repayment of wages 66. Regulations 67. Deduction for provident or pension funds.

DIVISION 9 - Employment of Children and Young Persons Sections 122. Prohibition of child labour 123. Medical certificate of fitness 124. Register of children and young persons 125. False certificates 126. Regulations for the employment of young persons 127. Penalties for child and young person labour.

2.8.12 Equality Of Opportunity and Treatment In Employment and Occupation Act (Act 9 Of 2000)

AN ACT to provide for equality of opportunity and treatment in employment and occupation. It provides Protection Against Unlawful Discrimination. This Act applies to all employees and employers in the public and private sectors who are engaged in an employment relationship.

Section 4. (3) It is unlawful for an employer to discriminate against an employee on the grounds specified under section 3(2) — (a) in terms or conditions of employment afforded to that employee by the employer; (b) in conditions of work or occupational safety and health measures; (c) in the provision of facilities related to or connected with employment; (d) by denying access, or limiting access to opportunities for advancement, promotion, transfer or training, or to any other benefits, facilities or services associated with employment; (e) by retrenching or dismissing the employee; (f) by subjecting the employee to any other disadvantage.

Equal remuneration 6. (1) Employers and persons acting on behalf of employers shall pay equal remuneration to men and women performing work of equal value for the employer. 6. (2) In this section “equal remuneration” means rates of remuneration that have been established without differentiation based on the grounds of gender. 6. (3) In this section “work of equal value” means work equal in value in terms of the demands it makes in relation to such matters as skill levels, duties, physical and mental effort, responsibility and conditions of work. 6. (4) The burden of proof to establish that equal remuneration has been paid shall rest on the employer.

The Act also addresses how persons with disability should be treated (Part 2, Section 5 (g) (h) (I, ii, iii).

Draft Saint Lucia Protection Social Protection Bill 2015.

This Bill will provide the legislative framework for the development, review, and update of social protection policy in Saint Lucia.

2.9 Institutional Frameworks

2.9.1 Environmental Planning

Physical Planning Department

The Physical Planning Department in the Ministry of Agriculture, Fisheries, Physical Planning, Natural Resources and Cooperatives is the main institution responsible for land use planning and control. The Physical Planning and Development Act (2001) with its EIA provisions, came into effect on July 1, 2003, with the exception of Part I of the Act. Part I will take effect at the discretion of the Minister, and the Development Control Authority will then be dissolved.

The Physical Planning Department undertakes forward planning studies to guide physical development, implements development control, regulation, and the general policies of the Development Control Authority, and makes technical recommendations on planning applications to the Board of the Development Control Authority. The Section also provides Geographic Information System (GIS) Services to other Ministries and agencies. The Section interacts with several other agencies in the execution of its work programme, including the Environmental Health Department of the Ministry of Health in relation to sewage management and disposal; the Ministry of Infrastructure on road and drainage design, traffic management issues and approval of electrical plans of buildings; the Ministry of Agriculture on change of use development applications involving agricultural land and applications with implications for forestry or fisheries; and the Saint Lucia National Trust in relation to proposed developments that may impact environmentally sensitive areas or sites of historical or cultural significance. It is not anticipated that this application will be referred to any of these prior to approval, given the scope and location of this proposed development.

Generally, there are areas of conflict in development control and natural resource management. There are areas of overlap between the Physical Planning and Development Act, the National Conservation Authority Act and the Saint Lucia National Trust Act. Major issues affecting the management of land resources are identified and approaches advocated under the revised National Land Policy. These are consistent with the policy underlying the draft Environmental Management Act.

Planning approval is granted by the Physical Planning and Development Division, which is the executive arm of the Development Control Authority (DCA). Approval of development plans by several agencies is required in advance of DCA approval. These include the:

- Ministry of Health (Environnemental Health Department (EHD)),
- Ministry of Infrastructure, and
- the Fire Service.

Monitoring of construction is led by the Physical Planning Department, through Development Control Officers assigned to specific regions. These officers inspect works intermittently to ensure that construction is proceeding in accordance with approved plans. Specific environmental issues will be referred to the relevant authority, if necessary.

Some hazard mapping exists and can be accessed on the Caribbean Handbook on Risk Information Management website (http://charim-geonode.net). There is information available on landslides, coastal hazards and flood susceptibility.

National Emergency Management Organisation (NEMO)

The National Emergency Management Office (NEMO) is responsible for preparing the nation for a state of emergency. The emergency might be as a result of natural phenomena (such as fire, seismic, volcanic, tsunami, flooding, landslides, storms and hurricanes); manmade disasters (such as dam failure, explosions, or oil spill) or slow onset disasters (drought, famine, and plague). NEMO is guided by a National Emergency Response Plan, with specific plans for each type of emergency. The response to hurricane, flood management, earthquake, volcanic eruption, oil spill, hazardous materials, stress management, hazard mitigation, maritime search and rescue, land search and rescue, and policies on management of dead bodies in disasters, emergency shelters, and emergency housing, have been adopted by NEMAC and will be taken to Cabinet.

2.9.2 Natural Resources

Ministry of Agriculture, Fisheries, Natural Resources and Cooperatives

The Department of Forestry within this Ministry administers the Forest, Soil and Water Conservation (Amendment) Act and the Wildlife Protection Act. The Land Conservation Board under the Land Conservation and Improvement Act has not functioned, and little has been done under that Act. There are conflicts between the provisions of the Land Conservation and Improvement Act and the more recent National Conservation Authority Act.

The Water Resources Management Agency (WRMA), within this Ministry, had the objective to assure the sustainable management of water resources. They undertake hydrologic monitoring, management and rehabilitation of critical drainage basins, and public awareness activities.

The Pesticides and Toxic Chemicals Control Board also falls under this Ministry.

2.9.3 Environmental Services

Water and Sewerage Company Ltd (WASCO)

The Water and Sewerage Company Ltd (WASCO), formerly Water and Sewerage Authority (WASA), is required, as far as reasonably possible, to provide water and sewage disposal services. WASCO has focused on the provision of potable water, with sewerage operations in Castries and Rodney Bay.

Solid Waste Management Authority (SWMA)

Waste management functions of the Castries Corporation and other Councils were transferred to the Saint Lucia Solid Waste Management Authority in the late 1990s. The Solid Waste Management Authority divided the island into 14 collection zones and contracted out collection services in each of these. All residences are entitled to service, which varies from daily collection in urban areas, to twice weekly collection in rural areas. Some communities are serviced curbside, while others are provided with communal bins. The Authority is also responsible for management of sanitary landfills. The Vieux Fort landfill operation was recently closed down, and all waste from the south is consolidated at that location and hauled to the Deglos Landfill that serves the north. The Authority manages both sites.

A Hazardous Waste Sub-Committee with broad representation and chaired by the Authority was established by Cabinet directive, but this does not function. There is still no regime in place to provide for the management of hazardous substances.

The operations of the SWMA are governed by the Waste Management Act of 2004 which rationalize roles and responsibilities of the various waste management agencies.

Saint Lucia Electricity Services Ltd

St. Lucia Electricity Services Limited (LUCELEC) is the only commercial generator, transmitter, distributor and seller of electrical energy in St. Lucia. The company is governed by the Electricity Supply Act Cap. 9.02, as amended by the Electricity Supply Amendment Act 2015, for the regulation of its services by the National Utilities Regulatory Commission (NURC). The Electricity Supply Act grants an exclusive right to LUCELEC for the exercise and performance of functions relating to the supply of electricity including the calculation of charges for the supply of electricity, the independent review of such charges and connected matters and for imposition of a fee on fuel purchased for the generation of electricity.

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FLOW, Digicel

FLOW provides cable TV, landline, internet and mobile services across Saint Lucia. Digicel provides mobile services.

Ministry of Infrastructure, Ports, Energy and Labour

The Ministry of Infrastructure is responsible for the provision and management of technical services in the areas of communications, meteorology, transport, electrical safety, roads, hydraulic and building infrastructure, and utilities. Their priorities include road construction and maintenance, and drainage.

The Ministry is represented on the Development Control Authority (DCA) and the National Emergency Management Advisory Committee (NEMAC).

Constituency Councils

There are fifteen constituency councils in Saint Lucia. The Castries Constituency Council (CCC) is established by statute, to provide municipal services within the Castries constituency. Town and Village Councils are established in other constituencies under the Constituency Councils Act 2012. Councils are typically responsible for maintaining city infrastructure and managing public spaces including markets. They rely on central government for revenue, as only the CCC can raise revenue independently.

2.9.4 Public Health

Ministry of Health and Wellness

The Environmental Health Department (EHD) is responsible for monitoring and regulating environmental health conditions. The Department operates programme areas of vector control, food safety, water and wastewater, industrial hygiene and air pollution. The Department has manpower and financial constraints and is unable to do justice to its various programme areas. As a result, institutions like WASCO and SLSWMA find themselves engaged in self-regulation. Several studies have recommended that the EHD be re-structured to better fulfill its responsibilities.

The Ministry's Epidemiology Department collects statistics and maintains a database on the incidence of various diseases. In recent times, this has focused primarily on covid 19 data.

The Office of the Chief Medical Officer (CMO) has spearheaded the Ministry's and the country's response to the covid pandemic.

The Ministry of Health is represented on the Solid Waste Management Authority Board, the Development Control Authority and the National Emergency Management Advisory Committee (NEMAC).

The Ministry relies on the Caribbean Public Health Agency (CARPHA, formerly CEHI) to perform many of its analytical functions.

2.9.5 Labour

The Labour Department is responsible for administration of the Labour Act. This includes protection of worker rights and ensuring that OSH requirements enshrined in the legislation are complied with.

2.9.6 Social Services

Several social services targeting adults and children are provided by governmental and non-governmental agencies as a social protection measure. Refer to Appendix 6 for a listing.

- The Ministry of Equity operates Community After School Programme for children from vulnerable families. It also provides disaster assistance to impacted low-income and vulnerable families in collaboration with NEMO. Educational assistance is also provided to vulnerable children attending primary school in the form of books and uniforms.
- The Ministry of Education provides student welfare assistance to secondary school students from low-income and vulnerable households in the form of bursaries and transportation waiver fees. The Ministry also provides community day care services for children between 0 and 3 years from low-income households to provide early educational stimulation. The School Feeding Programme is a flagship social protection measure run by the Ministry for all students attending primary and secondary schools.
- The Division of Human Services in the Ministry of Equity has its mission to enhance the psychosocial functioning of children, families, older persons, individuals and other vulnerable groups. This is done through advocacy, research, counseling and other social work therapeutic intervention strategies, which focus on family preservation and the provision of skills for self-empowerment. Its vision is providing effective and quality social services to all citizens. The Division handles cases of sexual abuse, physical abuse, abandonment, and psychological abuse. Although the government condemned the practice, parents of sexually abused children sometimes decline to press sexual assault charges against the abuser in exchange for the abuser's financial contributions toward the welfare of the victim. Nonetheless, courts hears some child sexual abuse cases, convicts offenders, and sentences them.
- The BNTF Programme under the Saint Lucia Social Development Fund has been instrumental in the revival of the Roving Caregiver programme in Saint Lucia in 2017 after being dormant from 2014. This Programme provides in-home support and education for parents of newborns and children up to three years. Children from families have benefited from the visits which provides child care tips and education such as stimulation exercises and information on nutrition. The overall objective is to reduce poverty and vulnerability through enhanced access to human resource development services.
- In Saint Lucia the provision of Social Protection Services is guided by the following legislation:
  - Constitution of Saint Lucia (2006), Chapter 1- Protection of Fundamental Rights and Freedom
  - Public Assistance Act, 1968
  - Social Development Fund Act no.7 of 1998
  - Saint Lucia Labour Code (2006).
- The NGO Saint Lucia Crisis Center receives a monthly government assistance and maintains a facility for female victims of domestic violence and their children and a hotline for support. However, the NGO laments that funding is insufficient to meet the needs of all victims seeking assistance.

- The Department of Gender Relations operates a residential facility for victims of domestic abuse, the Women's Support Center which has the capacity to house only five victims at any given time. The Department operates several gender-based violence prevention programs in schools and community-based groups.
- The Family Court hears cases of domestic violence and crimes against women and children. The court can issue a protection order prohibiting an abuser from entering or remaining in the residence of a specified person. The court remands perpetrators to an intervention program for rehabilitation. The court employed full-time social workers to assist victims of domestic violence.
- Sexual Harassment: The law prohibits sexual harassment, but sexual harassment remained a problem, and government enforcement was not an effective deterrent. Most cases of sexual harassment were handled in the workplace rather than prosecuted under the law.
- Government regulations require access for persons with disabilities to all public buildings, but only a few government buildings had access ramps. The Ministry of Health operates a community-based rehabilitation program in residents' homes. Children with physical and visual disabilities are sometimes mainstreamed into the wider student population. There are schools available for persons with developmental disabilities and for children who were hard of hearing, deaf, blind, or otherwise visually impaired. Children with disabilities faced barriers in education, and there were few employment opportunities for adults with disabilities.
- The National Community Foundation is a philanthropic, non-profit organization that grants funds to deserving citizens in the following areas: education scholarships, healthcare, youth at risk, older persons, persons with disabilities, the homeless, and the Chess in Schools Programme. The mission is "to support initiatives that engender self-empowerment and social upliftment through assistance to a wide area of benefactors for emerging and community needs in education, health, social services, arts and culture, community development, environment, and civic affairs".

2.10 International Commitments

2.10.1 International Environmental Conventions and Commitments

Saint Lucia has signed, ratified or acceded to a number of Multilateral Environmental Agreements (MEAs). Those considered of relevance to this project are listed below.

Table 2.1: List of International Environmental Conventions to which Saint Lucia is a Signatory

Convention	Date of Entry	Responsible Department
International Convention for the Regulation of Whaling	29/6/81	Fisheries
Convention Concerning the Protection of the World Cultural and Natural Heritage (WHC/Heritage)	14/10/91	Forests and Lands Fisheries
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter	23/8/85	Fisheries
Convention on the Prohibition of the Development, Production and Stockpiling of Biological and Toxic Weapons and on their Destruction	26/11/86	Sustainable Development

Convention	Date of Entry	Responsible Department
International Convention on Trade in Endangered Species of Wild Flora and Fauna (CITES)	15/3/83	Forests and Lands Fisheries
Convention on the Prohibition of Military or any other Hostile use of Environmental Modification Techniques	27/5/93	Sustainable Development
United Nations Convention on the Law of the Sea (UNCLOS)	27/3/85	Fisheries
Protocol of 1992 to amend the International Convention on the establishment of an International Fund for Compensation for Oil Pollution Damage 1971	2/3/05	
Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region and Protocol on Co-operation in Combating Oil Spills (Cartagena Convention)	27/3/85	Environment
Vienna Convention for the Protection of the Ozone Layer	28/7/93	Sustainable Development
The Montreal Protocol on Substances that Deplete the Ozone Layer	28/7/93	Sustainable Development
Basel Convention on the Control of Trans-Boundary Movements of Hazardous Wastes and their Disposal	9/12/93	Sustainable Development
Protocol on Specially Protected Areas and Wildlife to the Cartagena Convention (SPAW Protocol)	18/1/90	Fisheries Forests and Lands
United Nations Convention on Biological Diversity (CBD)	28/7/93	Agriculture, Forestry, Fisheries and the Environment
United Nations Framework Convention on Climate Change	14/6/93	Sustainable Development
Kyoto Protocol to the United Nations Framework Convention on Climate Change	16/3/98	Sustainable Development
Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and Their Destruction	29/3/93	Sustainable Development
Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and straddling Stocks and Highly Migratory Fish Stocks	9/8/96	Fisheries
United Nations Convention to Combat the Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD)	30/9/97	Forests and Lands
Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar)	19/6/02	
Sustainable Development Goals (superceded Miillenium Development Goals)	09/2000	
Rio Declaration on Environment and Development	06/1992	
United Nations Programme of Action on the Sustainable Development of Small Island Developing States for SIDS (Barbados Programme of Action (BPoA))	25/04/94	
UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage		
Protocol on Marine Pollution from Land Based Sources and Activities (LBS Protocol)	13/08/10	

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2.10.2 International Social Conventions and Commitments

Table 2.2: List of relevant International Conventions and Commitments

Convention/Treaty/ Commitment	Date of Accession/Ratification	Description	Department/Agency Responsible
There are basically three distinct types of human rights: ▪ civil and political rights, e.g. the right to life, peaceful assembly and religious freedom ▪ economic, social and cultural rights, e.g. the right to work, to education, and to social security ▪ rights of the third generation, e.g. the right to development and to a clean and healthy environment			
Universal Declaration of Human Rights (1948)	February 14, 1990	Broadly sets out the framework for human rights making it clear that all human beings are born free and equal in dignity and rights.	Ministry of
International Convention on the Elimination of All Forms of Racial Discrimination		Sets out economic, social and cultural rights, in particular, the rights to work, to free choice of employment, to just and favourable conditions of work, to protection against unemployment, to equal pay for equal work, to just and favourable remuneration.	Department of Labour
The Convention on the Rights of the Child (1989)	June 16, 1993		Ministry of Equity
Convention on the Rights of Persons with Disabilities	June 11, 2020	An international legally binding treaty which protects the human rights of persons with disabilities. The provisions of the CRPD are consistent with Saint Lucia's Constitution, Chapter I, "Protection of Fundamental Rights and Freedoms."	Ministry of Equity
International Covenant on Civil and Political Rights (1966)	September 22, 2011	The treaty provides for the right to protection of life under Article 6 and the right to liberty and security of the person under Article 9.	Ministry of Foreign Affairs
The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (1979) and General Recommendation No. 19 (1992)	October 5, 1985	Directed towards eliminating discrimination against women and which recognizes gender-based as a form of discrimination against women.	Department of Gender Relations

Convention/Treaty/ Commitment	Date of Accession/Ratification	Description	Department/Agency Responsible
Sustainable Development Goals	2015	17 core goals are articulated of which the following are most relevant: Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all; Goal 5: Achieve gender equality and empower all women and girls; Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster; Goal 13: Take urgent action to combat climate change and its impacts.	Department of Sustainable Development/Ministry of Education
The Discrimination (Employment and Occupation) Convention, 1958 (No. 111) adopted by the International Labour Organization (ILO)	August 18, 2001	Prohibits discrimination on the basis of sex in the field of employment and occupation.	Ministry of Labour
International Covenant on Social, Economic and Cultural Rights (1966)	2008	This treaty, among other things, addresses the right to equal protection under the law and the right to the highest standard of physical and mental health.	Ministry of Foreign Affairs
The Paris Agreement	November 4, 2016	Recognizes the need for parties to promote and respect human rights when taking climate action. Emphasizes the need for capacity building to support countries in implementing human rights-based actions.	Department of Sustainable Development
UNESCO Convention against Discrimination in Education (1960)			Ministry of Education
Inter-American Convention on the Prevention, Punishment and Eradication of Violence Against Women ("Convention of Belem do Pará")			Department of Gender Relations

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3.0 Baseline Data/Existing Environment

3.1 Overview and Methodology

A detailed description of the proposed projects and sites has been provided in Section 1. This section examines the existing social and environmental conditions in the country and at the selected sites that are relevant to project decision making, both at the proposed project site locations and within their areas of influence.

3.2 Environmental Conditions

3.2.1 Physical Aspects

The following provides information about the island of Saint Lucia, as well as site specifics where such additional information is considered relevant.

3.2.1.1 Physiography

The island of Saint Lucia lies near latitude 14 degrees north and longitude 61 degrees west or about 5000 kilometres west of the West African coast. It is part of the Eastern Caribbean archipelago. Neighbouring islands are Martinique 24 miles to the north, Saint Vincent 21 miles to the south and Barbados 100 miles to the southeast. Saint Lucia is of volcanic origin and occupies an area of 238 square miles. The interior is rugged and mountainous, but there several coastal and river valleys. The island lies within the northeast Trade Wind belt and enjoys a tropical maritime climate.

The twelve school sites are located across the island, in a variety of locations, including coastal areas, flood plains, hill slopes and ridges, as described in Section 1.4.

3.2.1.2 Geomorphology, Geology, and Soils

This has been considered by the project engineers in their assessment of landslide hazard for each school. On this basis, retaining walls and drainage structures have been recommended.

3.2.1.3 Climate

St. Lucia lies within the northeast Trade Wind belt and has a tropical maritime climate. The island experiences one wet and one dry season annually. The rainy season runs roughly from June to December and the dry season from February to May. January is a transition month and may be wet or dry. Average total annual rainfall is about 1700 mm (67 inches) with September being the rainiest month. Rainfall is significantly higher over the mountainous interior than coastal areas due to orographic effects. The northernmost and southernmost areas of the island are the driest. Rainfall in St. Lucia ranges from 1520 mm (60 inches) per annum at the northern and southern extremities, to 3810 mm (150 inches) per annum in the central, more mountainous areas (Saint Lucia Development Atlas, 1987).

Ambient air temperature in open spaces rarely reaches above 34 degrees Celsius (93 degrees Fahrenheit) or falls below 22 degrees Celsius (72 degrees Fahrenheit). The mean temperature is near 28 degrees Celsius (82 degrees Fahrenheit). Diurnal variation is in the order of 6 degrees Celsius whereas seasonal variation is near 2 degrees Celsius. The coolest months are from December to March and the warmest from August to October. Average maximum temperature is near 30 degrees Celsius (86 degrees Fahrenheit) and average minimum near

25 degrees Celsius (77 degrees Fahrenheit). Winds are generally out of the east between 070 degrees and 100 degrees at an average speed of about 16 m.p.h. The windiest months are from January to July.

St. Lucia lies in the hurricane belt and may be affected by tropical cyclones with very strong winds. The most significant wind event on record occurred with the passage of Hurricane Allen on August 4, 1980.

The heaviest rainfall comes from tropical cyclones, tropical waves, the Inter Tropical Convergence Zone and Upper Level Troughs. Some of the outstanding rainfall events on record over the last two decades are:

- Hurricane Ivan (Sep 2004)
- Hurricane Tomas (Oct 2010)
- Christmas Eve Trough (Dec 2012)
- Tropical Storm Matthew (Sep 2016)

During the passage of Tropical Storm Matthew, 9.21 inches of rain fell at the G F L Charles Airport on September 28, 2016. On the south side of the island, the Hewanorra International Airport had 13.19 inches of rain over a 12-hour period, according to the Antigua Met Service (weather.com, 2016).

Widespread flooding and substantial damage to infrastructure resulted from all the above events.

Historically, St. Lucia is exposed to hurricane activity each year between the months of June and November. It has been determined by the National Hurricane Centre that 166 tropical storms and hurricanes passed within 400 km of St. Lucia between 1900 and 2007, with 12 tropical storms and 5 hurricanes passing within 400 km between 2004 to 2007. The notable hurricanes that have passed within 400 km of St. Lucia since 2004 include Ivan in 2004 (Cat. 3), Emily in 2005 (Cat. 2), Dean in 2007 (Cat. 3), Omar in 2008, (Cat. 3), Tomas in 2010 (Cat 2), Maria in 2017 (Cat. 5).

3.2.1.4 Climate Change

The Climate Studies Group (2009) in Saint Lucia: Current Climate, Future Projections summarized future climate projections for St. Lucia as follows:

- There is evidence to suggest that the climate of St. Lucia is changing.
- Minimum temperatures have increased at a rate of ~0.16oC per decade, and maximum temperatures at ~0.20oC per decade.
- There is no statistically significant trend in historical rainfall which shows considerable inter-annual variability.
- The warming trend is expected to continue. The country is projected to be warmer by up to 1oC by the 2020s, 2oC by the 2050s, and 3oC by the 2080s.
- The projected rate of warming is marginally more rapid for December, January, February (DJF), and September, October, November (SON).
- The frequency of very hot days and nights will increase, while very cool days and nights will decrease.

- There is a likelihood that the country will be drier (in the mean) by the end of the century. Global Climate Models (GCMs) show a median decrease of up to 22% for annual rainfall while the Regional Climate Model (RCM) suggests a decrease of up to 57% by the end of the century.
- Median GCM decrease in rainfall is 4-6% by the 2030s, 5-10% by the 2050s, and 10-23% by the 2080s.
- The proportion of total rainfall that falls in heavy events also decreases in most GCM projections, changing by -26% to +6% by the 2090s.
- Climate change will likely make the dry period early in the year and June-July drier.
- Hurricane intensity is likely to increase (as indicated by stronger peak winds and more rainfall) but not necessarily hurricane frequency.

The most frequently occurring natural hazards in the Caribbean are climate-related, and their impacts may increase due to climate change. The Caribbean region already experiences drought-like conditions every year, often with low water availability impacting a number of economically important sectors. In recent years, prolonged droughts (e.g. the 2009/2010 Caribbean drought) have affected a number of countries in the region. Climate change is predicted to bring overall drier conditions to the region, with a lengthening of seasonal dry periods, and increasing frequency of drought (Cashman, Nurse, & Charlery, 2010). In addition, there is the potential for more severe, heavy precipitation events, which can damage infrastructure and interrupt reliable water distribution and quality. Global mean sea level (GMSL) is rising, with acceleration in recent decades due to increasing rates of ice loss from the Greenland and Antarctic ice sheets, along with continued glacier mass loss and ocean thermal expansion (IPCC, 2019). Rising sea levels may also lead to continued expansion of saltwater intrusion which, combined with increasing temperatures, can impact negatively on the quality and availability of groundwater (UN-ECLAC, 2013).

The global ocean continues to warm. Over the 21st century, the ocean is projected to transition to unprecedented conditions with increased temperatures, greater upper ocean stratification, further acidification, oxygen decline, and altered net primary production. Marine heatwaves and extreme El Niño and La Niña events are projected to become more frequent. The Atlantic Meridional Overturning Circulation (AMOC) is projected to weaken. Extreme sea level events that were historically rare (once per century in the recent past) are projected to occur frequently (at least once per year) at many locations by 2050 in all RCP scenarios, especially in tropical regions. SLR is projected to continue beyond 2100 in all RCP scenarios. Extreme sea levels and coastal hazards will be exacerbated by projected increases in tropical cyclone intensity and precipitation (IPCC, 2019).

Increases in tropical cyclone winds and rainfall, and increases in extreme waves, combined with relative sea level rise, exacerbate extreme sea level events and coastal hazards are anticipated (IPCC, 2019).

3.2.1.5 Climate Change Risks for Key Parameters

Water Resources and Water Supplies

The highest climate related risks to key assets and infrastructure are heavy rainfall and flooding; drought/dry conditions; sea level rise and excess rainfall (and associated secondary hazards). The key assets which are most susceptible to these hazards are the watersheds,

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intakes (reservoirs), storage tanks (treated water), wells, ponds, water treatment plants, pit latrines, public sewerage systems and private wastewater treatment plants. Reductions in rainfall have the potential to reduce source yields and increase the frequency and severity of episodic droughts. Temperature increases can result in higher evaporation rates from rivers, streams, dams and other bodies of water, and will reduce water levels, aquifer recharge and spring flows, and may have an impact on the demand for water. Heatwaves can reduce the efficiency of infrastructure operations (e.g. overheating of pumps and generators). Increases in the frequency and intensity of drought and flood events can damage infrastructure with severe consequences for the agricultural sector. Rainfall extremes can result in flood related damage to infrastructure, source water turbidity and potential for contaminated runoff entering water supply systems. As it relates to agriculture, these events will adversely impact food security, livelihoods and the general wellbeing of communities across Saint Lucia. Storms and hurricanes bring high wind speeds and heavy rainfall, which typically result in wind damage to infrastructure, river and coastal flooding, and landslides. Other significant climate related risks are hurricane and storm surge risks to the outfalls; flood risks in coastal areas to septic tanks.

Coastal and Marine Ecosystems

Coastal ecosystems are already impacted by the combination of SLR, other climate-related ocean changes, and adverse effects from human activities on ocean and land such as infrastructure development and human-induced habitat degradation (IPCC, 2019). Projected ecosystem responses include losses of species habitat and diversity and degradation of ecosystem functions. For sensitive ecosystems such as seagrass meadows, high risks are projected if global warming exceeds 2ºC above pre-industrial temperature, combined with other climate-related hazards. Warm-water corals are at high risk already and are projected to transition to very high risk even if global warming is limited to 1.5ºC (IPCC, 2019).

Coastal ecosystems including mangroves and sandy beaches provide important services that include coastal protection and habitat for diverse biota. Vegetated coastal ecosystems protect the coastline from storms and erosion and help buffer the impacts of sea level rise. However, human actions that fragment wetland habitats and restrict landward migration, result in coastal ecosystems progressively losing their ability to adapt to climate-induced changes and provide ecosystem services, including acting as protective barriers (IPCC, 2019).

Nearly 50% of coastal wetlands have been lost over the last 100 years as a result of the combined effects of localised human pressures, sea level rise, warming and extreme climate events. In response to warming, distribution ranges of seagrass meadows are contracting. Coastal ecosystems including mangroves and sandy beaches can build vertically and expand laterally in response to SLR, but this capacity varies significantly depending on factors such as wave exposure of the location, tidal range, sediment trapping, overall sediment availability and coastal squeeze (IPCC, 2019). The impacts of sea level rise on coastal ecosystems include habitat contraction, geographical shift of associated species, and loss of biodiversity and ecosystem functionality. Impacts are exacerbated by direct human disturbances, and where anthropogenic barriers prevent landward shift of marshes and mangroves. The expected impacts of SLR on coastal ecosystems over the course of the century include habitat contraction, loss of functionality and biodiversity, and lateral and inland migration. Impacts will be exacerbated in cases of land reclamation and where anthropogenic barriers prevent inland migration of marshes and mangroves and limit the availability and relocation of sediment.

Harmful algal blooms display range expansion and increased frequency in coastal areas in response to both climatic and non-climatic drivers such as increased riverine nutrients run-off. The observed trends in harmful algal blooms are attributed partly to the effects of ocean warming, marine heatwaves, oxygen loss, eutrophication and pollution. Harmful algal blooms have had negative impacts on food security, tourism, local economy, and human health (IPCC, 2019).

Coastal Communities

Climate impacts on marine ecosystems and ecosystem services have regionally diverse outcomes for fisheries food security, local cultures, livelihoods, tourism and recreation. The impacts on ecosystem services have negative consequences for health and well-being, and for local fishing communities. Future shifts in fish distribution reduced abundance and catch potential due to climate change are projected to affect income, livelihoods, and food security of marine resource-dependent communities. Declining coral reefs are projected to greatly compromise services such as food provision, coastal protection and tourism. Reduced seafood availability is projected to reduce nutritional health in communities highly dependent on seafood, compounding risks from other shifts in food systems caused by socio-economic changes and climate change (IPCC, 2019).

Increased mean and extreme sea levels, alongside ocean warming and acidification, are projected to exacerbate risks for human communities in low-lying coastal areas. In the absence of more ambitious adaptation efforts compared to today, and under current trends of increasing exposure and vulnerability of coastal communities, risks such as erosion, land loss, flooding, salinization, and cascading impacts due to mean sea level rise and extreme events are projected to significantly increase throughout this century under all greenhouse gas emissions scenarios. Under the same assumptions, annual coastal flood damages are projected to increase by 2–3 orders of magnitude by 2100 compared to today (IPCC, 2019).

High to very high risks are approached for vulnerable communities in coral reef environments from sea level rise well before the end of this century under high emissions scenarios. This entails adaptation limits (e.g., biophysical, geographical, financial, technical, social, political, and institutional) being reached. People with the highest exposure and vulnerability are often those with lowest capacity to respond (IPCC, 2019).

Strengthening Response Options

The far-reaching services and options provided by ocean-related ecosystems can be supported by protection, restoration, precautionary ecosystem-based management of renewable resource use, and the reduction of pollution and other stressors. Integrated water management and ecosystem-based adaptation approaches lower climate risks locally and provide multiple societal benefits. However, ecological, financial, institutional and governance constraints for such actions exist and often, ecosystem-based adaptation will only be effective under the lowest levels of warming challenges (IPCC, 2019).

Networks of protected areas help maintain ecosystem services and enable future ecosystem-based adaptation options by facilitating the altitudinal movements of species, populations, and ecosystems in response to warming and sea level rise. Geographic barriers, ecosystem degradation, and habitat fragmentation limit the potential for such networks to support future species range shifts (IPCC, 2019). Terrestrial and marine habitat restoration and ecosystem management tools (such as assisted species relocation and coral gardening) can be locally effective in enhancing ecosystem-based adaptation. These actions are most successful when

community-supported and science-based, using local knowledge, and having long-term support that reduces non-climatic stressors. Coral reef restoration options may be ineffective if global warming exceeds 1.5ºC, as corals are already at high risk at current levels of warming (IPCC, 2019). Stronger precautionary approaches such as rebuilding depleted fisheries and responsive fisheries management strategies reduce negative climate change impacts on fisheries, with benefits for economies and livelihoods (IPCC, 2019).

Restoration of vegetated coastal ecosystems, such as mangroves, tidal marshes and seagrass meadows (coastal 'blue carbon' ecosystems), could provide climate change mitigation through increased carbon uptake and storage. Improved protection and management can reduce carbon emissions from these ecosystems. These actions have other benefits, including storm protection, improved water quality, biodiversity and fisheries (IPCC, 2019).

Coastal communities are challenged in balancing costs, benefits and trade-offs of available options as they determine context-specific responses to sea level rise over time. A range of options such as protection, accommodation, ecosystem-based adaptation, coastal advance and retreat if alternative localities are available, may be part of appropriate integrated responses (IPCC, 2019).

Coastal protection is particularly challenging with higher Sea Level Rise (SLR) projections. Reducing local drivers of exposure and vulnerability such as coastal urbanization and human-induced subsidence are effective responses in the coming decades. In locations with constrained space and high value exposed assets (e.g. in cities), hard protection such as dikes may be a cost-efficient response option, but these may be unaffordable in resource-limited areas. Where space is available, ecosystem-based adaptation could offer multiple benefits such as reduced coastal risk, carbon storage, improved water quality, biodiversity conservation and livelihood support (IPCC, 2019).

Under current sea levels, some coastal accommodation measures, such as early warning systems and flood-proofing of buildings, are often both low cost and highly cost-efficient. However, some of these become less effective under projected SLR and increasing coastal hazards unless combined with other measures. Where the community affected is small, or in the aftermath of a disaster, reducing risk by coastal planned relocations is worth considering. Such planned relocation can be socially, culturally, financially and politically constrained. These present profound governance challenges as a result of the uncertainty about the magnitude and rate of future sea level rise, limited resources, conflicting interests and values among stakeholders and the complexity of societal goals (such as safety, conservation, socio-economic development and equity) (IPCC, 2019).

Despite the significant uncertainties regarding SLR post 2050, coastal decisions with time horizons of decades and beyond are being made now and can be improved by favouring flexible responses that can be adapted over time, supported by monitoring systems for early warning signals, periodically adjusting decisions, using robust decision-making approaches, expert judgement, scenario-building, and multiple knowledge systems. Stakeholders with a higher risk tolerance (e.g., those planning for investments that can be very easily adapted to unforeseen conditions) often prefer to use the likely range of SLR projections. Stakeholders with a lower risk tolerance (e.g., those deciding on critical infrastructure) must also consider global and local mean sea level above the upper end of the likely range (globally 1.1 m under RCP8.5 by 2100) (IPCC, 2019).

Enabling Conditions

Enabling climate resilience and sustainable development depends critically on urgent mitigation combined with coordinated, sustained and ambitious adaptation. Key enablers for effective responses include intensifying cooperation and coordination among governing authorities across spatial scales and planning horizons. Education and climate literacy, monitoring and forecasting, use of all available knowledge sources, sharing of data, information and knowledge, finance, addressing social vulnerability and equity, and institutional support are also essential. Such investments enable capacity-building, social learning, and participation in context-specific adaptation, as well as the negotiation of trade-offs and realisation of co-benefits in reducing short-term risks and building long-term resilience and sustainability.

Promotion of climate literacy and drawing on local, Indigenous and scientific knowledge systems enables public awareness, understanding and social learning about locality-specific risk and response potential. Such investments can develop and transform institutions and enable appropriately adaptive governance arrangements and help to manage negative impacts from ocean changes such as fisheries losses and adverse impacts on human health, food security, agriculture, coral reefs, aquaculture, wildfire, tourism, conservation, drought and flood (IPCC, 2019).

3.2.1.6 Natural hazards

The school hazard ratings for climate hazards have been assessed by project engineers as provided below.

Rapid CVA – Schools' *Hazard Rating*

School	Landslide	Fluvial flooding	Wind speed	Drought	Sea level rise	Average Score	Average hazard rank	Comments (provided by ECMC Ltd based on local knowledge)
Ave Maria Infant	1	5	3	1	3	2.6	3	In centre of Castries which is known to flood. Located in fairly open country
Ave Maria Primary	1	5	3	1	3	2.6	3	In centre of Castries which is known to flood, located in a fairly open area
Balata Combined	3	3	2	2	1	2.6	3	Very inland and near a river
Bexon Primary	3	5	1	1	1	2.2	7	Known to be in a flood plain. The hill to the east can be a concern
Corinth Secondary	1	3	3	1	1	1.8	11	In a low-lying area, near a river and is known to have drainage issues. Located in open country
Desruisseaux Combined	1	1	4	2	1	1.8	11	In the South, elevated and exposed. Water shortage a known concern
Fond Assau Combined,	1	1	4	3	1	2	9	Within an agricultural zone and on the upper slopes of a narrow valley
Micoud Primary	3	1	4	2	1	2.2	7	In the south east and elevated topography. Supply of water is known to be an issue
Patience Combined	3	1	4	3	1	2.4	6	In the south east and elevated topography. Supply of water is known to be an issue
Saltibus Combined	5	1	4	4	1	3	2	At a high elevation, with the Saltibus River being a water source
Vieux-Fort Infant	1	3	4	1	1	2	9	In the south of the island which is extremely flat and known to have water problems
Vieux-Fort Primary	1	5	4	3	5	3.6	1	In the south of the island which is extremely flat and known to have water supply problems

All schools will be vulnerable to earthquake hazard.

Tsunami hazard risk is highest in the coastal lowlying locations such as the Vieux Fort schools and the Ave Maria schools in Castries, and low in the others that are at higher elevation and more distant from the coast.

3.2.1.7 Water Resources

Saint Lucia has an average annual precipitation of 2 300 mm or 1 427 million m3 and renewable water resources are estimated at about 300 million m3 /year (FAO, 2015). See Table 3. 1.

Saint Lucia is of volcanic origin with a number of rivers, ravines, springs and wetlands. The island has 37 watershed basins through which perennial streams flow, from the steep forested interior to the coastal waters below.

The largest rivers are:

- Cul de Sac,
- Canelles,
- Dennery,
- Fond,
- Piaye,
- Doree,
- Canaries,
- Roseau, and
- Marquis.

Table 3.1: Renewable Freshwater Resources (Source: FAO, 2015)

Precipitation (long-term average)	-	2300	mm/yr
		1 427	million m3/year
Internal renewable water resources (long-term average)		300	million m3/year
Total renewable water resources		300	million m3/year
Dependency ratio		0	%
Total renewable water resources per inhabitant		1648	M3/year
Total dam capacity	2009	3	million m3

Rivers are the main supply areas for drinking water. The John Compton dam on the upper reaches of the Rosea River had a reservoir capacity of 2.6 million m3 in 2009 (FAO, 2015). Saint Lucia has no important lakes (FAO, 2015).

3.2.1.8 Ambient Noise and Air Quality

There are no quantitative measures of air quality or ambient noise taken in Saint Lucia, and no legislation or designated authority for the regulation of these.

Plumes of Saharan dust intermittently affect the Caribbean region, and this has a significant impact on air quality across the island. Saharan dust transport across the Atlantic Ocean to South America, and beyond to the Caribbean Sea is the largest transport of dust on the planet. The biggest pulses of dust occur between February and October. The north-easterly Harmattan wind lifts about 182 million tons of dust every year and carries it past the western edge of the Sahara. The dust travels across the Atlantic Ocean, with some lost in transit by settlement or rain. While there are significant beneficial impacts[1], about 43 million tons of dust settles out

[1] The dust serves many important functions (Kanhai, 2019) e.g.:

over the Caribbean Sea which greatly affects the air that we breathe (Kanhai, 2019) and adversely affect allergy sufferers.

The human ear can distinguish a wide spectrum of sound intensities. The units for measuring sound intensities are compressed using a logarithmic scale on which the sound intensity multiplies by ten every 10 decibel (dB) increase. For example, the sound of a rock concert, approximately 120 dB, would have 1,000 times the intensity of a motorcycle (90 dB). The amount of noise and the length of exposure determine hearing loss. In 1970, the Occupational Safety and Health Administration (OSHA) developed a scale indicating the length of time a person could listen to a given dB sound level before experiencing hearing loss or damage. OSHA regulations permit exposure to 80 dB or less for eight hours a day, 95 dB for four hours a day, 100 dB for two hours, 105 dB for one hour, 110 dB for a half an hour, and 115 dB for less than 15 minutes.

There are a number of action levels set for a 'daily personal noise exposure' and peak levels at which action needs to be taken to reduce noise or provide hearing protection:

- 80dB(A) daily personal noise exposure/135dB(C) peak level. A Risk Assessment is needed and hearing protection provided to personnel if they ask.
- 85dB(A) daily personal noise exposure/137 dB(C) peak level. Again, a Risk Assessment is needed. Hearing protection equipment must be provided and used by personnel. The area should be marked by warning signs. There should be measures taken to limit or reduce the noise produced.
- 87dB(A) daily personal noise exposure/140dB(C) peak level. These are the absolute maximum volume levels permitted for staff.

Noise in schools can be influenced by architecture decisions which in turn influences how productive and healthy schools are. Noise in schools has long been a recognised albeit overlooked problem in schools, with acoustics ranked as the number one problem by some experts. Noise in schools comes from:

- Noise from school equipment
- External sources, such as aeroplanes, trains, and cars
- Growing class sizes.

A US study characterized the noise levels in a high-school to assess the exposure of students and school personnel (Brown, 2010). The highest level of noise was observed during pep rally

- in the Amazon Basin it replenishes phosphorus in the soil, a crucial nutrient for plant growth and biodiversity;
- it feeds iron to phytoplankton in the Caribbean and the coastal south-eastern United States. Phytoplankton photosynthesis is responsible for production of half of the world's oxygen and uptake of half of the carbon dioxide on the planet.
- It suppresses hurricane formation in the Atlantic Ocean, during the summer months as it forms a hot, dusty air layer (the Saharan Layer), making it difficult for the formation of hurricanes to occur. Vertical wind shear accompanyings the Saharan dust storm can also hamper the development of storms. Researchers believe that the dust itself suppresses the formation of clouds which in turn prevents tropical waves from intensifying.

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with the levels ranging 59-107 dBA. Lunch periods showed noise levels ranging 61-90 dBA. Gym sports had noise levels ranging 58-113 dBA. The noise levels in the metals shop ranged from 55-99 dBA. The noise levels in the classrooms, hallways and other locations were, on average, below 71 dBA. Overall the levels of noise at school ranged 48-113 dBA. The peak noise levels ranged 105-153 dBC. The results of this study indicate that there are potentially harmful noise exposures within the high school. Noise in schools impact children and teachers in primarily in three ways:

Speech intelligibility: Pupils must be able to hear their teacher in order to learn. When noise levels are too high or classrooms are too reverberant, pupils find it hard to understand their teachers. Pupils on the back row of a traditional classroom hear just 50% of the teacher's words. This affects young children in particular, who have great difficulty understanding speech even with low levels of noise (The Sound Agency, 2012).

Cognition: Noise disrupts cognition. It affects many tasks, including memory, motivation, reading, mental arithmetic, and problem-solving. As a result, children are learning less. A 10 decibel rise in noise level caused primary school exam results to drop by between 5-7%. In the UK, a 5 decibel increase in aircraft noise resulted in a 2-month reading delay for children. Research suggests that children cannot habituate to noise over time, and the negative effects persist (The Sound Agency, 2012).

Health: Noise has wide-ranging, serious effects on health. Numerous studies link noise in schools with hearing loss, increased blood pressure, and higher levels of adrenaline and noradrenaline, in pupils and teachers. Children exposed to chronic noise at school have higher levels of psychological stress, annoyance, and disruptive behaviour (The Sound Agency, 2012).

Classroom acoustics will minimise or maximise problematic noise. Materials that reflect light well usually reflect sound well too. In classrooms, reverberation muddies speech and worsens noise. Reducing reverberation time in classrooms is a top priority. Improving noise insulation will also help with outside noise. Effective sound design is achieved through acoustics (e.g. reduced ceiling heights and sound absorbent surfaces are simple ways of improving acoustics), to be ideal for the rooms purpose; noise reduction, by considering all noise sources such as ventilation, equipment (select appliances that have low noise output) and the sound of furniture on flooring; and an adequate quality sound system (Biamp Systems, 2012).

An assessment of air quality and ambient noise for the schools is provided in Table 3.2 below. The entire island is influenced by north-easterly Trade winds blowing from the east to the west. It assumed that schools located in close proximity to busy and congested roads will have relatively low air quality levels, whereas those located in less trafficked rural locations will have relatively high air quality levels. The school locations vary from rural residential to suburban and urban. The urban areas such as Castries (Ave Maria schools) and Vieux Fort (the Vieux Fort schools) are densely populated and/or heavily trafficked during business operating hours. The Corinth Secondary School is located along a busy secondary road and within a developed suburban mixed-use area The Micoud Primary is surrounded by other institutional uses. The schools located within rural communities (such as Saltibus Combined, Bexon Primary and Desruisseaux Combined) are expected to have very low ambient noise and good air quality.

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Table 3.2: Qualitative Assessment of Air Quality and Ambient Noise (derived from external sources) in Schools

School	Air Quality	Ambient Noise
Ave Maria Infant	Low	Medium
Ave Maria Primary	low	Medium
Balata Combined	Medium	Medium
Bexon Primary	High	Low
Corinth Secondary	Low	Medium
Fond Assau Combined	Medium	Low
Patience Combined	Medium	Medium
Micoud Primary	Medium	Medium
Desruisseaux Combined	High	Low
Vieux-Fort Infant	Low	Medium
Vieux-Fort Primary	Low	Medium
Saltibus Combined	High	Low

3.2.1.9 Natural habitats and biodiversity

Despite Saint Lucia's relatively small landmass, the island is internationally recognised as a biodiversity hotspot, as it possesses a high degree of biodiversity and species endemism, and productive coastal and nearshore habitats. The island and its waters support a number of globally and regionally important habitats and species, including 17 major vegetation types (e.g., dry forest, mangroves, rainforest), the Pitons Management Area UNESCO World Heritage site, the Ma Koté Mangrove and Savannes Bay Ramsar sites, and over 200 endemic species (e.g., the pygmy gecko, the Saint Lucia racer snake, and the Saint Lucia parrot) (NCF, 2020). Saint Lucia's marine habitats and biodiversity provide ecosystem services that buffer the impacts of storms and climate change, provide residents with valuable natural resources and opportunities for sustainable livelihoods, and support economically important agriculture and tourism industries (NCF, 2020).

All of the work packages proposed are for existing schools, and the building footprints will not be expanded by the proposed works. All activities associated with the site works will be confined to the school premises. There are no virgin lands, protected areas or any vegetation beyond the school boundaries that will be directly affected.

During implementation of any projects that include construction of new buildings or external works (such as retaining walls, drains), disturbance of soils has the potential to mobilise sediments that could adversely affect water quality downstream if appropriate mitigations are not adopted. Works that require the use of potential pollutants or heavy equipment that is refueled or otherwise serviced on site could also adversely affect downstream water quality in the event of accidental pollutant, fuel or oil spill. Any of these could affect downstream aquatic and marine life during the construction period.

In the operational phase, proposed works are not expected to significantly affect the quality or quantity of drainage flows from the schools. Drainage will continue to discharge into existing

drainage and watercourses. Where rainwater is harvested, this will very slightly attenuate flood flows during extreme events, until the on site storage capacity is reached.

3.2.1.10 Archaeological and Cultural Resources

There are no archaeological or cultural resources within the school premises or the sphere of influence of the proposed works.

3.3 Social Conditions

Public Utilities and Services

Water and Sewerage

All schools have a public water supply from WASCO. Quality of service varies considerably with location. Only the Castries schools are served by municipal sewer. All other schools have on-site septic tank systems.

Electricity

All schools are serviced by LUCELEC 240V power lines, all running above ground on utility poles.

LUCELEC does not have any plans for undergrounding power lines in any of these areas or for area upgrades.

FLOW and Digicel

All schools (including the private schools) are on a digital network supported under a 14-year agreement with Digicel, through the CARCIP project. Each school has 1.5 gigabytes. Internet is typically hardwired in the IT room of the school, with wireless access otherwise. There are some capacity issues, as all schools were provided with six wireless access points (including staff room and Principal's office) regardless of size. The signal does not reach all points. Each school has password protected teacher, student and guest accounts. However, there will never be sufficient access in a school of 500 students and 60 staff. A teacher may have 3 devices on the system, whether on not they are in use. Students with phones will also likely be connected.

Digicel manages the system, and the Ministry issues passwords and monitors and troubleshoots complaints before referring them to Digicel. The Ministry intermittently changes the island-wide passwords for the 3 accounts, but there is no policy regarding use of internet at the schools. The schools do not have in-house capacity to manage the systems at a school level. There are school district technicians employed by the Ministry of Education who respond to complaints from the schools

The Digigov project is managed by the public service and provides internet access to some HRDCs. The GINet project was an initiative to provide free community access at designated points.

Solid Waste

All schools are serviced by area waste collectors, contracted by the Saint Lucia Solid Waste Management Authority (SWMA). Collection service frequency varies from daily in urban areas to two to three times weekly in other areas. White goods collection services are offered once monthly in all communities.

Waste collection services by SWMA contractors are offered free to residential and institutional waste generators only. Other generators (commercial, industrial) are expected to arrange and pay

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for their collection services. Despite 100% coverage of services, littering and dumping of white goods in rivers and on the road side are a chronic problem in many communities.

Disposal of waste generated by the works is the responsibility of the works contractors. Currently, all waste is disposed of at the Deglos Disposal site in Cul de Sac.

3.4 Trends in Baseline Conditions

3.4.1 Environmental Trends

The twelve targeted schools are distributed across the island, in locations ranging from urban, lowlying to sloping, rural areas. All are impacted by climate and climate change, with climate hazard vulnerability varying with location. Typically, those in low lying areas are more vulnerable to flooding and sometimes sea level rise, while those on slopes are more landslide prone. Exposure to high wind speeds also varies with location. As hurricanes become more intense with climate change, all of these hazard risks will also increase, other factors remaining equal. All schools will be vulnerable to islandwide drying over time, as this has the potential to adversely affect water supplies for drinking and hygiene, and for irrigation of school gardens used to supplement school meals and for the study of agriculture. As temperatures and number of hot days increase, all schools will also become less comfortable for occupants unless they are retretrofitted with cooling devices.

Ambient noise levels also vary with location and could change over time in some locations, depending on how development in the immediate area progresses. Noise levels originating from within the school are often a relatively greater challenge but are unlikely to change significantly until a major change in school design to reduce noise occurs.

Air quality at the schools is roughly proportional to traffic volumes in the vicinity, and this will change as community road networks are upgraded and the properties immediately surrounding the school are developed. Emissions from traffic will change as government policy and restrictions on vehicle emissions evolve, and this will have implications for air quality adjacent to roadways.

The natural environment immediately surrounding those schools in urban areas is not significant, and this is unlikely to change unless a deliberate community greening effort is engaged in. Schools in more rural settings have more flora and fauna in close proximity, and how this changes over time will vary with development plans for these communities.

All of these schools have waste collection, water, electricity and internet services, with onsite wastewater management. The quality of these services will fluctuate as the service providers roll out new strategies (e.g. waste segregation programmes in schools to reduce waste volumes), upgrade services, face increased area demands or operational constraints. There are positive implications for the carbon footprint of these schools as the service providers become more efficient or adopt climate change mitigation strategies at a national level, and as school infrastructure itself become more efficient.

3.4.2 Socio-economic Conditions and Vulnerabilities

Following is a brief exploration of the socio-economic conditions and vulnerabilities of the communities which host the schools. The main sources of data are the 2010 Census results (Statistics Department, 2011), the findings of the 2016 National Survey of Living Conditions-Household Budget Survey (Kairi, 2018), and discussions with key stakeholders and potential beneficiaries of the Project.

National Context

Poverty Estimates

Based on the money metric measure, the head count poverty level fell during the 10-year period 2006 and 2016 from 28.8 percent to 25.0 percent. Decline was most pronounced in the rural areas of Saint Lucia where poverty levels fell from 41 percent to 32.9 percent. Based on the multidimensional approach, 36,780 or 21.4% of the population was considered poor in 2016.

Within the urban districts, Castries City saw an increase in poverty by 14.5% while there was an increase in poverty in Vieux-Fort of approximately by 11.5%. These were the two districts along with the rural district of Dennery which showed a worsening of poverty during the period 2006 to 2016.

Child Poverty and Vulnerability

Between 2006 and 2016, the child poverty rate in Saint Lucia fell from 36.7 percent in 2006 to 34.5 percent in 2016, a decrease of around 2.3 percentage points. Allied to demographic change, the number of poor children in Saint Lucia decreased from 22,400 in 2006 to 16,700 in n 2016 – a reduction of 25 percent.

Child poverty rate is appreciably higher in rural areas, 41.4% compared to 32% in the urban areas. Almost three quarters of the population lives in urban areas, the majority of poor children, nearly 69%, also live in urban areas.

The share of poor children living in female-headed households from 48.6 percent in 2006, to 58.2 percent in 2016, over 40 percent of poor children continue to live in male-headed households.

When poverty rates for large (4+ children) households are cross tabulated with the sex of the household head, the child poverty rate for female headed households is extremely high at over 80% and that this sub-group of households accounts for around a third of all poor children. This finding provides a potential for the targeting of poverty reduction initiatives to this sub-group.

Education and Literacy

High levels of literacy were recorded for both males and females in Saint Lucia, with females (93.8%) having higher levels of literacy than men (90.6%). When area of residence was taken into account, urban men (91.8%) and women (95.4%) recorded higher levels of literacy when compared to rural men (88.0%) and women (90.0%).

Regionally, the attainment of postsecondary education was highest among females and males in Gros Islet (32.2% and 23.2%), Castries City Urban (24.8% and 17.6%) and Castries City (24.1% and 19.1%). The attainment of no education at all was highest among females and males in Anse la Raye, Canaries (15.8% and 12.7%) and Micoud (16.3% and 11.2%).

When socioeconomic status was considered, poor men (82%) and women (90.5%) had lower levels of literacy when compared to non-poor men (93%) and women (94.8%). Poor men had notably lower levels of literacy compared to all other categories.

When an area of residence and socioeconomic status were considered together, the attainment of no education was far more prevalent among the rural poor when compared to other categories. In contrast, the attainment of secondary and post-secondary education was far more prevalent among rural non-poor and urban non-poor males and females.

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Health

COVID-19 has taken hold in every district. Nationally, over 5,000 persons have contracted the virus and over 90 persons have succumbed to it. The pandemic has induced higher unemployment due to closure of businesses and establishments mainly in the tourism and creative sectors. Students missed out on school for almost a year as the pandemic forced the suspension of classes at all levels. The major non-communicable diseases among the adult population are diabetes and various cancers which are the main cause of death. Vaccination coverage for infants is over 95%. Obesity and under-nutrition among some children are a cause for concern.

The health insurance indicator shows that 92.5% of households nationally do not have at least one person who has health insurance. This is an indicator which shows the relatively high exposure of the population to the incidence of multi-dimensional poverty due to lack of access to health insurance.

Safety and Security

The SDG indicator for feeling safe was 46.5% nationally: there was, however, a very big difference between urban areas of Gros-Islet/Castries compared to the rest less urban mostly rural parts of St Lucia, the rate in Gros-Islet/Castries was 56.6% versus 33.1% in the rest of Saint Lucia of persons who did not feel safe.

Labour Market

The percentage of wage and salary workers fell between 2006 and 2016, reflecting the underlying weakness in the economy and in the competitiveness in particular sectors.

The increase in the percentage engaged in own account agriculture and in Wholesale and Retail Trade mirrors an increase in informal sector activity as some workers sought to eke out a living in the face of an increase in overall unemployment.

Unemployment increased substantially over the period and with that, female unemployment and youth unemployment.

There was upgrading in educational levels in the workforce, with the universalising of secondary education and an increase in access to postsecondary and tertiary education: yet, over 33 percent of workforce had achieved only primary level education, although this was still an advance of 45 percent in 2006.

Poverty in urban areas being almost half of the level in rural areas, would have encouraged rural-urban migration.

Gender Dimensions

Overall, households in St. Lucia have three members on average and are headed by females in two out of every five cases.

Lower labour force participation rates among women pervade – 81.8 percent vs 68.1 percent, which two latter statistics mirror the share of the population not in the labour force. For the most part, higher unemployment rates obtain for women also – 16.9 percent for men and 17.5 percent for women.

There remain substantial differentials in participation by industry and by occupation between men and women. A higher percentage of men were in Agriculture, Hunting, Forestry and Fishing, Transport, Storage and Communication, and of course Construction. While the service industries

attracted a higher percentage among women in generally – Accommodation and Food Service, Educational and Public Services.

District/Community Context

Due to inadequate community level data, trends in selected socio-economic and vulnerabilities indicators at the district level are referenced from the 2016 Survey of Living Conditions and Household Budget Survey (SLC-HBS) and the 2011 Census report on the 2010 Census. The information should provide an idea of the situation at the community level.

Corinth Community – Gros Islet District

The community of Corinth is part of the north-Western corridor in the district of Gros Islet. Corinth Secondary School is located in the community of Corinth which is in the Gros Islet District.

Table 3.3: Socio-economic and Vulnerability Indicators - Gros Islet District

Indicator	Situation		Comment
	2006	2016	
Population and Households			Population size – 25,210 (Census 2010) No. of households – 9,538 (Census 2010) Corinth Proper (Settlement) – 620 households; population – 1,499 (Census 2010).
Poverty Rate	24.4	11.8	Despite a reduction in poverty Intensity of deprivation is high.
Child Poverty	36.7	34.5	Child poverty rate is appreciably higher in rural areas than urban areas - 41.4% compared to 32%.
Distribution of the Poor	10.7	7.5	There is overcrowding in the slum areas of the district.
Unemployment	Overall – 10.1	Overall – 17.1 Male – 15.3 Female – 11.8	Unemployment is higher among males.
Literacy		Male – 95.5 Female – 97.7	The attainment of post-secondary education was highest among females and males in Gros Islet (32.2% and 23.2%, respectively).
Labour Force Participation	Male – 64.6 Female –52.0	Male – 84.8 Female – 70.7	Participation is higher among males than females.
Health			
Population affected by a climate event in past 5 years		7%	Population size – 25,210 (Census 2010) No. of households – 9,538 (Census 2010)
Climate Vulnerabilities			
Hazard		**Magnitude**	**Comment**
Hurricane		High	
Drought		Low inland; high in coastal areas	Corinth area is affected during February to May.
Flooding		Medium to high	

Indicator	Situation	Comment
Landslides	Predominantly low	NA to School Location
Sea-level rise	High	NA to Corinth
Coastal erosion	Vulnerable to specific locations	NA to Corinth
Volcanic activity	Low	Potential threat from volcanic ash in the event of eruption of nearby dormant volcano.
Earthquake	High	

Source: Saint Lucia National Report of Living Conditions 2016 Final December-2018

City of Castries Community – Castries District (Urban)

The City of Castries is the capital of Saint Lucia. It is a high population density area, highly urbanized, and is the seat of the government. The Ave Maria Infant School and the Ave Maria Primary School are located in the centre of the city of Castries among private and administrative establishments.

Table 3.4: Socio-economic and vulnerability indicators - Castries District

Indicator	Situation		Comment
	2006	2016	
Population and Households			Population: ▪ Total Castries – 65, 656 ▪ Castries City – 4,137 ▪ Castries sub-urban – 17,938 ▪ Castries Rural – 43,545 Households: ▪ Total Castries – 23, 493 ▪ Castries City – 1,640 ▪ Castries Suburban – 6,553 ▪ Castries Rural – 15,330
Poverty Rate	24.4	11.8	Despite the reduction in the poverty rate, intensity of deprivation is high.
Distribution of the Poor	10.7	7.5	There is overcrowding in the slum areas of the district.
Unemployment	Overall - 23.1	Overall – 41.9 Male – 33.3 Female – 30.3	Unemployment is higher among males.

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Indicator	Situation		Comment
	2006	2016	
Literacy		Male – 95.5 Female – 97.7	Attainment of post-secondary education highest among females and males (32.2% and 23.2%)
Labour Force Participation	Male – 64.6 Female – 52.0	Male – 84.8 Female – 70.7	A greater proportion of males participate than females.
Population affected by a climate event in past 5 years		4.6% in the city of Castries 14.2% in Castries suburban and rural areas	Castries City – 4,137 Castries sub-urban – 17,938 Castries Rural – 43,545
Vulnerabilities			
Hazard		**Magnitude**	**Comment**
Hurricane/Storms		High	Has the potential to cause destruction of school plant.
Drought		Medium low inland; medium in coastal areas	Can affect school operations.
Flooding		Low to moderate, Medium level Castries coastal plain	Conditioned by tides and heavy rainfall
Landslides		Predominantly low to few moderate	NA to Schools
Sea-level rise		High	Castries Harbour and Port facilities in close proximity.
Coastal erosion		Vulnerable to specific locations	NA to City of Castries
Volcanic activity		Low	Potential threat from volcanic ash in the event of eruption of nearby dormant volcano.
Earthquake		High	There is the threat of tsunami

Bexon Community - Castries District (Rural)

Bexon is a rural community in the Castries District. It is located about 10 miles from the city of Castries. The Bexon Combined School is situated along the Castries - Vieux-Fort Highway and is surrounded by small farmer agricultural holdings.

Table 3.5: Socio-economic and Vulnerability Indicators Castries District

Indicator	Situation		Comment
	2006	2016	
Population and Households			Population: ▪ Castries Rural – 43,545 Households: ▪ Castries Rural – 15,330 Bexon Settlement Population – 1887 (Census 2010)
Poverty Rate	24.4	11.8	Despite the reduction in the poverty, the intensity of deprivation is high.
Distribution of the Poor	10.7	7.5	
Unemployment	Overall - 23.1	Overall – 41.9 Male – 33.3 Female – 30.3	Unemployment is higher among males.
Literacy		Male – 95.5 Female – 97.7	Attainment of post-secondary education highest among females and males (32.2% and 23.2%)
Labour Force Participation	Male – 64.6 Female – 52.0	Male – 84.8 Female – 70.7	A greater proportion of males participate than females.
Population affected by a climate event in past 5 years		4.6% in the city of Castries 14.2% in Castries suburban and rural areas	Bexon Settlement Population – 1887 (Census 2010)
Vulnerabilities			
Hazard		**Magnitude**	**Comment**
Hurricane/Storms		High	Has the potential to cause destruction of school plant.
Drought		Medium low inland; medium in coastal areas	Can affect school operations.
Flooding		Low to moderate, Medium level Castries coastal plain	Conditioned by heavy rainfall
Landslides		Predominantly low to few moderate	NA
Sea-level rise		High	Castries Harbour and Port facilities in close proximity.
Coastal erosion		Vulnerable to specific locations	NA to City of Castries
Volcanic activity		Low	Potential threat from volcanic ash in the event of eruption of nearby dormant volcano.
Earthquake		High	

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Town of Vieux Fort Community – Vieux Fort District

Vieux Fort Town is in the Vieux Fort District which is the southern most of all districts. It is approximately 40 miles by road from the city of Castries. The town is highly urbanized and is the centre of commercial activity in the Vieux District. The Vieux Fort Primary School lies just on the outskirt of the town while the Vieux Fort Infant is located on the main street of the Town surrounded by intense commercial and pedestrian activity.

Table 3.6: Socio-economic and vulnerability indicators Vieux Fort District

Indicator	Situation		Comment
	2006	2016	
Population and Households			Population – 14,632 Households – 5,740 (Census 2010)
Poverty Rate	23.1	34.6	Overall poverty increased in the district.
Child Poverty	36.7	34.5	Child poverty has declined
Distribution of the Poor	6.8	12.2	There are more poor persons in the district.
Unemployment	Overall – 15.4	Overall – 36.8 Male – 22.9 Female – 33.0	More females are represented in the unemployment situation.
Literacy		Male – 89.6 Female – 91.6	
Labour Force Participation	Male – 74.2 Female – 48.9	Male 84.5 Female - 66.4	
Population affected by a climate event in past 5 years		10%	Population – 14,632 Households – 5,740
Vulnerabilities			
Hazard		**Magnitude**	**Comment**
Hurricane		High	Has the potential to cause destruction of school plant.
Drought		Medium Low inland. High in coastal areas.	Can affect school operations.
Flooding		Mainly low.	Conditioned by tides and heavy rainfall.
Landslides		Predominantly low.	NA to school environment
Sea-level rise		High	Threat of tsunami
Coastal erosion		Coastline predominantly vulnerable	Potential for storm surges
Volcanic activity		Low to high	Potential threat from volcanic ash in the event of eruption of nearby dormant volcano.
Earthquake		High	Has potential to cause destruction of school plant

Saltibus Community - Choiseul/Saltibus District

The Salitibus Community is an inner highland community in the Choiseul/Saltibus District. The community is geographically characterized by ridges and gorges. It is sparsely populated. The Saltibus Combined School is located on a ridge in the community and is surrounded by interspersed private dwelling units and small agricultural holdings.

Table 3.7: Socio-economic and vulnerability indicators Choiseul/Saltibus District

Indicator	Situation		Comment
	2006	2016	
Population and Households			Population – 6,098 Households – 2,069
Poverty Rate	38.4	16.9	There is a decline in poverty but deprivation is high.
Child Poverty	36.7	34.5	
Distribution of the Poor	4.4	2.1	
Unemployment	Overall – 24.6	Overall – 26.5 Male – 26.8 Female – 18.2	
Literacy		Male – 88.3 Female – 92.4	
Labour Force Participation	Male – 72.9 Female – 48.3	Male 75.9 Female – 66.0	
Population affected by a climate event in past 5 years		4.2%	Population – 6,098
Vulnerabilities			
Hazard		**Magnitude**	**Comment**
Hurricane		High	Has the potential to cause destruction of school plant.
Drought		Medium to high inland. High in coastal areas.	Can affect school operations.
Flooding		Mainly low.	NA to school environment
Landslides		Predominantly moderate to low.	Has the potential to cause destruction of school plant.
Sea-level rise		High	NA to school environment
Coastal erosion		Non-vulnerable	NA to school environment
Volcanic activity		High	Potential threat from volcanic ash in the event of eruption of nearby dormant volcano.
Earthquake		High	Has potential to cause destruction of school plant

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Fond Assau Community & Balata Community – Babonneau District

The Balata Community and the Fond Assau Community are located in the Babonneau District which is part of the North-east quadrant of the island. Both communities are considered part of the political constituency of Babonneau. In the 2011 Census Report some parts of Balata are designated Castries Suburban while other parts are designated Castries Rural. Private dwellings mingle with small agricultural holdings. The communities are geographically characterized by several plateaus and gorges. A main link road to the other communities in the district passes through the communities.

Table 3.8: Socio-economic and Vulnerability Indicators Babonneau District

Indicator	Situation		Comment
	2006	2016	
Population and Households			Babonneau District – 12,723 (pop); 4,578 (households). Balata Castries Suburban – 372 (pop); 143 (households). Balata Castries Rural – 1,874 (pop); 685 (households). Fond Assau Castries Rural – 738 (pop); 255 (household).
Poverty Rate			Combined with Gros Islet. No separate indicators
Child Poverty			Combined with Gros Islet. No separate indicators
Distribution of the Poor			Combined with Gros Islet. No separate indicators
Unemployment			Combined with Gros Islet. No separate indicators
Literacy			Combined with Gros Islet. No separate indicators
Labour Force Participation			Combined with Gros Islet. No separate indicators
Population affected by a climate event in past 5 years			Combined with Gros Islet. No separate indicators
Vulnerabilities			
Hazard		**Magnitude (same as Gros Islet District)**	**Comment (slightly different from Gros Islet)**
Hurricane		High	Has the potential to cause destruction of school plant.
Drought		Low inland; high in coastal areas	Can affect school operations.
Flooding		Medium to high	NA to school environment
Landslides		Predominantly low	NA to school environment

Indicator	Situation	Comment
Sea-level rise	High	NA to school environment
Coastal erosion	Vulnerable to specific locations	NA to school environment
Volcanic activity	Low	Potential threat from volcanic ash in the event of eruption of dormant volcano in Soufriere.
Earthquake	High	Has potential to cause destruction of school plants.

Patience Community, Micoud Town, Desruisseaux – Micoud District

The communities are classified as rural. The community of Patience is an elevated coastal agricultural community. This community is host to the Patience Combined School. Micoud Town is nearer to the coast than the community of Patience and it hosts Micoud Primary School. Desruisseaux is an inland agricultural community on an elevated plain. This community is host to the Desruisseaux Combined School.

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Table 3.9: Socio-economic and Vulnerability Indicators Micoud District

Indicator	Situation		Comment
	2006	2016	
Population & Households			Micoud District – 16,271 (pop); 5,016 (households) Micoud North – 7,131; Micoud South – 9,140 Patience Community – 1,301 (pop); 452 (households) Micoud Town – 214 (pop); 67 (households) Desruisseaux Community – 2,163 (pop); 685 (households)
Poverty Rate	43.6	31.2	Overall poverty has declined.
Child Poverty	36.7	34.5	Child poverty has declined.
Distribution of the Poor	16.6	12.6	There are fewer poor persons in the district.
Unemployment	Overall – 18.9	Overall – 23.9	
Literacy		Male – 87.6 Female – 89.7	
Labour Force Participation	Male – 71.2 Female – 45.4	Male 85.1 Female – 60.1	
Population affected by a climate event in past 5 years		3.6 %	Micoud District – 16,271 (pop); 5016 (households) Micoud North – 7,131; Micoud South – 9140 Patience Community – 1,301 (pop); 452 (households) Micoud Town – 214 (pop); 67 (households) Desruisseaux Community – 2,163 (pop); 685 (households)
Vulnerabilities			
Hazard		**Magnitude**	**Comment**
Hurricane		High	Has the potential to cause destruction of school plant in all communities.
Drought		Medium Low inland	Can affect school operations in all communities.
Flooding		Mainly low	Conditioned by heavy rainfall in.
Landslides		Predominantly low	NA to schools in the all the communities.
Sea-level rise		High	Possible threat from tsunami in the case of Micoud Town.
Coastal erosion		Coastline predominantly vulnerable	Potential for storm surges in the case of Micoud Town.
Volcanic activity		Low to high	Potential threat from volcanic ash in the event of eruption of a dormant volcano.
Earthquake		High	Has potential to cause destruction of school plant

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4.0 Project Description

4.1 Design Brief

The project TOR require development of school by school 'resilience improvement' packages for twelve school across Saint Lucia, showing options for upgrading, retrofitting or replacement to increase school resilience and improve function as shelter (in line with OECD guidelines).

4.2 Description of Proposed Project sites

4.2.1 Site Descriptions

The coordinates of the school locations are provided in Table 1.1.

The twelve school sites are located across Saint Lucia, from Corinth, Gros Islet in the north to Vieux Fort at the southern tip of the Island. A description of their locations is provided below. The schools and surrounding communities are generally located in areas varying from very flat to moderately sloping.

The site descriptions provides information on their siting within their communities, topography of the grounds, proximity to water courses, relative elevations and proximity to playgrounds and emergency services. In these descriptions, information on the type of community (rural, urban or sub-urban) is also provided. Information on the school population provides some insight into the size of the school and its capacity as an emergency shelter.

4.2.1.1 Ave Maria Infant and Ave Maria Primary

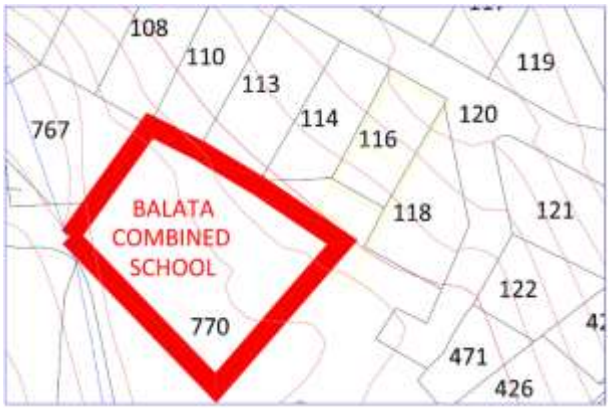
These are two of five schools considered as being located in the centre of Castries. The total population of the two schools is 498 students. Both schools are located within a fenced compound in the centre of Castries and three city blocks away from the Central Fire Station. The site is flat, occupies 3,000 m^2 of land, comprising the major portion of a city block. The property has exits on all three streets that are contiguous with the property's north, east and west boundaries. The compound incorporates six buildings surrounding a concrete playground. There is no vegetation.

The schools are both identified as emergency shelters.

4.2.1.2 Balata Combined

This school is nestled within the Balata community in the Quarter of Castries North in the central north of Saint Lucia. It has a population of 378 students. The compound is at the end of an ill-defined cul-de-sac, accessed by a narrow road with inadequate geometric design. There is minimal space available for vehicular turning. The road reduces to a community footpath after passing the school, and there are no other vehicular accesses to the site. West of the school is a ravine, and this flows in close proximity to the school's north-western boundary. The school compound is flat. School operations are accommodated within an "L" shaped building with access to a community playground on the opposite side of the access road. The school compound occupies approximately 1,880 m^2.

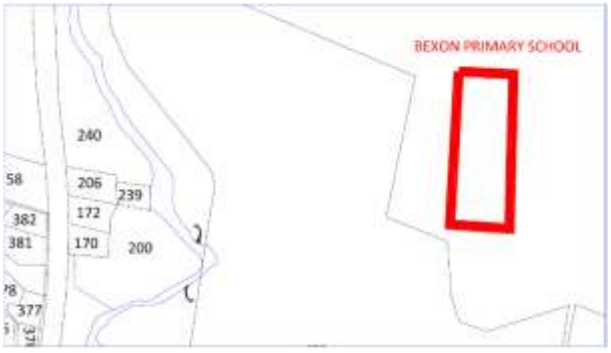
The school is used as an emergency shelter.



4.2.1.3 Bexon Primary

The Bexon School is located in the centre of the Island in the Quarter of Castries Southeast. The school compound occupies 2,117 m^2. It has a population of 136 students. It is considered to be between the Cul De Sac and Mabouya Valleys and sits within a low lying plain which is known to flood. Vehicular access is via a lengthy narrow track which challenges access for emergency and other vehicles. There is a pedestrian access from the Castries-Vieux Fort Highway across the Cul De Sac River and then across the eastern boundary of the school. The closest fire (and ambulance) stations are located in the Castries and Dennery areas which are approximately 16 kilometers to the north and south respectively.

It is located near a community playground and is zoned as an emergency shelter.



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4.2.1.4 Corinth Secondary

The Corinth Secondary School is located in the north of the island and is accessed off a secondary road which runs in an easterly direction from the Grand Riviere Junction off the Castries Gros Islet highway. It has a population of 706 students. It is within a densely populated residential area, which is quickly becoming sub-urban. It is one of the largest schools in the Gros Islet area. The compound occupies 8,130 m^2 of land adjacent to a community playground.

The La Brelotte River flows near the school's northeastern boundary and the site is known to have problems with drainage and has experienced flooding on the northern side of the compound. Emergency services (both police and fire) are available about 8 Km to the north.

The school is designated as an emergency shelter.

4.2.1.5 Desruisseaux Combined

The Desruisseaux Combined school is located in the south of the island in the Quarter of Micoud. The school is one of two in the Desruisseaux community and is a designated emergency shelter. It has a population of 230 pupils. It is accessed directly off the Desruisseaux main road. It is part of a Roman Catholic Church compound, with the Church and the playground on the eastern boundary of the school. The site is gently sloping from south to north, at a relatively high elevation of 133 metres above sea level. The school compound occupies approximately 4,170 m^2. It is located within a mixed-use area in proximity to residential buildings and small community shops.

The closest emergency services are in Vieux Fort to the south and Micoud to the north.

4.2.1.6 Fond Assau Combined

The school is located in the Babonneau community in the north east of Saint Lucia and is considered to be within a rural agricultural setting. The school's population is 130 pupils. The buildings enclose a paved playground and the entire compound measures about 3,932 m^2. The property is accessed off the main Fond Assau road, about 2 Km downhill from the main Babonneau road. It is a sloping site which has been benched to accommodate three main school blocks, one of which was constructed in recent years.

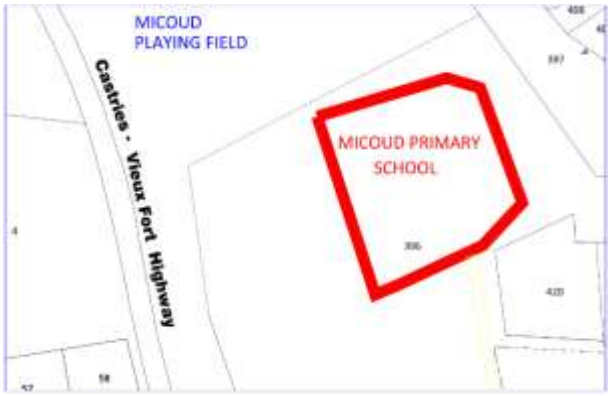
Emergency services are available in the Babonneau area with a fire and a police station less than 1,000 metres uphill from the school.

It is zoned as an emergency shelter.

4.2.1.7 Micoud Primary

The Micoud Primary School is located in the village of Micoud, Quarter of Micoud in the south east of Saint Lucia. It has a population of 385 students. The school is on the outskirts of the main residential areas of the community. It is accessed off the Castries – Vieux Fort Highway. The vehicular access to the school is narrow and substandard, with several other institutional buildings in the immediate vicinity. The school compound has four buildings, one of which was recently constructed. The buildings are configured around on-site open green areas. The site is close to a public playground.

The compound is gently sloping from north to south and measures approximately 5,090 m^2. It is elevated without any ravines or watercourses in the immediate vicinity.



There are emergency services in close proximity to the school's compound along the nearby Highway.

It is identified as an emergency shelter serving the Micoud area.

4.2.1.8 Patience Combined

Patience Combined is located in the District of Praslin, north of Micoud. The compound measures 5,250 m^2 within a rural setting, with a view of the Atlantic coastline. The school's population is 253 pupils. The school is east of the Castries – Vieux Fort Highway and is accessed off a paved secondary road. The school comprises four buildings, one of which was built in recent years. The buildings sit on the perimeter and enclose a paved space that is utilised as a playground.

There is a community recreational space contiguous with the eastern boundary of the school.

Emergency services are not available in the Patience Community and the nearest would be in Micoud, 6 Km to the south.

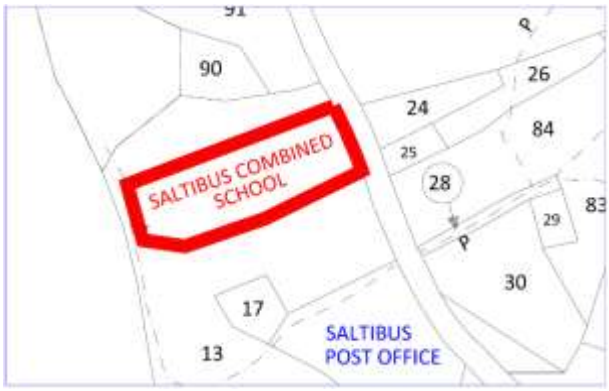
The school is a designated emergency shelter.

4.2.1.9 Saltibus Combined

The Saltibus Combined School is at an elevation of 282 metres above sea level. The property area is 2,188 m^2. It has a population of 106 students. It is located along an extended spur, some 10 to 12 Km off the Laborie to Choiseul Highway. The School appears to straddle the Laborie/Choiseul boundary. The immediate area is characterized by steep terrain and the only available access road to the school runs along the spur. The road dead ends several Km further inland. The school is adjacent to a community playground.

The school is not close to any emergency services, with the closest in Vieux Fort, some 20 Km to the south east.

The school is identified as an emergency shelter.

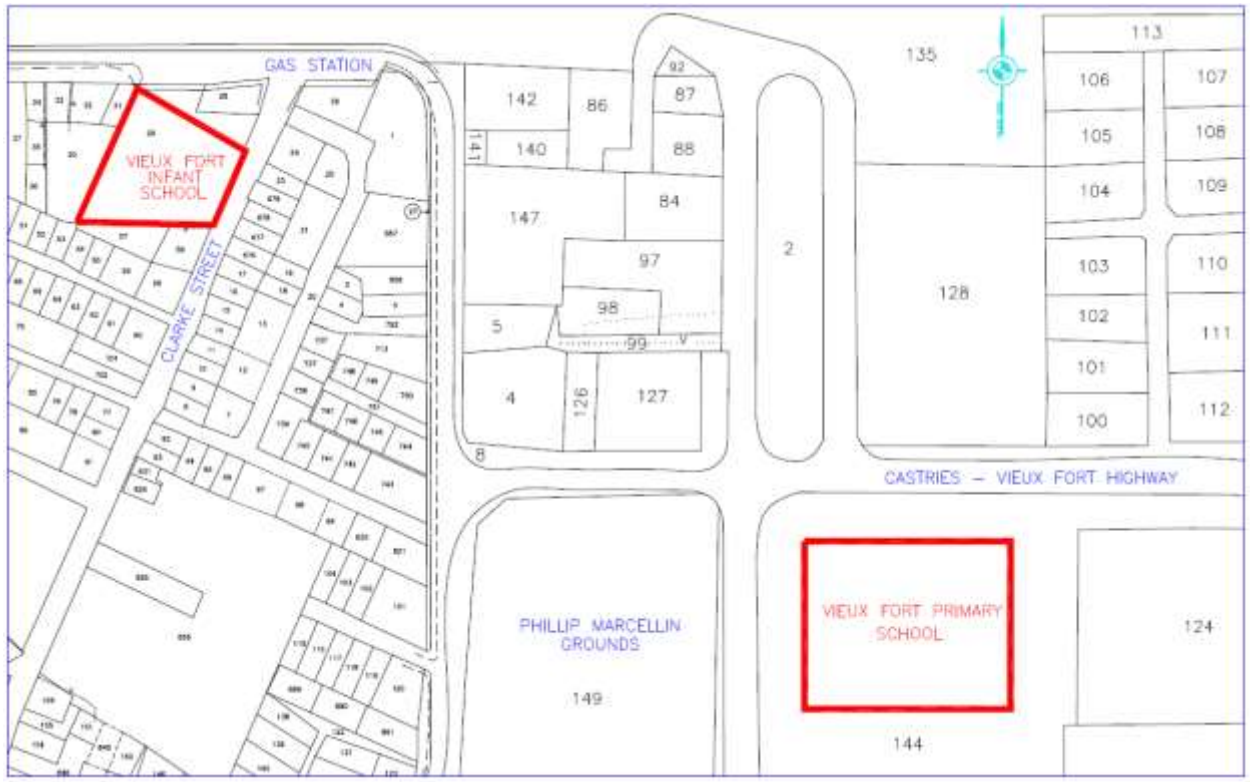


4.2.1.10 Vieux Fort Infant and Primary Schools

The two Vieux Fort schools are located in the Vieux Fort Town. The Infant school occupies 2,922 m^2 of land and the Primary occupies 7,120 m^2. The Infant school has a population of 167 students, and the Primary school has 205 students. The Vieux Fort Infant School is accessed directly off Clarke Street which is the main road into the town centre. The Vieux Fort Primary School is further east, within an area of town expansion. Both schools are on extremely flat ground, but the Primary school is much more exposed to the trade winds and coastal inundation.

The Infant school's playground is limited to a space between the school building and the main road. There are two community playgrounds in close proximity to the Primary school.

Both schools are in close proximity to emergency services and are designated as emergency shelters.



4.3 Community characteristics

4.3.1 Community Characteristics and Social Conditions

The following is a summary of the main characteristics of the communities which host the 12 schools. It follows from the information provided in Section 3.5 on Baseline Conditions.

Table 4.1: Summary of Community Characteristics and Social Conditions

Community	Characteristics and Social Conditions	School
Balata	▪ This community is inland about 5 miles away from the north-west coast. Its land use pattern is a mix of agriculture on small private farm holdings and	Balata Combined

Community	Characteristics and Social Conditions	School
	private housing. Housing characteristics is a combination of concrete, concrete and wood, and wooden structures. Most houses are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. ▪ The following amenities are available within the community: (i) recreational space for team sports like football and cricket. No facilities for indoor sports are available; (ii) services – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, and other important activities. ▪ The following emergency/protective services are not available in the community: police, fire fighting, and ambulance. These services are available in other communities in the Babonneau District or the Gros Islet District (7miles away). There is no Health and Wellness Centre in the community. Residents can access health and wellness services from five Health and Wellness Centres located in the Babonneau District and the Gros Islet District. ▪ Public transportation is available to get in and out of the community. There is one main road and several secondary roads that provide pedestrian and vehicular access to households and other buildings (including the Balata Combined School) which are located away from the main thoroughfare. ▪ The main economic activity in the community is farming. Other activities include shop keeping and vending. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Babonneau Constituency Council which is a local government arrangement designed to assist with the delivery of services and make recommendations for projects that will benefit the members of communities in the various political constituencies (Constituency Councils Act No. 1 of 2012) ▪ Several faith-based and community-based organizations in the community which comprise the structural social capital of the community. Community social capital is easily mobilized to provide short term community response through community voluntary action when a climatic disaster which has impacted a community. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth as a result of involvement in the illicit drugs trade. Like most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the primary school as an important asset which serves various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bring people together through various activities. The school has made the community proud in recent times as a result of its high performance of its students in the Common Entrance Examinations.	

Community	Characteristics and Social Conditions	School
	▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism sector. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. ▪ There are no heritage sites or protected areas in the community.	
Bexon	▪ This community is inland about 5 miles away from the Cul-de-Sac Bay to the West. Its land use pattern is a mix of agriculture on small private farm holdings and private housing. Housing characteristics is a combination of mainly concrete and wood, and wooden structures. Most houses are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. ▪ The following amenities are available within the community: (i) recreational space for team sports like football and cricket. No facilities for indoor sports are available. (ii) services – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, and other important activities. ▪ The following emergency/protective services are not available in the community: police, fire fighting, and ambulance. There is a Health and Wellness Centre in the community. ▪ Public transportation is available to get in and out of the community. The Castries-Vieux Fort highway and several secondary roads provide pedestrian and vehicular access to households and other buildings (including the Bexon Combined School) which are located away from the main thoroughfare. ▪ The main economic activity in the community is farming. Other activities include shop keeping and vending. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Castries South-east Constituency Council. ▪ Several faith-based and community-based organizations in the community which comprise the structural social capital of the community. Community social capital is easily mobilized to provide short term community response through community voluntary action when a climatic disaster has impacted a community. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth as a result of involvement in the illicit drugs trade. Like most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the primary school as an important asset which serves various functions including serving as a safe space, a meeting	Bexon Combined

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Community	Characteristics and Social Conditions	School
	point to discuss and plan community initiatives, and bring people together through various activities. ▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism sector. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. ▪ There are no heritage sites or protected areas in the community.	
City of Castries	▪ The city is the capital of Saint Lucia. Its land use pattern predominantly commercial with some public housing and private housing on the outskirts of the city centre. Most private houses are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. A few inner-city settlements exist and are characterized by poverty and deprivation. ▪ Recreational space for team sports like football and cricket are away from the city centre. No facilities for indoor sports are available. The following services are available – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, commercial and other important activities. ▪ The following emergency/protective services are available in the community: police, fire fighting, and ambulance. There is a Health and Wellness Centre in the community. ▪ Public transportation is available to get in and out of the community. Several primary, secondary and tributary roads converge on the city allowing pedestrian and vehicular access to the city. ▪ The main economic activity in the community is commerce and business. Street vending is a major part of the business and commercial pulse of the community. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Castries Constituency Council. ▪ Several faith-based and community-based organizations exist in the community which comprise the structural social capital of the community. Community social capital is easily mobilized in areas of the city occupied by residents. They will usually respond to the call to volunteer in clean-up campaigns after a natural disaster has impacted their locale. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth, in particular crime and violence, as a result of involvement in the illicit drugs trade. Like	Ave Maria Infant & Primary

Community	Characteristics and Social Conditions	School
	most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the schools as important assets which serve various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bring people together through various activities. ▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism other key sectors. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. Increasing intimate partner violence, child abuse and neglect, have been reported and is a cause for concern. ▪ There are no heritage sites or protected areas in the centre of the city.	
Corinth	▪ This community is part of the north-western in the Gros Islet District. Its land use pattern is a mix of commercial and private housing. Almost 100% buildings and private dwelling houses are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. ▪ Recreational space for team sports like football and cricket is available in the community. No facilities for indoor sports are available. The following services are available – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, commercial and other important activities. ▪ Emergency/protective services such as police, fire fighting, and ambulance are not available in the community. There is a Health and Wellness Centre in the community. These services are available at the Gros Islet Health Polyclinic in the Town of Gros Islet (about 4 miles to the north) or at the Castries Health Centre (4 miles to the south). ▪ Public transportation is available to get in and out of the community. Several primary, secondary and tributary roads converge on the community allowing pedestrian and vehicular access to the community. ▪ The main economic activity in the community is commerce and business. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Gros Islet Constituency Council. ▪ Several faith-based and community-based organizations exist in the community which comprise the structural social capital of the community.	Corinth Secondary

Community	Characteristics and Social Conditions	School
	Community social capital is easily mobilized in areas of the community occupied by residents. They will usually respond to the call to volunteer in clean-up campaigns after a natural disaster has impacted their locale. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth, in particular crime and violence, as a result of involvement in the illicit drugs trade. Like most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the school as important assets which serve various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bring people together through various activities. ▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism other key sectors. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. ▪ There are no heritage sites or protected areas in the community.	
Desruisseaux	▪ This community is inland about 5 miles away from the east coast. Its land use pattern is a mix of agriculture on small private farm holdings and private housing. Housing characteristics is a combination of mainly concrete and wood, and wooden structures. Most houses are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. ▪ The following amenities are available within the community: (i) recreational space for team sports like football and cricket. No facilities for indoor sports are available. (ii) services – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, and other important activities. ▪ The following emergency/protective services are not available in the community: police, fire fighting, and ambulance. There is a Health and Wellness Centre in the community. ▪ Public transportation is available to get in and out of the community. The Castries-Vieux Fort highway and several secondary roads provide pedestrian and vehicular access to households and other buildings which are located away from the main thoroughfare. ▪ The main economic activity in the community is farming. Other activities include shop keeping and vending. Community development initiatives that seek to deepen and extend democratic participation and to put local	Desruisseaux Combined

Community	Characteristics and Social Conditions	School
	communities in charge of their destinies, socially and economically are supported by the Micoud South Constituency Council. ▪ Several faith-based and community-based organizations in the community which comprise the structural social capital of the community. Community social capital is easily mobilized to provide short-term community response through community voluntary action when a climatic disaster has impacted the community. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth as a result of involvement in the illicit drugs trade. Like most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the primary school as an important asset which serves various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bring people together through various activities. ▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism sector. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. ▪ There are no heritage sites or protected areas in the community.	
Fond Assau	▪ This community is inland about 6.5 miles away from the north-west coast. Its land use pattern is a mix of agriculture on small private farm holdings and private housing. Housing characteristics is a combination of mainly concrete and wood, and wooden structures. Most houses are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. ▪ The following amenities are available within the community: (i) recreational space for team sports like football and cricket. No facilities for indoor sports are available; (ii) services – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, and other important activities. ▪ The following emergency/protective services are not available in the community: police, fire fighting, and ambulance. These services are available in other communities in the Babonneau District or the Gros Islet District (7miles away). There is a Health and Wellness Centre in the community. ▪ Public transportation is available to get in and out of the community. There is one main road and several secondary roads that provide pedestrian and	Fond Assau Primary

Community	Characteristics and Social Conditions	School
	vehicular access to households and other buildings (including the Fond Assau Primary School) which are located away from the main thoroughfare. ▪ The main economic activity in the community is farming. Other activities include shopkeeping and vending. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Babonneau Constituency Council which is a local government arrangement designed to assist with the delivery of services and make recommendations for projects that will benefit the members of communities in the various political constituencies (Constituency Councils Act No. 1 of 2012) ▪ Several faith-based and community-based organizations in the community which comprise the structural social capital of the community. Community social capital is easily mobilized to provide short-term community response through community voluntary action when a climatic disaster which has impacted a community. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth as a result of involvement in the illicit drugs trade. Like most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the primary school as an important asset which serves various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bring people together through various activities. ▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism sector. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the unemployed, the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. ▪ There are cultural heritage sites and a strong attitude toward preserving African tradition and customs. No areas in the community have been designated as protected sites.	
Micoud Town	▪ This community is on the east coast. Its land use is private dwellings and a few commercial buildings. Housing characteristics is a combination of mainly concrete and wood, and wooden structures. Most houses are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. ▪ The following amenities are available within the community: (i) recreational space for team sports like football and cricket. No facilities for indoor sports	Micoud Primary

Community	Characteristics and Social Conditions	School
	are available. (ii) services – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, and other important activities. ▪ The following emergency/protective services are available in the community: police, fire fighting, and ambulance. There is a Health and Wellness Centre in the community. ▪ Public transportation is available to get in and out of the community. The Castries-Vieux Fort highway and several secondary roads provide pedestrian and vehicular access to households and other buildings (including the Micoud Primary School) which are located away from the main thoroughfare. ▪ The main economic activity in the community is small business operations including shopkeeping and vending. Fishing is a thriving livelihood activity involving mainly men. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Micoud North Constituency Council. ▪ Several faith-based and community-based organizations in the community which comprise the structural social capital of the community. Community social capital is easily mobilized to provide short term community response through community voluntary action when a climatic disaster has impacted the community. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth as a result of involvement in the illicit drugs trade. Like most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the primary school as an important asset which serves various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bring people together through various activities. ▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism sector. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact of COVID-19. ▪ There are no heritage sites or protected areas in the community.	
Patience	▪ This community is on the east coast. Its land use is private dwellings and agriculture. Housing characteristics is a combination of mainly concrete and wood, and wooden structures. Most houses are equipped with galvanize	Patience Combined

Community	Characteristics and Social Conditions	School
	roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. ▪ The following amenities are available within the community: (i) recreational space for team sports like football and cricket. No facilities for indoor sports are available. (ii) services – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, and other important activities. ▪ The following emergency/protective services are available in the community: police, fire fighting, and ambulance. There are two Health and Wellness Centres which are accessible to the members of the community - Micoud Health Centre and the Ti Roche Micoud Health Centre. ▪ Public transportation is available to get in and out of the community. The Castries-Vieux Fort highway and several secondary roads provide pedestrian and vehicular access to households and other buildings (including the Patience Combined School) which are located away from the main thoroughfare. ▪ The main economic activity in the community is small farming.in bananas, root crops and vegetables. Women are involved in shop keeping and vending. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Micoud North Constituency Council. ▪ Several faith-based and community-based organizations in the community which comprise the structural social capital of the community. Community social capital is easily mobilized to provide short term community response through community voluntary action when a climatic disaster has impacted the community. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth as a result of involvement in the illicit drugs trade. Like most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the primary school as an important asset which serves various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bring people together through various activities. ▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism sector. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for	

Community	Characteristics and Social Conditions	School
	employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. ▪ There are no heritage sites or protected areas in the community.	
Saltibus	▪ This community is on the west coast. Its land use is characterized by private dwellings and agriculture. Housing characteristics is a combination of mainly concrete and wood, and wooden structures. Most houses are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. ▪ There is no recreational space for outdoor team sports like football and cricket and no facilities for indoor sports. Available services include potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, and other important activities. ▪ There are no police, fire fighting and ambulance service in the community. These are located in the Choiseul Village. There is a Health and Wellness Centre in the community. Members of the community can also access the services of the La Fargue Health Centre (about 5 miles from Saltibus) which is located on the outskirts of the Choiseul Village (about 1 mile). ▪ Public transportation is available to get in and out of the community. One main road from the Choiseul Village is the main link to the community and the Saltibus Combined School. A few secondary roads off the main road provide pedestrian and vehicular access to households and other buildings. ▪ The main economic activity in the community is small farming in bananas, root crops and vegetables. Women are involved in shop keeping and vending. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Choiseul-Saltibus Constituency Council. ▪ Several faith-based and community-based organizations in the community which comprise the structural social capital of the community. Community social capital is easily mobilized to provide short term community response through community voluntary action when a climatic disaster has impacted the community. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth as a result of involvement in the illicit drugs trade. Like most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the primary school as an important asset which serves various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bring people together through various activities.	Saltibus Combined

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Community	Characteristics and Social Conditions	School
	▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism sector. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. ▪ There are no heritage sites or protected areas in the community.	
Vieux Fort	▪ Vieux Fort Town is located in the southern-most part of the island. Its land use pattern predominantly commercial with some public housing and private housing on the outskirts of the city centre. Many private dwellings and buildings are equipped with galvanize roofing and septic tanks. This is characteristic of the area within a 1-mile radius of the school. A few settlements exist on parts of the periphery of the town and are characterized by poverty and deprivation. ▪ Recreational space for team sports like football and cricket are in close proximity to the town centre. No facilities for indoor sports are available. The following services are available – potable water, electricity, internet, solid waste collection. These services are fairly reliable. There are interruptions from time to time which disrupt individual, household, commercial and other important activities. ▪ The following emergency/protective services are available in the community: police, fire fighting, and ambulance. There is a Health and Wellness Centre in the community. ▪ Public transportation is available to get in and out of the community. Several primary, secondary and tributary roads converge on the city allowing pedestrian and vehicular access to the town. ▪ The main economic activity in the community is commerce and business. Street vending is a major part of the business and commercial pulse of the community. Community development initiatives that seek to deepen and extend democratic participation and to put local communities in charge of their destinies, socially and economically are supported by the Vieux Fort Constituency Council. ▪ Several faith-based and community-based organizations exist in the community which comprise the structural social capital of the community. Community social capital is easily mobilized in areas of the town occupied by residents. They will usually respond to the call to volunteer in clean-up campaigns after a natural disaster has impacted their locale. ▪ Safety and security is an issue facing the community as there are frequent reports of socially unacceptable behaviour among the youth, in particular crime and violence, as a result of involvement in the illicit drugs trade. Like	Vieux Fort Primary & Vieux Infant

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Community	Characteristics and Social Conditions	School
	most communities, youth comprise over 50 per cent of the population, and youth unemployment is unacceptably high. ▪ Members of the community view the schools as important assets which serve various functions including serving as a safe space, a meeting point to discuss and plan community initiatives, and bringing people together through various activities. ▪ COVID-19 has impacted the community in several ways including increasing unemployment among members who were employed in the tourism other key sectors. Women in particular have been affected but many of them have resorted to alternative forms of income generation including roadside vending in agricultural produce, pastry items, and other light consumables. There is need for income support for the elderly and the disabled, training in skills for employment especially among the youth, and psycho-social support to individuals and households as a result of the negative impact COVID-19. Increasing intimate partner violence, child abuse and neglect have been reported and is a cause for concern. ▪ There are no heritage sites or protected areas in the centre of the city.	

4.4 Proposed Project Works

4.4.1 Current Status

The recommended upgrades to increase climate resilience are summarised in Table 4.3. Schools are abbreviated in that table as follows in Table 4.2.

Table 4.2: Abbreviations for the 12 Schools

Zone	School	Abbreviation
North	Ave Maria Infant	AMI
North	Ave Maria Primary	AMP
North	Balata Combined	BC
North	Bexon Primary	BP
North	Corinth Secondary	CS
North	Fond Assau Combined	FAC
South	Patience Combined	PC
South	Micoud Primary	MP
South	Desruisseaux Combined	DC
South	Vieux-Fort Infant	VFI
South	Vieux-Fort Primary	VFP
South	Saltibus Combined	SC

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Table 4.3: Recommended Measures to be Implemented at the Schools to Increase Climate Resilience

Interv. No.	Summary Interventions		Sub No.	Mitigation Measures	Twelve Schools											
					North						South					
					AMI	AMP	BC	BP	CS	FAC	PC	MP	DC	VFP	VFI	SC
1	Structural Retrofitting of both elements and the whole structure		1	Repair and increase strength of concrete columns			√						√			
			2	Repair cracks in reinforced concrete floor slab surface			√						√			
			3	Repair cracks in concrete walls and structural elements			√					√	√			
			4	Repair beams and columns with heavy spalling and honeycombing			√						√			
			5	Undertake design check and retrofit beams with excessive deflection			√				√		√			
			6	Allow for scaling off the rust on the structural beams and columns, applying a rust inhibitor and repainting	√	√			√		√	√		√		
			7	Reconstruct severely damaged foundation walls, strip and spread footings for the walkway		√										
			8	Replacement of metal purlins and roofing					√		√			√		
			9	Demolish and reconstruct entire school Block											√	
			10	Retrofit the severely damaged foundation walls / strip and spread footings.					√				√		√	
			11	Floor Construction- Introducing additional supports to repair damaged floor			√	√								
			12	Undertake detailed structural condition assessment of Bexon school before zoning as disaster shelter			√	√								
2	Retrofit and repairs to roof structure		1	Allow for replacing deteriorated sections or all of the fascia boards	√			√		√	√		√	√		
			2	Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs for the resistance of hurricane force winds.	√	√			√	√	√	√	√	√	√	
			3	Allow for supply and replacement of damaged sections of roof gutters	√	√			√	√	√	√	√	√	√	
			4	Make up slopes on concrete roofs and apply waterproofing membrane			√									
			5	Remove and reconstruct entire roof truss system				√					√			
			6	Securing roof deck and replace roof covering gauge 24 sheets as a minimum				√				√	√			√
			7	Replace all fasteners and comply with OECS-BC 7th Edition	√	√			√	√	√	√	√	√	√	
3	Retrofit and repairs of door and window systems to withstand hurricane force winds		1	Install thresholds on external doors as required.	√	√	√	√	√	√	√	√	√	√	√	√
			2	Install a third hinge at mid-height of all the doors - minimum 100 mm hinges to be used.	√	√	√	√	√	√	√	√	√	√	√	√
			3	Fasten door frames into concrete surrounds with bolts or screws	√	√	√	√	√	√	√	√	√	√	√	√
			4	Replace exterior doors with impact resistant doors suitable for use in HVHZ	√	√	√	√	√	√	√	√	√	√	√	√
			5	Install 150 mm concrete surround having minimum cube strength of 21 MPa at 28 day to all windows to ensure adequate anchorage.	√	√	√	√	√	√	√	√	√	√	√	√
			6	Replace existing windows with standard operable or fixed windows which are hurricane resistant												
			7	Install insect screens	√	√	√	√	√	√	√	√	√	√	√	√
			8	Install hurricane shutters which are able to resist the impact of flying objects where standard windows are used	√	√	√	√	√	√	√	√	√	√	√	√
			9	Remove and replace the welded wire mesh openings with operable windows								√	√			√
4	Internal and superficial works		1	Repainting of building internal and external walls after completion of works	√	√	√	√	√	√	√	√	√	√	√	√
			2	Replace all termite infested timber and undertake termite treatment of buildings and compound	√			√	√	√		√	√			√
			3	Replace badly damaged bifold doors separating the classrooms.				√					√			
5	External Works	Structural	1	Reconstruction of external staircase				√					√			
			2	Construct a retaining wall on the western side of Block B				√								
			3	Improve access to school entrance - roadway and gate			√	√				√				√
		Environmental	4	Clean septic tank and inspect condition. Repair as necessary.	√	√	√	√	√	√	√	√	√	√	√	√
			5	Improve and introduce drainage of the school compound			√	√	√			√		√		
			6	Allow for routine maintenance and cleaning of site storm water management system			√	√	√			√		√		
			7	Cut and dispose of the pine trees and their roots close to Block C									√			

Interv. No.	Summary Interventions		Sub No.	Mitigation Measures	Twelve Schools											
					North						South					
					AMI	AMP	BC	BP	CS	FAC	PC	MP	DC	VFP	VFI	SC
6	Water storage, plumbing and accessories	Potable Water	1	Procurement and installation of additional potable water storage tanks			√	√								√
			2	Removal of tanks from the roof could be considered. Construct ground slab and install a solar powered water pump.			√									√
		Rainwater Harvesting	3	Allow for supply and installation of rainwater harvesting system with pump and first flush system	√	√	√	√	√	√	√	√	√	√	√	√
			4	Develop stores of rainwater by installing rainwater tanks with capacity equivalent to 30% of building consumption with potable water back up connection												
		Plumbing and fixture	5	Re-plumbing of buildings to facilitate dual water use - potable and rain water harvesting	√	√	√	√	√	√	√	√	√	√	√	√
			6	Remove and replace all faucets in the lavatory sinks low volume water fixtures	√	√	√	√	√	√	√	√	√	√	√	√
			7	Replace water closets with vandal-proof low-flush systems	√	√	√	√	√	√	√	√	√	√	√	√
7	Electrical Energy Improvement	Alternative	1	Allow for supply and installation of solar photovoltaic system as alternative power supply	√	√	√	√	√	√	√	√	√	√	√	√
			2	Replace the electric water heater with solar water heater properly fixed to the roof framing							√					
		Stand-by Generation	3	Allow for supply and installation of generator	√	√	√	√	√	√	√	√	√	√	√	√
			4	Fuel Reserve - Procure and develop stores of fuel	√	√	√	√	√	√	√	√	√	√	√	√
		Electrical Wiring & Lighting Systems	5	Improve electrical systems, inspection and re-certification	√	√	√	√	√	√	√	√	√	√	√	√
			6	Improve the lighting in all areas based on the international standard for light levels.	√	√	√	√	√	√	√	√	√	√	√	√
			7	Make provision for protection of emergency lighting	√	√	√	√	√	√	√	√	√	√	√	√
			8	Perform routine repairs and maintenance - Energy supply	√	√	√	√	√	√	√	√	√	√	√	√
8	Air Conditioning Systems		1	Perform major repairs and maintenance - Pipes and Insulation					√		√	√		√		
			2	Increase capacity of system - Cooling generating systems					√			√				
			3	Allow for supply and installation of new individual AC units					√							
			4	Allow for routine maintenance and servicing of AC units												
9	Information Technology		1	Communication & Security - Complete rewiring required												
			2	Install an intercom system for each school	√	√	√	√	√	√	√	√	√	√	√	√
			3													
10	Fire Protection	Detection & Alarm	1	Procure and install smoke detectors	√	√	√	√	√	√	√	√	√	√		√
			2	Procure and install fire alarm system	√	√	√	√	√	√	√	√	√	√	√	√
			3													
		Suppression	4	Repair or replace damaged fire hose reels and cases							√					
			5	Install fire extinguishers at strategic locations throughout school	√	√	√	√	√	√	√	√	√	√	√	√
			6	Fire proof steel beams and columns	√	√					√	√	√	√	√	
		Safety	7	Install panic bar locks in the library, computer room and music room which are likely to have occupants while the doors are closed	√	√	√	√	√			√		√		
			8	Install illuminated exit signs at strategic locations				√	√			√		√		
11	Disability Accessibility		1	Construct ramps to provide handicap access to the first floor			√						√			
			2	Equip washrooms with adequate handicap access	√	√	√	√	√	√	√	√	√	√	√	√
			3	All ground floor class rooms to be made wheel-chair accessible	√	√	√	√	√	√	√	√	√	√	√	√
			4	Increase all exit doors to match the requirements of the OECS Building Code	√	√	√	√	√	√	√	√	√	√	√	√

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5.0 Potential Impacts of Proposed Works

5.1 Approach to Impact Assessment

The primary purpose of an ESIA is to predict the impacts resulting from a project and identify measures to avoid, reduce, or compensate for adverse impacts. Sources of data included information gathered during site visits, stakeholder consultations and document review.

Based on information gathered, potential project impacts of the proposed works were predicted and quantified as far as possible, and mitigation/enhancement measures were identified for significant potential impacts through all phases of the project with respect to the Environmental and Social Principles of the AF which are as follows:

Principle 1. Compliance with the law
Principle 2. Access and equity
Principle 3. Protection of marginalized and vulnerable groups
Principle 4. Respect for human rights
Principle 5. Gender equality and women's empowerment
Principle 6. Compliance with core labour standards
Principle 7. Respect for the rights of indigenous peoples
Principle 8. Minimal involuntary resettlement in accordance with due process
Principle 9. Protection of natural habitats
Principle 10. Conservation of biological diversity
Principle 11. No significant or unjustified contribution to climate change
Principle 12. Pollution prevention and resource efficiency
Principle 13. Avoid significant negative effects on public health
Principle 14. Avoid negative impacts on physical and cultural heritage
Principle 15. Lands and soil conservation

The magnitude of an impact is a function of the following characteristics:

- Type of impact (direct, indirect, or induced)
- Size, scale, or intensity of impact
- Geographical extent (e.g. local, regional, international)
- Duration and/or frequency (e.g. temporary, short-term, long-term, permanent)

Magnitude describes the actual change that is predicted to occur in the resource (e.g., water and air) or receptor (e.g., people, communities, wildlife species, habitats). All the various impact characteristics are considered in the determination of whether an impact is negligible or significant. Some impacts can result in changes to the environment that may be immeasurable, undetectable, or within the range of normal natural variation, and these may be characterized as having negligible magnitude. The analysis assumes a worst-case scenario with no significant mitigation effort in determining potential impacts on resources and receptors.

The sensitivity of the impacted resource or receptor is also characterized. Sensitivity to change, vulnerability, importance, and quality are assessed. Resource and receptor sensitivity are designated as very low, low, medium, or high.

The significance of a potential project impact is evaluated by considering the magnitude of the impact in combination with the sensitivity/vulnerability/importance of the impacted resource or receptor.

The significance rating enables decision-makers and stakeholders to gauge the weighting that should be ascribed to the issue.

Significance is assigned for each impact using the matrix shown in Table 5.1.

Table 5.1: Risk and Impact Significance Matrix

Risk/Impact Magnitude	Resource or Receptor Sensitivity[2]			
	Very Low	Low	Moderate	High
Very Low	Negligible	Negligible	Negligible	Negligible
Low	Negligible	Negligible	Low significance	Moderate significance
Moderate	Negligible	Low significance	Moderate significance	High significance
High	Low significance	Moderate significance	High significance	High significance

The significance levels of impacts are defined using the following terms:

Negligible. An impact of negligible significance is one where a resource or receptor would not be affected by a particular activity, or the predicted effect is imperceptible.

Low Significance. A minor impact where a resource or receptor could experience a noticeable effect, but the impact magnitude is sufficiently below applicable standard threshold limits (with or without mitigation) and/or the resource or receptor is of low sensitivity.

Moderate Significance. An impact that is within applicable standards but approaches the threshold limit.

High Significance. An impact where an applicable standard threshold limit would or could be exceeded or a highly valued or very scarce resource could be substantially affected.

In addition to the risks and adverse effects, the proposed project may have positive effects, and it is possible to enhance these beneficial impacts. Although some of these positive effects are identified in the impact evaluation, the evaluation focuses primarily on adverse impacts.

[2] Resource or receptor sensitivity collectively refers to characteristics including sensitivity to change, vulnerability, importance, and quality, as applicable.

5.2 Environmental and Social Impacts under the AF ESP Principles

The potential impacts of the proposed works are considered against the Environmental and Social Principles of the AF below.

5.2.1 Principle 1. Compliance with the law

Principle 1 states that "*Projects/programmes supported by the Fund shall be in compliance with all applicable domestic and international law.*"

The Fund requires that the projects comply with all applicable domestic and international law. A description of the legal and regulatory framework is described earlier. Of particular relevance is the requirement for permission from the DCA for "Building operations", defined in the Physical Planning and Development Act to include demolition works, rebuilding operations, structural alterations or other additions to a building, and any road or drainage works preliminary or incidental to the erection of buildings. These will require approval from the Environmental Health Department, the Fire Service, and the Labour Department. Waste management plans must be approved by the SWMA, and traffic Management Plans by the Transport Board. Lane or road closures are not expected to be required for any of these works.

Permissions are not required under the Physical Planning and Development Act for "permitted development", defined in Schedule 3 to the Act to include:

- Internal alterations to buildings not involving changes to the basic structure or facade of the buildings
- Gates, fences and walls not exceeding 4 feet in height
- Repairs to roads
- Repairs to services

However, such activities must comply with any building regulations made under the Act.

The Ministry will obtain planning approvals from the DCA for all external works and construction works of a structural nature. This will require applications to be made for all twelve schools.

The project or its operation upon completion will not:

- Abstract water from any water resources
- Discharge pollutants into the environment
- Store any harmful substances

and no permits are required from the WRMA in relation to these.

Social Legislation

The Fund requires that the projects comply with all applicable domestic and international law. A description of the legal and regulatory framework is described earlier. Of particular relevance is the requirement in the Education Act Cap 18.01 2005 for inspection of educational institutions (Section 158 (i), (ii) (a) (b) (c); educational institutions to be opened for inspections and visits (Section 159 (1) (a) (b) (c) (2); Offences (Section 160 (a) (b).

The Education Act Cap 18.01 2005 Section 162 Review and Report of Education Review Committee is mandated to review and report on the (a) the physical conditions and maintenance of public and assisted schools. The report is required to be laid before Parliament after which it can be

printed and sold to the public. The project could be informed by recent Committee reports. It would be useful to engage in dialogue with the members of the Committee to obtain first hand accounts as well as perceptions and insights from this key stakeholder.

The Labour Code 2006 outlines standards regarding equality of opportunity in employment and speaks forcefully against discrimination in various forms (see PART V EQUALITY OF OPPORTUNITY AND TREATMENT IN EMPLOYMENT). The titles of the sections are mentioned to prompt what the standard speaks to: 267. Definition and prohibited grounds of discrimination; 268. Prohibition on discrimination against applicant and employees; 269. Exceptions in respect of bona fide occupational qualifications; 270. Equal remuneration; 271. Temporary measures to promote equality; 272. Sexual harassment; 273. Particular profession or trade; 274. Burden of proof for section 273; 275. Qualifying bodies; 276. Vocational training bodies; 277. Employment agencies; 278. Discrimination by subterfuge

5.2.2 Principle 2. Access and equity

Principle 2 states. ***Projects/programmes supported by the Fund shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights. Projects/programmes should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups.***

The Fund requires that projects comply with all applicable policies and plans related to access and equity. Several of these have been outlined earlier (Refer to Sections 2.5 and 2.8). Of particular relevance are the Education Act Revised Edition 2005, The Education Policy and Strategy for Saint Lucia 2019 – 2022, National Social Protection Policy 2015, the Child Justice Act No.9 of 2018, Saint Lucia Social Development Fund Act 2009. These instruments place heavy emphasis on access and equity regarding treatment of persons with disabilities. For example, the Education Act Revised Edition 2005 states in PART 2. Section 14. Right to Education. ***"Subject to all available resources, all persons are entitled to receive an education programme appropriate to their needs in accordance with this Act."*** The National Social Protection Policy emphatically states that the policy is aimed at ***"Addressing social equality and exclusion concerns, including discrimination and abuse."*** One of its key principles is Equity and Inclusion – ***"The adoption of a rights-based, equity-oriented approach to ensure the promotion of, and respect for the rights and dignity of beneficiaries…"***

The Project will need to ensure that it is compliant with those principles and other national social policy prescriptions and plans that emphasize addressing access and equity within the education system. Implementors of the project will need to engage the relevant public policy makers and managers whose remit is to promote access and equity. Most importantly the implementing agency/ies must engage the relevant NGOs and civil society organizations who operate in the sector on behalf of vulnerable persons including persons with disabilities to ensure that there is no discrimination in access to benefits of the project.

5.2.3 Principle 3. Protection of marginalized and vulnerable groups

Principle 3 states. ***Projects/programmes supported by the Fund shall avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS. In screening any proposed***

project/programme, the implementing entities shall assess and consider particular impacts on marginalized and vulnerable groups.

Children attending the schools, staff at the schools, parents, Ministry officials, members of the community who utilize the school on a normal basis, and occupiers of the school if is a designated emergency shelter are at risk due to the physical defects at the schools and the schools' exposure to natural hazards induced by climate change – drought, sea level rise, etc.

On a normal school day approximately 3,300 persons (3,195 students plus staff) occupy the 12 schools under this project. Members and community-based groups in the communities which host the schools also use them undertake community enhancing activities. As users of the school, these individuals need protection from the adverse impacts of the hazards and the deteriorating school infrastructure. The adverse impacts that students and staff are likely to face are absent from school if measures are not taken to adapt to conditions of drought, excess heat, heavy rains which can cause internal flooding as well as flooding of grounds.

Defects in the schools' physical infrastructure such as broken windows and leaking roofs etc. contribute to the impact. Students and staff are likely to encounter health issues as a result of deteriorating school plant. These include respiratory illness due poor air quality in circulation at the school, fatigue from heat, accidents due to slippage on slippery in the school and on the school groups especially unpaved ones.

All of these situations result in absence from school, demotivated staff, and loos of school image in the community. These impacts will need to be addressed to achieve the objective of making schools climate resilient.

The project needs to put in place monitoring mechanisms to provide information about actual vs predicted impacts, measure the effectiveness of the mitigation measures and evaluate compliance with applicable national policies, standards and procedures.

5.2.4 Principle 4. Respect for human rights

Principle 4 states: ***Projects/programmes supported by the Fund shall respect and where applicable promote international human rights.***

Saint Lucia has human rights obligations at both the regional and universal levels (see Section 2.10.1).

As a Member of the OAS, Saint Lucia is held to the American Declaration of the Rights and Duties of Man and its human rights policies and practices are monitored by the Inter-American Commission on Human Rights. The Commission may decide complaints against the State and may also hold hearings or issue reports on the human rights situation there. Saint Lucia has not accepted the jurisdiction of the Inter-American Court of Human Rights. Individuals and groups have submitted complaints of human rights violations committed by Saint Lucia to the Inter-American human rights system, but the Commission has not yet issued decisions regarding these complaints.

As a UN Member State, Saint Lucia is subject to the oversight of various UN human rights bodies, including the Human Rights Council and its Universal Periodic Review and thematic special procedures. As a party to specific universal human rights treaties, Saint Lucia's policies and practices are monitored by UN treaty bodies. It has not accepted the complaints procedure of any treaty bodies (https://ijrcenter.org/wp-content/uploads/2018/04/Saint-Lucia-Factsheet.pdf). Saint Lucia has not made voluntary submissions to the Council on their responses to COVID-19.

(https://ijrcenter.org/covid-19-guidance-from-supranational-human-rights-bodies/). COVID-19 Guidance from supranational human rights bodies is a webpage that collects the resolutions, press releases, and other statements from human rights bodies and their parent intergovernmental organizations on States' obligations to respect human rights in mitigating COVID-19.

Saint Lucia submits a Universal Periodic Review to the Human Rights Council (https://www.ungeneva.org/en/news-media/meeting-summary/2021/07/midday-human-rights-council-adopts-universal-periodic-review). The latest report was submitted to the Working Group on the Universal Periodic Review at the Human Rights Council Forty-seventh session 21 June–9 July 2021. The delegation reported that:

"Although Saint Lucia had not yet established a fully functional national human rights institution, in February 2019, the Government had inaugurated the National Coordinating Committee for Human Rights as a precursor to establishing the national human rights institution. The Committee also served as the national mechanism for reporting and follow-up with a mandate to monitor and report on the national human rights situation. Spearheaded by the Department of External Affairs, the Committee included representatives of several government ministries, in addition to representatives of civil society organizations." (A/HRC/47/9, para 9, page 2).

An addendum to this report notes: "The Government of Saint Lucia recognises that the establishment of a National Human Rights Institution (NHRI) is the ideal mechanism by which a more coordinated and systematic approach to monitoring and reporting on human rights can be achieved. The Government also recognises its limitations in establishing such a mechanism at this time. In the absence of an NHRI, the Government established a National Mechanism for Reporting and Follow Up (NMRF) in 2019 with the creation of the National Coordinating Committee for Human Rights." (A/HRC/47/9/Add.1)

Over 100 recommendations are contained in the report of the Working Group on the Universal Periodic Review. A few are listed below:

- 104.1 Continue its efforts in expanding the protection of the rights of persons through the ratification of additional treaties (Georgia);
- 104.29 Ratify the Optional Protocol to the Convention on the Elimination of All Forms of Discrimination against Women, in line with targets 1.4, 4.3 and 4.6 of the Sustainable Development Goals and Goal 5 (Paraguay);
- 104.30 Ratify the Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean (Escazú Agreement) (Costa Rica) (Uruguay);
- Continue its efforts for the full operation of a standing national mechanism for implementation of and reporting and follow-up on human rights recommendations, through technical assistance and cooperation, within the framework of Sustainable Development Goals 16 and 17 (Paraguay);
- 104.49 Strengthen its domestic legislation to further advance the rights of women and enhance accessibility for persons with disabilities (Jamaica);
- Take all necessary measures to strengthen the promotion and protection of the human rights and dignity of older persons, in particular in the current situation of extreme vulnerability that they face in the context of the COVID-19 pandemic (Argentina);

- 104.73 Continue to take efforts to secure support and assistance from the international community in pursuing climate change adaptation and mitigation plans (India);
- 104.74 Continue to develop and implement successful climate change mitigation and adaptation policies and practices (Nepal);
- 104.75 Continue to promote and develop both regional and national responses to mitigate the impact of climate change (Barbados);
- 104.76 Ensure that women, children, persons with disabilities and indigenous and local communities are meaningfully engaged in the development and implementation of climate change adaptation and disaster risk reduction frameworks (Fiji);

Project implementors should note the steps taken by Saint Lucia with regard to human rights. They should be guided by the report to the Human Rights Council.

Various consultations at different levels have taken place – with policy makers and managers, staff and students and the beneficiary schools. The views of members of the community were conveyed during consultations with the stakeholders above many of whom are residents or are familiar with the communities which host the school. Additional dialogue with residents of the host communities will be intensified prior to finalization of the project proposal.

in the held in the formulation of this project. Consultations were held with were They should take steps to ensure the full participation of stakeholders in the decision-making process through consultation during the identification and formulation of the project.

5.2.5 Principle 5. Gender Equality and Women's Empowerment

Principle 5 states. ***Projects/programmes supported by the Fund shall be designed and implemented in such a way that both women and men 1) have equal opportunities to participate as per the Fund gender policy; 2) receive comparable social and economic benefits; and 3) do not suffer disproportionate adverse effects during the development process.***

The AF Gender Policy defines women's empowerment as "the process by which women gain power and control over their own lives and acquire the ability to make strategic choices through an expansion of agency throughout women's lives, especially via participation and decision-making. It generally refers to differential or pro-active support to increase: (i) women's awareness and sense of self-worth and rights; (ii) women's right to have and determine choices; (iii) women's right to have access to opportunities and resources; (iv) women's right to have power to control their own lives both within and outside the home; and (v) women's ability to influence the direction of social, political and economic change to create a more just social, political and economic order, nationally and internationally." (https://www.adaptation-fund.org/wp-content/uploads/2016/04/OPG-Annex-4_GP-and-GAP_approved-March2021pdf-1.pdf)

Saint Lucia's Report to the UN Human Human Rights Council and its Universal Periodic Review demonstrates Saint Lucia's commitment to gender equality and women's empowerment. The Report to HRC in 2021 revealed that "One of the steps taken since the previous review regarding the achievement of gender equality had been the conduct of a review of the national mechanism for the advancement of women. The national gender equality policy and strategic plan had facilitated that exercise, which was targeted at, among other things, the mainstreaming of gender equality into the national development endeavours of Saint Lucia (A/HRC/47/9, Para 15, page 3).

The Saint Lucia Labour code makes provision for equal opportunities to participate in accordance with the Fund gender policy. PART V EQUALITY OF OPPORTUNITY AND TREATMENT IN EMPLOYMENT DIVISION 1 Discrimination states:

Definition and **prohibited grounds of discrimination** 267.— (1) For the purposes of this Division, a person discriminates against another person if the first-mentioned person makes, on any of the grounds specified in subsection (2), any distinction, exclusion or preference, the intent or effect of which is to nullify or impair equality of opportunity or treatment in occupation or employment. (2) The grounds referred to in subsection (1) are — (a) race, sex, religion, colour, ethnic origin, social origin, political opinion or affiliation, disability, serious family responsibility, pregnancy, marital status, HIV/AIDS, trade union affiliation or activity, or age except for purposes of retirement and restrictions on work and employment of minors or for the protection of children and young persons; (b) any characteristic which appertains generally or is generally imputed to persons on the basis of race, sex, religion, colour, ethnic origin, social origin, political opinion or affiliation, disability, serious family responsibility, pregnancy, marital status, HIV/AIDS, trade union affiliation, or age except for purposes of retirement, and restrictions on work and employment of children and young persons or for the protection of children and young persons; or (c) a conviction which is spent pursuant to the Criminal Records (Rehabilitation of Offenders) Act 2004, No. 2. (3) Any act or omission or any practice or policy that directly or indirectly results in discrimination against a person on the grounds referred to in subsection (2) is an act of discrimination regardless of whether the person responsible for the act or omission or the practice or policy intended to discriminate.

Equal remuneration 270.— (1) Employers and persons acting on behalf of employers shall pay equal remuneration to men and women performing work of equal value. (2) For purposes of subsection (1) — "equal remuneration" means rates of remuneration established without differentiation based on the grounds of gender; "work of equal value" means work equal in value in terms of the demands it makes in relation to such matters as skill levels, duties, physical and mental effort, responsibility and conditions of work. (3) The burden of proof to establish that equal remuneration has been paid shall rest on the employer.

Temporary measures to promote equality 271.— (1) Subject to subsection (3), special measures of a temporary nature taken by employers to promote equality of opportunity in employment based on the grounds set out in section 267 (2), shall not be considered to be unlawful discrimination within the meaning of this Part. (2) An employer shall not continue a special measure undertaken under subsection (1), for a period of more than two years. (3) The employer shall advise the Labour Commissioner of the measures the employer proposes to undertake and the Labour Commissioner shall monitor the implementation of those measures.

Mechanism to determine work of equal value 281. The Minister — (a) shall consider the advise or recommendation of the Commissioner pursuant to section 73; and (b) may carry out or cause to be carried out an inquiry into different types of work, whether within the same industries or between different industries; in order to determine which work is work of equal value for purposes of making a determination in relation to equal remuneration for work of equal value.

A key principle on accountability in the AF Gender Policy states: An IE may demonstrate its ability and commitment to implement the gender policy through (a) An institutional framework and capacity for gender mainstreaming, such as designated expert staff, and a commitment at highest management level to gender equality; (b) Own policies, strategies or action plans that address gender equality and gender-responsive activities, or demonstration through related implementation track records; (c) An ability to undertake socioeconomic and gender assessments,

or similar methods to assess the potential roles, benefits, impacts and risk for women and men; (d) An ability to identify measures to avoid, minimize and/or mitigate adverse gender impacts; and/or (e) A monitoring and evaluation process that accounts for gender mainstreaming efforts, including the collection and analysis of gender-disaggregated data, and can provide social and gender expert support during project implementation. The Department of Gender Relations in collaboration with other line Ministries, regional bodies including the OECS Commission and the Caribbean Development Bank, and other international development partners (UNWomen, UNDP) have facilitated progress in the above actions.

5.2.6 Principle 6. Compliance with core labour standards

Principle 6 states: Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labour Organization.

The ILO core labour standards are stated in the 1998 ILO Declaration of Fundamental Principles and Rights at Work.14 The Declaration covers four fundamental principles and rights, which are further developed in eight fundamental rights conventions.

Freedom of association and the effective recognition of the right to collective bargaining (conventions ILO 87 and ILO 98);

- In accordance with the Labour Code 2006 **Interference with individual's freedom of association** 330. — (1) A person shall not seek by the use of any threat or intimidation, to compel or coerce any other person to join or not to join, or to support or not to support, any trade union or employers' organization. (2) A person who contravenes subsection (1) commits an offence and is liable on summary conviction to a fine not exceeding ten thousand dollars or to imprisonment for a term not exceeding two years or to both.
- **Membership of trade unions and employers' organizations** 331. Any person eligible for membership in a trade union or employers' organization under its constitution has the right to membership in that trade union or employers' organization if he or she pays the fees that are due to it, and such person has the right to remain a member as long as he or she complies with the rules of the trade union or employers' organization.
- **Basic employee rights** 326. Every employee has the right to — (a) take part in the formation of any trade union; (b) be or not to be a member of any trade union; (c) take part in lawful trade union activities; (d) hold office in any trade union or federation of trade unions; (e) take part in the election of shop stewards; (f) be elected a shop steward or be a candidate for such election; (g) act in the capacity of a shop steward; and (h) exercise any right conferred or recognized by this Code or any law in force and assist any employee, shop steward, safety and health representative or trade union in the exercise of such right.

Elimination of all forms of forced or compulsory labour (conventions ILO 29 and ILO 105);

- Prohibition of child labour 122.— (1) Notwithstanding section 18 (2) and subject to subsection (2), a person shall not employ or allow to be employed any child who is under the minimum school leaving age as declared by any law in force in Saint Lucia except for employment during school holidays in light work. (2) A person may not employ or allow to be employed a child or young person in employment that is inappropriate for a person of that age, being work which places at risk the child or young person's wellbeing, education, safety, physical or mental health, or spiritual, moral or social development.
- (3) The provisions of subsection (1) do not apply to —

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(a) Work done by children or young persons in technical schools as part of their technical program where such work is approved and supervised by the relevant public authority;

(b) Work done under order of detention in a reformatory or industrial school where such work is approved and supervised by the relevant public authority;

(c) Work done by children on job training or work experience activities where such work is approved and supervised by the relevant public authority;

(d) Non-hazardous work done as a community service or for a charity outside of normal school hours where such work does not prejudice the child's capacity to benefit from the instruction received;

(e) Work done by members of a recognized youth organization which is engaged collectively in such employment for the purposes of fund raising for such organization or charity outside of normal school hours where such work does not prejudice the child's capacity to benefit from the instruction received;

(f) work done by persons over the age of thirteen years which is characterised as light work which is not harmful, prejudicial or dangerous to the child or young person and does not place at risk the child's well-being, education, physical or mental health, or spiritual, moral or social development and such light work may include but is not limited to — (i) newspaper rounds; (ii) car-washing; (iii) cake sales and other sales at school and charity fairs; if such light work is approved by the Labour Commissioner by Order published in the Gazette after consultation with organizations of employers and employees concerned;

(g) Work done by children or young persons participating in artistic performances based on a permit granted by the Minister in his or her discretion on a case by case basis limiting hours to be worked and indicating conditions of work.

- The Child Justice Act of 2018 does not speak to the child in relation to elimination of all forms of forced labour but speaks to community service work for the child. Accordingly, the Act speaks to Community service work as diversion 75. A child may be required to perform community service work as an element of diversion, with due consideration to the age and development of the child.

Elimination of worst forms of child labour (conventions ILO 138 and ILO 182);16

- In 2019, Saint Lucia made a moderate advancement in efforts to eliminate the worst forms of child labor. The government launched a trafficking in persons hotline and the Ministry of Home Affairs, National Security, and Justice implemented a case management system for victims of human trafficking. In addition, the government assumed full financial responsibility for an International Organization for Migration program, which aims to counter human trafficking. A rapid assessment conducted by the International Labor Organization in 2016 revealed limited evidence that children in Saint Lucia engage in the worst forms of child labor, including in commercial sexual exploitation, sometimes as a result of human trafficking, and in the sale and distribution of drugs. Saint Lucia's law does not sufficiently protect children from hazardous work and illicit activities. The government also does not have any policies addressing all forms of child labor, including the commercial sexual exploitation of children. (https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2019/Saint-Lucia.pdf)

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Elimination of discrimination in respect of employment and occupation (conventions ILO 100 and ILO 111).

- According to the Labour Code 2006, 266, "occupation and employment" include access to vocational training, access to employment and particular occupations, and terms and conditions of employment.
- Prohibited grounds of discrimination 267.— (1) a person discriminates against another person if the first-mentioned person makes, on any of the grounds specified in subsection (2), any distinction, exclusion or preference, the intent or effect of which is to nullify or impair equality of opportunity or treatment in occupation or employment.
- (2) The grounds referred to in subsection (1) are — (a) race, sex, religion, colour, ethnic origin, social origin, political opinion or affiliation, disability, serious family responsibility, pregnancy, marital status, HIV/AIDS, trade union affiliation or activity, or age except for purposes of retirement and restrictions on work and employment of minors or for the protection of children and young persons; (b) any characteristic which appertains generally or is generally imputed to persons on the basis of race, sex, religion, colour, ethnic origin, social origin, political opinion or affiliation, disability, serious family responsibility, pregnancy, marital status, HIV/AIDS, trade union affiliation, or age except for purposes of retirement, and restrictions on work and employment of children and young persons or for the protection of children and young persons; or (c) a conviction which is spent pursuant to the Criminal Records (Rehabilitation of Offenders) Act 2004, No. 2.
- (3) Any act or omission or any practice or policy that directly or indirectly results in discrimination against a person on the grounds referred to in subsection (2) is an act of discrimination regardless of whether the person responsible for the act or omission or the practice or policy intended to discriminate.
- According to Section 268 (3) A person who contravenes subsection (1) or (2) is liable for damages on successful complaint to the Tribunal and the Tribunal may order the person to rectify the offending act in addition to the award of damages.

Saint Lucia has ratified seven of the eight ILO core conventions. They are:

1. C029-Forced Labour Convention, 1030 (No. 29), 14 May 1980, In Force
2. C087-Freedom of Association and Protection of the Right to Organize Convention, 1948 No. 87), 14 May 1980, In Force
3. C098-Right to Organize and Collective Bargaining Convention, 1949 (No. 98), 14 May 1980, In Force
4. C100-Equal Remuneration Convention, 1951 (No. 100), 18 August 1983, In Force
5. C105-Abolition of Forced Labour Convention, 1957 (No. 105), 14 May 1980, In Force
6. C111-Discrimination (Employment and Occupation) Convention, 1958 (No. 111), 18 August 1983, In Force
7. C182- Worst Forms of Child Labour Convention, 1999 (No. 182)

(https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103329)

Core convention C138 – Minimum Age Convention, 1973 (No. 138) has not been ratified. (https://www.ilo.org/dyn/normlex/en/f?p=1000:11210:0::NO:11210:P11210_COUNTRY_ID:103329)

In light of the above, the risks involved may be smaller and national. National compliance makes it more likely that a project/programme can and will achieve compliance. The Ministry of Education, the Ministry of Infrastructure will ensure that provisions outlined in these core ILO conventions are referenced in the project proposal for funding support. These agencies will also ensure that the standards enshrined in the Labour Code are met and maintained.

The latest ILO assessments of application of the standards in the project/programme country is available from The Committee of Experts on the Application of Conventions. The following is an assessment of the Labour Code (Amendment) Act No. 6 of 2011 regarding discrimination (Box 1).

Box 1

Direct Request (Committee of Experts on the Application of Conventions and Recommendations - CEACR) - adopted 2020, published 109th ILC session (2021)

Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

Other comments on C111

Direct Request

The Committee notes with ***deep concern*** that the Government's report has not been received. It expects that the next report will contain full information on the matters raised in its previous comments. The Committee informs the Government that, if it has not supplied replies to the points raised by 1 September 2021, then it may proceed with the examination of the application of the Convention on the basis of the information at its disposal at its next session.

Repetition

Legislation. The Committee notes the adoption of the Labour Code (Amendment) Act No. 6 of 2011. The Committee notes that the Act does not repeal the Factory Regulations, 1948, or any other laws and regulations that contain provisions excluding women from entering certain jobs as had been announced by the Government. The Committee considers that protective measures applicable to women's employment which are based on stereotypes regarding women's professional abilities and role in society violate the principle of equality of opportunity and treatment between men and women in employment and occupation. In addition, provisions relating to the protection of persons working under hazardous or difficult conditions should be aimed at protecting the health and safety of both men and women at work, while taking account of gender differences with regard to specific risks to their health (see General Survey on fundamental Conventions, 2012, paragraph 840). ***The Committee asks the Government to take measures to ensure that the Factory Regulations, 1948, as well as any other laws and regulations that contain provisions excluding women from entering certain jobs are repealed. The Committee requests the Government to provide information on any development in this regard.***

Exceptions based on inherent requirements of the job. The Committee notes that section 5(2)(g) of the Equality of Opportunity and Treatment in Employment and Occupation Act, 2000, has not been repealed or amended. ***Remaining concerned that the application of this provision may lead to exclusions from employment contrary to the principle of equality as defined in the Convention, the Committee urges the Government to take the necessary steps to repeal or amend section 5(2)(g) in order to ensure conformity with the Convention, in law and in practice. Please report on the progress made in this regard.***

Practical application. ***In the absence of any information on this point, the Committee reiterates its request to the Government to continue to provide information on the measures taken or envisaged to promote equality of opportunity and treatment in the private and public sectors through awareness raising, training and other practical measures, and their impact on achieving the objective on equality with respect to all the grounds covered by the Convention.***

Source:
https://www.ilo.org/dyn/normlex/en/f?p=1000:13100:0::NO:13100:P13100_COMMENT_ID:4060257:YES

- Regarding ILO Special procedures Saint Lucia ratified the Occupational Safety and Health Convention, 1981 (No. 155), and the Protocol to that Convention which sets forth the principle that workers should be protected from injuries and diseases in their course of employment. These principles are coherent with what is outlined in the Labour Act (Cap 16.04) of the Revised Laws of Saint Lucia. These principles also form a critical part of the National Occupational Safety and Health Policy being developed for Saint Lucia. Convention No. 155 sets out the basic principles and methodology required for sustained improvements in the management of occupational safety and health. It provides for the adoption of a coherent national occupational safety and health policy, as well as action to be taken by government and within enterprises to promote occupational safety and health and to improve working conditions. The Protocol to Convention No. 155 focuses on the establishment of procedures for notifying occupational accidents and diseases, as well as the publication of OSH data. It is particularly important for data collection and analysis in support of prevention. Conventions No 155 and its Protocol will enter into force in Saint Lucia on 14 May 2022. (https://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/occupational-safety-and-health/WCMS_791929/lang--en/index.htm)
- In the case of problematic assessments by ILO of compliance or in the case of Special procedures at the national level, the IE will provide information on how these issues will be addressed if they are relevant to the project/programme. In this regard, the Ministry of Education and the Ministry of Infrastructure have in place monitoring frameworks which can be streamlined to ensure timely reporting on progress against results-based indicators and outputs in a joint monitoring and evaluation framework.

5.2.7 Principle 7. Respect for the rights of indigenous peoples

Principle 7 states: ***The Fund shall not support projects/programmes that are inconsistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments relating to indigenous peoples.***

This principle does not apply. There is no established politically organized indigenous group in Saint Lucia. A few descendants (less than 5% of the total population) of Caribs (Kalinago) are found mainly in the Choiseul region. They are also scattered in other towns and villages on the island. They are well assimilated within the rest of the population which is made up of persons of African descent (approximately 85%) and participate in the mainstream economic, social, and cultural institutions of the country.

5.2.8 Principle 8. Minimal involuntary resettlement in accordance with due process

Principle 8 states: ***Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation.***

This principle does not apply because no involuntary resettlement is required as no individuals or households will be relocated under the project.

5.2.9 Principle 9. Protection of natural habitats

This Principle states that "*The Fund shall not support projects/programmes that would involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities.*"

The Convention on Biological Diversity defines a 'habitat' as the place or type of site where an organism or population naturally occurs. "Critical natural habitat" refers to habitats that are not man-made and that fulfil a critical role for an organism or a population that in the absence or disappearance of that habitat might be severely affected or become extinct.

Critical natural habitats nationwide include:

- Protected forest areas, all of which are located inland and upstream of these schools sites,
- Mangroves and costal wetlands, none of which are downstream of the school sites.

There are three Forest Reserves Saint Lucia:

- The Edmund Forest Reserve in Soufriere,
- The Quilesse Forest Reserve in Dennery, and
- The Castries Waterworks Forest Reserve.

  The Ramsar convention entered into force in Saint Lucia in June 2002. Saint Lucia currently has 2 sites designated as Wetlands of International Importance (Ramsar Sites), with a surface area of 85 hectares. Both sites are Marine Reserves owned by the Crown:

- The 60 ha Mankòtè Mangrove in Vieux Fort Area is the largest contiguous wetland area in St. Lucia and a vital nursery for the local fishery. Subsistence activities, mainly fishing and charcoal production, are carried out by local communities.
- The 25 ha Savannes Bay in Vieux Fort comprises mangrove forest, seagrass beds, and coral reef, utilized for subsistence-based activities by adjacent communities. The site is crown land and a marine reserve.

Other marine reserves located around Saint Lucia are:

1. The PMA/Soufriere Marime Management Area
2. Canaries/Anse la Raye Marine Management Area (CAMMA)
3. Marigot Bay Mangrove
4. Artificial Reef at Anse Cochon
5. Reefs extending from Rocky Shore South of Anse Galet to the northern most point of Anse Cochon Beach
6. Artificial Reef at Anse la Verdure
7. Grande Anse Beach and Mangrove
8. Cas En Bas Mangrove
9. Maria Islet Reef
10. Marquis Mangrove
11. Rodney Bay Artificial Reefs
12. Esperance Habour Mangrove
13. Praslin Mangrove
14. Fond d'Or Beach and Mangrove

15. Louvette Mangrove
16. Bois d'Orange Mangrove
17. Choc Bay Mangrove
18. Vigie Bay Artificial Reef
19. Artificial Reef at Moule a Chique
20. Reefs extending from Caesar Point to Mathurin Point

Most are not actively managed, and many are under threat from unregulated human activity.

Several schools are within built-up areas, completely surrounded by buildings and related infrastructure. These include:

1. Ave Maria Infant and Primary Schools
2. Micoud Primary School
3. Saltibus Combined School
4. Vieux Fort Infant and Primary Schools

Natural habitats do exist near several of the targeted schools. Rivers or ravines run in close proximity to the following:

1. Bexon Primary
2. Balata Combined
3. Corinth Secondary

The Vieux Fort Primary is close to the sea. However, drainage from all sites eventually enters the marine environment.

Several schools have natural vegetated areas on at least one of their boundaries:

1. Desruisseaux Combined
2. Fond Assau Combined
3. Patience Combined

However, none of these is deemed critical natural habitats. There are no critical natural habitats within the sphere of influence of these projects.

The works have the potential to impact adjacent watercourses and the marine environment by:

- Mobilising sediments from stockpiles of aggregates or excavation works;
- Accidental spills of fuels, oils or other pollutants;
- Poor management of materials and solid waste;
- Poor wastewater management during construction (including disposal of wastewater removed from septic tanks at all schools);
- Poor management of cement and its products;
- Washing of equipment in the watercourses.

Wildlife in nearby vegetated areas could be temporarily disturbed or destroyed by:

- Noise;
- Dust;
- Poaching by workers.

All of these potential impacts will be mitigated by the imposition of requirements for good construction practice, and compliance with laws relating to solid waste, chemicals and wastewater management outlined earlier.

The laws and regulations within the country that protect natural habitats are described earlier. Enforcement capacity is low across most public agencies, and the client and its representatives will have to take the lead responsibility in monitoring compliance by the contractors and their workforce, reporting instances of non-compliance where warranted.

The Table below assesses risk and impact significance of the proposed works at the various schools on natural habitats.

Table 5.2: Impact Significance of Proposed Activity on Natural Habitats

School	Impact Significance of Proposed Activity at this School on Natural Habitats			
	Sensitivity of Natural Habitats at this Location	Magnitude of Impact	Pre-Mitigation Significance	Residual Significance
Ave Maria Infant	Low	Very low	Negligible	Negligible
Ave Maria Primary	Low	Very low	Negligible	Negligible
Balata Combined	Moderate	Very low	Negligible	Negligible
Bexon Primary	Moderate	Very low	Negligible	Negligible
Corinth Secondary	Moderate	Very low	Negligible	Negligible
Fond Assau Combined	Low	Very low	Negligible	Negligible
Patience Combined	Low	Very low	Negligible	Negligible
Micoud Primary	Low	Very low	Negligible	Negligible
Desruisseaux Combined	Low	Very low	Negligible	Negligible
Vieux-Fort Infant	Low	Low[3]	Negligible	Negligible
Vieux-Fort Primary	Low	Very low	Negligible	Negligible
Saltibus Combined	Low	Very low	Negligible	Negligible

5.2.10 Principle 10. Conservation of biological diversity

The Principle states that "*Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species*."

The Convention on Biological Diversity (CBD) defines biological diversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." This definition implies that biological diversity concerns not only living organisms of all taxa but also ecosystem processes, habitats, hydrological cycles, processes of erosion and sedimentation, landscapes, etc.

[3] Building block to be demolished and rebuilt

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The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international treaty governing the movements of living modified organisms (LMOs) resulting from modern biotechnology from one country to another.

In the previous section the locations of the schools are described in terms of their proximity to natural habitats. None of the school sites are within or in close proximity to areas of important biological diversity. With appropriate mitigation measures instituted, the proposed works will not result in a significant or unjustified reduction or loss of biological diversity and has low potential to introduce known invasive species.

The Table below assesses risk and impact significance of the proposed works at the various schools on biological diversity.

Table 5.3: Impact Significance of Proposed Activity on Biological Diversity

School	Impact Significance of Proposed Activity at this School on Biological Diversity			
	Sensitivity of natural habitats at this location	Magnitude of impact	Pre-Mitigation Significance	Residual Significance
Ave Maria Infant	Low	Very low	Negligible	Negligible
Ave Maria Primary	Low	Very low	Negligible	Negligible
Balata Combined	Moderate	Very low	Negligible	Negligible
Bexon Primary	Moderate	Very low	Negligible	Negligible
Corinth Secondary	Moderate	Very low	Negligible	Negligible
Fond Assau Combined	Low	Very low	Negligible	Negligible
Patience Combined	Low	Very low	Negligible	Negligible
Micoud Primary	Low	Very low	Negligible	Negligible
Desruisseaux Combined	Low	Very low	Negligible	Negligible
Vieux-Fort Infant	Low	Low[4]	Negligible	Negligible
Vieux-Fort Primary	Low	Very low	Negligible	Negligible
Saltibus Combined	Low	Very low	Negligible	Negligible

5.2.11 Principle 11. No significant or unjustified contribution to climate change

This Principle states that "*Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.*"

The main drivers of climate change that are considered here are the emission of carbon dioxide gas from the use of fossil fuel and from changes in land use, methane and nitrous oxide emissions from agriculture, emission of hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride, other halocarbons, aerosols, and ozone. Compliance with the principle may be demonstrated by a risk-based assessment of resulting increases in the emissions of greenhouse gases or in other drivers of climate change. The proposed projects do not fall into sectors that require a greenhouse gas emissions calculation using internationally recognized methodologies (energy, transport, heavy

[4] Building block to be demolished and rebuilt

industry, building materials, large-scale agriculture, large-scale forest products, and waste management).

While there was no deliberate consideration of embodied energy/emissions in the development of options, demolition is only recommended where it is deemed absolutely necessary. Otherwise, repair or retrofit is recommended, retaining embodied energy in existing structures. Recommendations for building materials and best practice deliberately considered:

- The durability of building materials
- Use of locally sourced materials
- Specifying standard sizes of materials
- Avoiding waste

thereby reducing embodied energy of new works. There was no consideration of:

- How easily materials can be separated
- Use of recycled materials
- Selecting materials that are manufactured using renewable energy sources

that would further reduce embodied energy of new works. Recommended mitigations include separation of removed materials and recycling or reuse of materials.

These projects have a very low potential to emit greenhouse gases during implementation, primarily from the use of diesel driven equipment or through poor management of existing A/C units, resulting in the release of refrigerants. Most of the works planned will require the use of electrical power tools connected to the mains power supply, and will not require extensive use of heavy equipment. None of the projects will increase vegetative cover or introduce any other measures to capture or sequester carbon. Only at one school (Desruisseaux Combined) will tree cover be removed, where their root systems are adversely affecting building foundations.

Most of the projects will improve the performance of school electricals and cooling systems, improve lighting, and incorporate photovoltaic (PV) solar power systems. These will reduce consumption of municipal power which is derived from fossil fuels in the operational phase, particularly if new lighting is LED. All schools already have solar water heaters.

There will be no significant or unjustified contribution to climate change, particularly if sensible materials selection decisions are made and good practice is employed in the use and maintenance of heavy equipment during the implementation phase. In the operational phase, there will be a reduction in GHG emissions over existing as a result of reduced power consumption at the schools.

5.2.12 Principle 12: Pollution Prevention and Resource Efficiency

This Principle requires that "*Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.*"

There are two distinct aspects to this principle. Projects/programmes shall on the one hand minimize in a reasonable and cost-effective way the resources that will be used during implementation. This applies to all sources and forms of energy, to water, and to other resources and materials inputs. On the other hand, the project/programme will minimize the production of waste and the release of pollutants (including GHGs).

The project design will minimize resource use through a number of measures such as:

- Central procurement of specialised inputs, reducing emissions associated with transportation and shipping. The impact of this is actually quite small as shipments will be on regularly scheduled vessels bound for Saint Lucia.
- Procurement of local supplies from nearby suppliers once they meet the requisite standards and are cost competitive, to reduce emissions associated with transportation

There is limited opportunity to recycle demolition material removed from the sites. Metal components (primarily from roofing and wiring) will be made available to local materials recyclers. Pine trees uprooted from Desruisseaux Combined will be made available to interests in the community for their use.

Energy efficiency and Renewable Energy initiatives planned through the projects were described in the previous section.

Activities that have to potential to result in pollution were described under Principle 9. All of these potential impacts may be adequately mitigated through good construction practice.

The Table below assesses pollution risk and impact significance of the proposed works at the various schools.

Table 5.4: Pollution Impact Significance of Proposed Activity

School	Pollution Impact Significance from Proposed Activity at this School			
	Sensitivity of Natural Habitats at this Location	Magnitude of Impact	Pre-Mitigation Significance	Residual Significance
Ave Maria Infant	Low	Low	Negligible	Negligible
Ave Maria Primary	Low	Low	Negligible	Negligible
Balata Combined	Moderate	Low	Low	Negligible
Bexon Primary	Moderate	Low	Low	Negligible
Corinth Secondary	Moderate	Low	Low	Negligible
Fond Assau Combined	Low	Low	Negligible	Negligible
Patience Combined	Low	Low	Negligible	Negligible
Micoud Primary	Low	Low	Negligible	Negligible
Desruisseaux Combined	Low	Low	Negligible	Negligible
Vieux-Fort Infant	Low	Low	Negligible	Negligible
Vieux-Fort Primary	Low	Low	Negligible	Negligible
Saltibus Combined	Low	Low	Negligible	Negligible

5.2.13 Principle 13. Avoid Significant Negative Effects on Public Health

This Principle requires that "*Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health.*"

Public health is determined not just by access to medical care and facilities and lifestyle choices, but also by a much broader set of social and economic conditions in which people live.

Possible public health impacts of a project/programme can be determined by assessing its impact on a range of determinants of health, which include:

- The social and economic environment,
- The physical environment, and
- The person's individual characteristics and behaviours.

The impacts of these projects are considered below for each of these determinants, in the implementation and operational phases.

The Social and Economic Environment

Determinants of health are the biological, environmental, behavioral, organizational, political and social factors that contribute either positively or negatively to the health status of individuals, groups and communities. A population's health is shaped by 10% by the physical environment, 20% by the clinical health care (access and equity), 30% by health behaviours (themselves determined by social and physical environment), and 40% by social and economic factors. The social and economic factors are not only the single predictor or driver of health outcomes, but also strongly influence health behaviour, the second greatest contribution to health and longevity. The lower the social and economic position of a population or community the more common are unhealthy behaviours, and the more difficult it is to adopt and sustain healthy behaviours. Social and economic factors such as income, education, employment, community safety, and social supports can significantly affect how well and how long people live. These factors affect ones ability to make healthy choices, afford medical care and housing, and manage stress. Social determinants of health include poverty, unequal access to health care, lack of education are factors of health inequities. People from poorer socio-economic circumstances are at greater risk of poor health, have higher rates of illness, disability and death, and live shorter lives than those who are more advantaged.

The majority of the schools are located in income poor communities and the majority of the students attending those schools come from income poor households. The interventions that have been identified for the schools under this project are not expected to address unequal access to health care, housing and reduction in poverty rates in the host communities. However, several of the resilient interventions aim to improve the quality of the school plant to make it more fitting for modern educational instruction and a community asset that members of the community are proud of. Another fundamental aim is ensuring that students and staff have greater and more regular access to the school plant to facilitate uninterrupted teaching and learning. As a result, the project has the potential and propensity to facilitate behaviour modification through formal Disaster Risk Reduction Education in schools with the expectation that there will be transfer of knowledge at the household level at the community levels. Intended impacts include greater awareness of climate change issues which can serve as the foundation for community organizing and mobilization efforts designed around community adaptive capacity initiatives. These initiatives can contribute to improvement in poor community environmental conditions which avert potential danger of non-communicable disease by vector and other carriers.

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The Physical Environment

Aspects of the physical environment that determine health that could be impacted by this project include safe water and clean air, safe and healthy workplaces, communities and roads. Employment and working conditions are also important.

OSH: There are implications for OSH in both implementation and operational phases of these projects. Construction workers engaged in an inherently dangerous occupation. Without appropriate measures, the risks are high. With appropriate protection and construction site management, in accordance with the law and prevailing good practice, the risks may be adequately mitigated.

Persons near to the works (school users and neighbours) and along haul routes may be exposed to construction traffic and works that could cause injury or death. This risk is moderate without mitigation. Such persons must be adequately protected to bring this risk to negligible, through appropriate traffic management plans and site management plans.

The operations of schools are expected to be made safer and more effective once the project is complete by:

- Improving the building and property performance during normal operations and through a wide range of hazard conditions through improvements to the structure(s), access for differently abled, drainage, slope stability, electricals, water supply and ICT.
- Improving the performance of the school as a temporary emergency shelter post-hazard.
- Improving the ability of the school to meet the ICT requirements of this modern age, post-Covid environment.
- Making the environment more comfortable with A/C in specific rooms.

Traffic Accidents and Disruption: Construction traffic and spilt loads on public roadways, improperly protected works or inappropriate storage of materials on public roads all have the potential to cause traffic accidents, affecting motor vehicles, pedestrians and workers. Slow construction traffic may also interfere with routine traffic. These impacts are potentially moderately significant but may be reduced to acceptable levels with appropriate mitigation, and good building practice.

Noise and Air Pollution from Burning Fossil Fuels for Equipment Operation: Heavy equipment operation relies on fossil fuel burning, which generates emissions that have potential health effects at high and/or prolonged levels of exposure. Heavy equipment also generates significant noise levels, which adversely affect those in close proximity, including workers, building users and neighbours. If school continues, this can be highly disruptive to staff and students. These impacts are potentially moderately significant but may be reduced to acceptable levels with appropriate mitigation, and good building practice.

Climate Change: This was discussed under Principle 11.

Vector Borne Diseases: Standing water can increase the incidence of mosquitoes, which may transmit dengue, chikungunya and zika. Poor solid waste (in particular food waste) management, can cause an increased incidence in rodents that carry leptospirosis. These impacts are potentially moderately significant for the school population and surrounding communities but may be reduced to acceptable levels with appropriate mitigation, and good building practice.

Transmission of Agents of Infectious Disease: This is possible from human excreta (sanitation, hygiene and water-related). This impact is potentially moderately significant for the school population and surrounding communities but may be reduced to acceptable levels with appropriate mitigation, and good building practice.

Exposure to Toxic Chemicals Discharged into the Environment: This is possible through accidental spill during transportation, or accidental release of chemicals stored on site for use in the works e.g. sealant required for concrete roofs; herbicides for vegetation control. Because of the nature of the proposed works, quantities are small and the risk is negligible. Nevertheless, it will be managed with good building practice.

Environmental Degradation and Direct and Indirect Impacts on Health: As explained under Principles 9 and 10, environmental degradation is possible, but the risk is negligible, particularly with good construction management practice.

Exposure to Solid Wastes: This is possible if waste is not properly managed on site, or is not properly transported and disposed of. Contractors may dispose of waste illegally, resulting in environmental and aesthetic degradation of the affected lands. Badly managed waste causes odour issues, and attracts flies, vermin and foraging animals, a nuisance to persons in the vicinity. These impacts are potentially moderately significant for the school population and surrounding communities but may be reduced to acceptable levels with appropriate mitigation, and good building practice.

The Person's Individual Characteristics and Behaviours

Health behaviors are those personal behavior patterns, actions and habits that people perform in order to stay healthy, in order to restore their health when they get sick and in order to improve their health status. The following are categorization is relevant to this principle.

- *Preventive health behaviors*: These are actions that healthy people undertake to keep themselves or others healthy and prevent disease or detect illness when there are no symptoms. Examples include handwashing with soap, using insecticide treated mosquito nets. The project needs to make recommendations on measures that will promote preventive health behaviours.
- Individual behavior also plays a role in health outcomes. Many public health and health care interventions focus on changing individual behaviors such as substance abuse, diet, and physical activity. Positive changes in individual behavior can reduce the rates of chronic disease. Examples of individual behavior determinants of health include diet, physical activity, alcohol, cigarette, and other drug use, hand washing.

The project is expected to recommend measures that will foster positive individual health behaviour. The rehabilitation of school grounds should provide the opportunity for students and staff to engage in physical activity in a safe and fulfilling manner. Handwashing stations in light of COBID-19 remain an imperative to promote individual health behaviour among students and staff.

The Table below assesses public health risk and impact significance of the proposed works at the various schools.

Table 5.5: Impact Significance of Proposed Activity on Public Health

School	Public Health Impact Significance from Proposed Activity at this School			
	Sensitivity of Receptors at this Location	Magnitude of Impact	Pre-Mitigation Significance	Residual Significance
Ave Maria Infant	Moderate	Moderate	Moderate	Negligible
Ave Maria Primary	Moderate	Moderate	Moderate	Negligible
Balata Combined	Moderate	Moderate	Moderate	Negligible
Bexon Primary	Moderate	Moderate	Moderate	Negligible
Corinth Secondary	Moderate	Moderate	Moderate	Negligible
Fond Assau Combined	Moderate	Moderate	Moderate	Negligible
Patience Combined	Moderate	Moderate	Moderate	Negligible
Micoud Primary	Moderate	Moderate	Moderate	Negligible
Desruisseau Combined	Moderate	Moderate	Moderate	Negligible
Vieux-Fort Infant	Moderate	Moderate	Moderate	Negligible
Vieux-Fort Primary	Moderate	Moderate	Moderate	Negligible
Saltibus Combined	Moderate	Moderate	Moderate	Negligible

5.2.14 Principle 14. Avoid negative impacts on physical and cultural heritage

The Principle states that "*Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level. Projects/programmes should also not permanently interfere with existing access and use of such physical and cultural resources.*"

The 1972 UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage is the reference for international recognition of physical and cultural heritage. Saint Lucia ratified this in Sept 1991.

Article 1 of the Convention Concerning the Protection of the World Cultural and Natural Heritage defines cultural heritage as:

monuments: architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;

groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;

sites: works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view.

Article 2 of the Convention defines natural heritage as:

> **natural features** consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;
>
> **geological and physiographical formations** and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;
>
> **natural sites** or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.

The 2,909 Ha Pitons Management Area (PMA) in Soufriere was inscribed as a World Heritage Site in 2004.

None of the twelve school sites have within their boundaries or their spheres of influence, sites of cultural or natural heritage. None of the schools fall within or drain into the PMA. **As such, the proposed works are not expected to have an impact on any physical and cultural heritage.**

5.2.15 Principle 15. Lands and soil conservation

The Principle states that "*Projects/programmes supported by the Fund shall be designed and implemented in a way that promotes soil conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services.*"

Principle 15 concerns the stewardship of land to either be maintained in its natural state, where possible, or if it is converted to promote and protect its functioning. Soil conservation refers to a set of measures to prevent, mitigate or control soil erosion and degradation[5]. There are two aspects to the principle: promotion of soil conservation and avoidance of degradation or conversion of valuable lands. This applies to soils and lands directly affected by the project/programme as well as those influenced indirectly, or as a secondary or cumulative effect. Soil conservation should be incorporated in project/programme design and implementation.

Soil Conservation

All of these projects will take place within existing school compounds, and largely within existing building footprints. There are no fragile soils (e.g. soils on the margin of a desert area, coastal soils, soils located on steep slopes, rocky areas with very thin soil) within the project area. Limited soil disturbance will occur during excavations for foundations of new buildings or retaining walls, or new drainage construction. This will be minimal, and good construction practise will be required of contractors through their contracts to ensure that slope stability is maintained, erosion is minimised, and sediments mobilised are intercepted as far as possible.

Where aggregates, backfill or soil material are imported into any site, it will be ensured that these are derived from suitable and approved sources.

As such, project activities will not result in the loss of otherwise non-fragile soil.

5 The Food and Agriculture Organization of the United Nations defines soil degradation as a change in the soil health status resulting in a diminished capacity of the ecosystem to provide goods and services for its beneficiaries.

Valuable Lands

Because these projects are being implemented within existing school compounds, there are no productive lands or lands that provide valuable ecosystem services within the project area that could be degraded.

As such, project activities will not result on any productive land degradation or ecosystem service impacts.

6.0 Recommended Mitigations

The summary interventions identified in Table 4.3 are analyzed below in terms of the type and scope of associated activities and the possible impacts. After predicting and evaluating the impacts, the ESIA process requires that mitigation measures that may be implemented be identified and evaluated. The World Bank Environmental and Social Framework provides a mitigation hierarchy, in which preference is given to avoid or minimize the potential impact. This hierarchy is as follows:

- **Avoid Impacts.** Remove the source of the impact (by avoiding the specific action or resource area).
- **Minimize Impacts.** Where the impact cannot be completely avoided, reduce the magnitude of the impact.
- **Compensate or Offset Impacts.** Where significant residual impacts would remain after exhausting avoidance and minimization options, provide compensation or offsets for the impact, where technically and financially feasible.

Recommended mitigations are identified here, and expounded on as required in the appendices. The targeted schools are identified using the abbreviations in Table 4.2 above.

It is noted that the following AF E&S principles always apply and standards of these principles must always be met:

- Principle 1. Compliance with the law
- Principle 4. Respect for human rights
- Principle 6. Compliance with core labour standards

With regard to the other AF E&S principles, the following do not apply with respect to this project, as outlined above:

- Principle 7. Respect for the rights of indigenous peoples
- Principle 8. Minimal involuntary resettlement in accordance with due process
- Principle 14. Avoid negative impacts on physical and cultural heritage
- Principle 15. Lands and soil conservation

Standards of all the other principles must be met:

- Principle 2. Access and equity
- Principle 3. Protection of marginalized and vulnerable groups
- Principle 5. Gender equality and women's empowerment
- Principle 9. Protection of natural habitats
- Principle 10. Conservation of biological diversity
- Principle 11. No significant or unjustified contribution to climate change
- Principle 12. Pollution prevention and resource efficiency
- Principle 13. Avoid significant negative effects on public health

6.1 Environmental Impacts and Mitigations Recommended

6.1.1 Potential Impacts of Proposed Works Interventions

The following tables, provide, for each summary intervention in Table 4.3, the description of the proposed intervention, the type and scope of associated activities, the potential impacts (adverse and beneficial), the relevant AF E&S Principles, and the recommended mitigations measures. Table 6.1 provides the details for the recommended mitigation measures, linking back to the AF Principles. It also identifies responsibilities for implementation, the required timing of the recommended measures, and associated costs in USD.

Summary Intervention 1: Structural Retrofitting of Both Elements and the Whole Structure

Intervention	Activities required	Potential adverse impacts	Potential benefits	Relevant E&S Principles (AF policy)	Recommended mitigation measures
1. Undertake targeted concrete works to repair beams, columns, walls and slabs to repair cracks and other defects and/or increase element and structural strength **Schools:** **BC, PC, MP, DC**	• Chip out defective elements • Dispose of waste generated • Transport in concrete or materials to make concrete • Undertake concrete works • Paint or otherwise finish the repaired element as specified	• OSH issues associated with chipping concrete, dust generated and handling of cement products • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels	• Increased resilience of repaired element and entire structure • Opportunity to reuse demolition material as backfill on site or nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See BMPs for demolitions, Concrete works in Appendix 3. See recommendations for: Water Resources Landscape, landuse and visual character Traffic circulation and safety Solid Waste Health and Safety See OSH recommendations in Appendix 4 for cement handling, working at height

Intervention	Activities required	Potential adverse impacts	Potential benefits	Relevant E&S Principles (AF policy)	Recommended mitigation measures
2. Reconstruct or retrofit damaged foundation walls, footings **Schools:** **AMP, CS, DC, VFI**	• Excavate around area to be repaired • Break out defective elements • Dispose of waste generated • Undertake concrete works	• OSH issues associated with earthworks and handling of cement products • Poor mangement of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Inadequate separation of waste streams, squandering or limiting opportunities for reuse • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels	• Increased resilience of repaired element and entire structure • Opportunity to reuse demolition material as backfill on site or nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See BMPs for earthworks, demolitions, Concrete works in Appendix 3. See recommendations for: Water Resources Air Quality Traffic circulation and safety Solid Waste Health and Safety See OSH recommendations in Appendix 4 for earthworks, cement handling
3. Scale structural steel elements **Schools:** **AMI, AMP, CS, PC, MP, VFP**	• Use of power tools and brushes to remove rust • Disposal of waste generated	• OSH issues associated with handling of power tools • Poor mangement of waste material generated, creating an eyesore, generating dust nuisance	• Increased resilience of repaired element and entire structure	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 12. Pollution	See recommendations for: Solid Waste Health and Safety

Intervention	Activities required	Potential adverse impacts	Potential benefits	Relevant E&S Principles (AF policy)	Recommended mitigation measures
		for school and neighbours, blocking drainage channel		prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See OSH recommendations for power tools
4. Paint repair works **Schools:** **BC, PC, MP, DC, AMI, AMP, CS, VFP**	• Painting • Disposal of excess paint	• OSH issues associated with painting • Poor management of paint wastes	• Increased resilience of repaired element • Acceptable aesthetic of repaired elements/ structure • Excess paint available to small community/ school project(s)	Principles 1, 4 and 6. Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See BMPs for chemicals in Appendix 3. See recommendations for: Solid waste Health and Safety See OSH recommendations for working at height in Appendix 4.
5. Replace part or all of roof frames and/or roofs **Schools:** **CS, PC, VFP**	• Transportation of inputs and waste materials • Demolition of existing roof frames and/or sections • Salvage of roof material for recyling	• OSH issues associated with demolition, working at height • Public health and safety issues associated with working at height • Disruption of community traffic during transportation of inputs or waste	• Increased resilience of repaired element • Improved aesthetic of repaired elements/structure • Recycled element, reducing waste volumes and reusing material	Principles 1, 4 and 6. Principle 13. Avoid significant negative effects on public health	See BMPs for demolitions in Appendix 3. See recommendations for: Air quality Noise Traffic circulation and safety

Intervention	Activities required	Potential adverse impacts	Potential benefits	Relevant E&S Principles (AF policy)	Recommended mitigation measures
	• Installation of new roof frames and/or sections • Disposal of waste material	• Disposal and wastage of potentially reuseable material			Solid Waste Health and Safety See OSH recommendations working at height
6. Installation of floor supports **Schools:** **BC, BP**	• Transportation of inputs and limited quantities of waste material • Installation of new floor supports	• OSH issues associated with power tools and working at height • Disruption of community traffic during transportation of inputs or waste	• Increased resilience of repaired element	Principles 1, 4 and 6. Principle 13. Avoid significant negative effects on public health	See recommendations for: Noise Traffic management Health and safety See OSH recommendations in Appendix 4 for power tools, working at height
7. Demolition and reconstruction of an entire school block **Schools:** **VFI**	• Demolition of existing structure • Salvage of reuseable material • Earthworks for new structure • Stockpiling and carting away of waste material • Transportation and storage/stockpilin	• All OSH, public health and safety traffic management, and environmental impacts associated with demolition and new construction as listed above	• Increased resilience of new structure	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant	See BMPs for demolitions, Concrete works in Appendix 3. See recommendations for: Water Resources Air quality Noise Traffic circulation and safety Solid Waste

Intervention	Activities required	Potential adverse impacts	Potential benefits	Relevant E&S Principles (AF policy)	Recommended mitigation measures
	g of construction material on site • Reconstruction using concrete or steel framing and blockwork infill, timber roof framing and metal roofing • Installation of utility connections, fittings and fixtures • Painting			negative effects on public health	Health and Safety See OSH recommendations in Appendix 4 for earthworks, cement handling, power tools, working at height
8. Review of suitability of a structure to be a designated emergency shelter **Schools:** **BC, BP**	• Structural analysis	• Reduction or loss of community shelter space • Loss of support provided to school community by emergency service providers	• Assurance to community of suitability and resilience of designated community shelters	Principle 2. Access and equity Principle 3. Protection of marginalized and vulnerable groups Principle 5. Gender equality and women's empowerment Principle 13. Avoid significant negative effects on public health	Assess community shelter requirements and address gaps

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Summary Intervention 2: Retrofit and Repairs to Roof Structure

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. Replace deteriorating or all fascia boards; 2. Replace damaged guttering sections **Schools:** **AMI, AMP, BP, CS, FAC, PC, MP, DC, VFI, VFP**	• Remove sections of fascia board or guttering to be replaced • Store removed sections for recycling or disposal • Transport new material to site and waste/recyclable material off site • Store new material on site prior to installation • Install new fascia board and/or guttering	• OSH issues associated with handling sharp or unweildy items at height • Public health and safetly issues associated with works being undertaken at height (e.g. falling objects) • Weathering of materials inappropriately stored • Disruption of community traffic during transportation of inputs or waste	• Increased resilience of repaired element • Reduced likelihood of water ponding for mosquito breeding • Improved aesthetic of repaired elements/ structure • Recycled element, reducing waste volumes and reusing material	Principles 1, 4 and 6. Principle 13. Avoid significant negative effects on public health	See BMPs for demolitions and site management See recommendations for: Traffic circulation and safety Solid Waste See OSH recommendations in Appendix 4 for power tools, working at height
3. Install additional fasteners at every trough at the eaves, hips, ridges and edges of gable roofs; 4. Replace all fasteners and comply with Code **Schools:**	• Install fasteners	• OSH and public health and safety issues with working at height	• Increased resilience of repaired element	Principles 1, 4 and 6	See OSH recommendations in Appendix 4 for power tools, working at height

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
AMI, AMP, CS, FAC, PC, MP, DC, VFI, VFP					
5. Make up slopes on concrete roofs and apply waterproofing membrane **Schools:** **BC**	• Prepare roof surface (clean, scrape as required) • Dispose of waste material and waste water • Mix concrete/screed • Convey concrete and membrane material to roof • Apply concrete and membrane	• OSH and public health and safety issues associated with working at height, chipping concrete, dust generated, and handling of cement and its products and membrane material • Poor management of waste material and wastewater generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete, and membrane material (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and	• Increased resilience and performance of repaired element • Reduced likelihood of water ponding for mosquito breeding	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See BMPs for Concrete works, handling of chemicals in Appendix 3. See recommendations for: Water Resources Air quality Noise Traffic circulation and safety Solid Waste Chemicals management See OSH recommendations for power tools, working at height, handling cement products and chemicals

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		buildings, or aquatic life in nearby drainage channels			
6. Remove and reconstruct entire roof truss system and roofing **Schools:** **BP, DC**	• Dismantle existing trusses and roofing and place for recycling or disposal • Replace roof trusses, roof deck and roof covering	• OSH and public health and safety issues associated with working at height, working with power tools and handling of unweildy materials • Poor management of waste material creating an eyesore or loss of potentially recyclable resource • Disruption of community traffic during transportation of inputs or waste	• Increased resilience of repaired element	Principles 1, 4 and 6. Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See recommendations for: Noise Traffic circulation and safety Solid Waste Health and Safety See OSH recommendations for power tools, working at height
7. Secure roof deck and replace roof covering **Schools:** **BP, MP, DC, SC**	• Secure roof deck • Remove existing roof sheets • Transport new roofing material to site and waste material to recycling/ disposal • Store new materials/ waste until ready for use/removal from site • Install new roof sheets	As above	As above	As above	As above

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Summary Intervention 3: Retrofit and Repair Door and Window Systems to Withstand Hurricane Force Winds

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. Install 150mm concrete surround to all windows to ensure adequate anchorage **All schools**	• Break out inadequate window surrounds • Dispose of waste generated • Transport in concrete or materials to make concrete, and waste to disposal • Undertake concrete works	• OSH issues associated with breaking concrete, dust generated and handling of cement products • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels	• Increased resilience of repaired element and entire structure • Opportunity to reuse demolition material as backfill on site or nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See BMPs for demolitions, Concrete works in Appendix 3. See recommendations for: Air quality Noise Traffic circulation and safety Solid Waste Health and Safety See OSH recommendations in Appendix 4 for cement handling
2. Install aluminum thresholds on external doors;	• Remove materials identified for replacement • Store removed items for recycling/ disposal	• As above, as well as: • OSH issues associated with working with power tools • Disposal and wastage of potentially reuseable material	• Increased resilience of repaired element and entire structure • Opportunity to recycle/reuse demolition material	Principles 1, 4 and 6. Principle 9. Protection of natural habitats	As above, See also, OSH recommendations in Appendix 4 for power tools

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
3. Install third hinges on doors; 4. Fasten door frames into concrete surrounds with bolts or screws[6]; 5. Replace exterior doors with impact resistant doors; 6. Replace existing windows with standard operable or fixed windows which are hurricane resistant; 7. Install insect screens;	• Transport new materials in and waste materials out to recycling/disposal • Install hardware as required			Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	

[6] May require concrete surround to be installed

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
8. Install hurricane shutters; 9. Remove and replace the welded wire mesh openings with operable windows. **All schools**					

Summary Intervention 4: Internal and Superficial Works

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. Repaint building internal and external walls **All schools**	• Prepare wall surfaces • Prime and paint walls	• OSH and public health issues associated with dust generated, painting and working at height • Poor management of paint scrapings, and excess paint, creating an eyesore, generating dust nuisance for school and neighbours, contaminating drainage	• Improved aesthetic of school buildings, and learning environment of students • Protection of walls against water ingress and against health issues associated	Principles 1, 4 and 6. Principle 13. Avoid significant negative effects on public health	See BMPs for chemicals See recommendations for: Air quality Solid Waste Health and Safety See OSH recommendations in

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		channels, and wasting a potentially useable product	with moisture e.g. mould		Appendix 4 working at height
2. Replace termite infested timber and undertake termite treatment of buildings and compound **Schools:** **AMI, BP, CS, FAC, MP, DC, SC**	• Remove timber and stockpile until transport to disposal • Transport new materials in and waste to disposal site • Install new timber • Undertake termite treatment of buildings and grounds	• OSH issues associated with handling unweildy materials, working with power tools, working with chemicals • Public health and environmental risks of termite treatment • Poor management of waste material generated, creating an eyesore on property and spreading termite infestation • Disruption of community traffic during transportation of inputs or waste	• Increased resilience and aesthetic of repaired element and entire structure • Reduced impacts of termites on building occupants (skin irritation, possible increased mould)	Principles 1, 4 and 6. Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See BMPs for demolitions, chemicals. See recommendations for: Water Resources Noise Traffic circulation and safety Solid Waste Health and Safety See OSH recommendations for power tools, chemicals

Summary Intervention 5A: Internal and Superficial Works - Structural

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. Reconstruct external	• Demolish existing, sort and stockpile for reuse, recycling and/or disposal	• OSH issues associated with demolition of	• Increased resilience of repaired element and entire structure	Principles 1, 4 and 6.	See BMPs for demolitions,

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
staircase (BC and DC) **Schools:** **BP, DC**	• Dispose of waste generated • Transport in materials including readymix concrete or materials to make concrete • Undertake concrete works	concrete structures, dust generated and handling of cement products • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels, and compromising waste reuse/recycling opportunities • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school	• Opportunity to reuse demolition material as backfill on site or nearby works, and to recycle other demolition waste (e.g. rebar) • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	Concrete works in Appendix 3. See recommendations for: Water Resources Air quality Traffic circulation and safety Solid Waste See OSH recommendations in Appendix 4 for cement handling

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		infrastructure and buildings, or aquatic life in nearby drainage channels			
2. Construct a retaining wall on the western side of Block B (BC) **Schools:** **BP**	• Earthworks receive wall foundation • Stockpile excess excavated material for reuse/disposal • Build wall • Backfill behind wall	• OSH and public safety issues associated with earthworks and stability of cut faces • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels, and compromising waste reuse opportunities • Disruption of community traffic during transportation of equipment, inputs or waste • Poor management of cement and/or	• Increased safety and resilience of the facility • Opportunity to reuse excess excavated material as backfill on site or nearby works, • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principles 1, 4 and 6.	See BMPs for Concrete works in Appendix 3. See recommendations for: Water Resources Air quality Traffic circulation and safety Solid Waste See OSH recommendations in Appendix 4 for cement handling

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels			
3. Improve access to school entrance - roadway and gate **Schools:** **BC, BP, MP, SC**	• Grade and cart away excess material for reuse/ disposal • Transport required equipment and material to site • Undertake works (may include • Concrete drainage improvements, possibly using a combination of pre-cast and cast in place elements; • Concrete pavements to facilitate pedestrian movement and • Asphalt roadworks) • Remove and replace gate	• OSH and public safety issues associated with earthworks, concrete works and asphalt road construction • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels, and compromising waste reuse opportunities	• Increased safety and resilience of the facility • Opportunity to reuse excess material as backfill on site or nearby works • Opportunity to reuse/recycle elements from the gate waste material	Principles 1, 4 and 6.	See BMPs for Concrete works in Appendix 3. See recommendations for: Water Resources Air quality Traffic circulation and safety Solid Waste See OSH recommendations in Appendix 4 for earthworks, asphalt works, cement handling

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		• Disruption of community traffic and access to properties adjoining the road during road construction and transportation of equipment, inputs or waste • Poor management of asphalt, cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels			

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Summary Intervention 5B: Internal and Superficial Works – Environmental

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. Clean septic tank and inspect condition. Repair as necessary. **All schools**	• Divert effluent or close off all wastewater sources for the duration of the works • Pump out septic tank and dispose of septage appropriately • Clean septic tank, clean and dispose of septage and drainage water appropriately • Inspect septic tank • Undertake repairs that may include chipping and sealing of cracks and defective surfaces	• OSH and public health issues associated with handling of septage and concrete works	• Increased safety and resilience of the facility • Opportunity to reuse excess material as backfill on site or nearby works • Opportunity to reuse/recycle elements from the gate waste material	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See BMPs for earthworks, Concrete works, wastewater management in Appendix 3. See recommendations for: Water Resources Air quality Traffic circulation and safety Solid Waste See OSH recommendations in Appendix 4 for cement handling
1. Improve and introduce drainage of the school compound **Schools:** **BC, BP, CS, MP, VFP**	• Excavate and shape new drains • Chip/break out old drain sections to be replaced • Transport in new drain material and transport out waste material	• OSH issues associated with earthworks, chipping/ breaking concrete, dust generated and handling of cement products • Poor management of waste material	• Improved drainage performance, increasing resilience of the facility • Improved safety of drains for users • Opportunity to reuse excess excavated or demolition material	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity	See BMPs for demolitions, Concrete works in Appendix 3. See recommendations for: Water Resources Air quality

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
	• Build or improve concrete drains • Stockpile excavated material and other debris for reuse/ removal for disposal and store material for new works	generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels • Poorly conceived drainage that does not perform as intended, resulting in flooding, ponding of water providing a breeding ground for mosquitoes and other animals, or a	as backfill on site or in nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principle 12. Pollution prevention and resource efficiency	Traffic circulation and safety Solid Waste See OSH recommendations in Appendix 4 for cement handling

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		safety risk for school users			
3. Routine maintenance and cleaning of site storm water management system **Schools:** **BC, BP, CS, MP, VFP**	• Clean and maintain drains in accordance with protocols	• Inappropriate practices resulting in damage to the drain or reduced performance • Poor management of material removed from drains, resulting in unsightly and unhealthy conditions	• Drains perform as intended • Avoidance of potential adverse issues associated with poor maintenance (such as ponding, stagnation, mosquito breeding)	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	i. Develop and adhere to an inspection and maintenance schedule that includes drain management ii. Provide sufficient budget for maintenance requirements iii. Develop protocols for drain cleaning iv. Train caretakers in appropriate maintenance and cleaning practices
4. Cut and dispose of the pine trees and their roots close to Block C, DC school **Schools:** **DC**	• Cut trees • Stockpile trees • Transport trees to identified user or to disposal	• OSH and public safety issues associated with felling trees • Damage to adjacent structures from falling branches or trees during felling • Traffic disruption during transportation	• Block C no longer at risk from roots in foundations • Facility no longer vulnerable to tree fall during extreme wind event • Trees made available to community for charcoal production or other possible	Principles 1, 4 and 6. Principle 13. Avoid significant negative effects on public health	i. Professional tree felling company to be engaged ii. Felling company to be insured against property damage and injury iii. Community to be engaged early to ascertain interest in use of pine trees to

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		• Lost opportunities for use of felled trees	application of interest to them		be felled, and requirements incorporated into contract to facilitate this See OSH recommendations in Appendix 4 for working at height

Summary Intervention 6: Water Storage, Plumbing and Accessories

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
2. *Potable Water* - Procure and install additional potable water storage tanks and install a solar powered water pump. **Schools:** **BC, BP, SC**	• Identify location(s) for installation of additional storage tanks • Prepare location with excavation, foundation preparation, plumbing, concrete base • Transport in materials • Implement works	• Occupies space at ground level that could be put to other use • Location increases ease of access for tampering with potable water supply • OSH issues associated with working with electricity, earthworks, and handling of cement products • Poor management of waste material generated, creating an	• Increased onsite water storage capacity, increasing facility resilience • Reduces the need to close schools for lack of water supply during drought conditions or other water supply interuptions • Use of solar power for pumping, reducing reliance on off-site, fossil fuel sources	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency	See BMPs for Concrete works in Appendix 3. See recommendations for: Water Resources Air quality Traffic circulation and safety Solid Waste

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
	• Use waste material on site/transport to disposal	eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels	• Opportunity to reuse excess excavated material as backfill on site or in nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principle 13. Avoid significant negative effects on public health	See OSH recommendations in appendix 4 for cement handling
3. *Potable Water* - Removal of tanks from the roof could be considered. Construct ground slab and install a solar powered water pump. **Schools:** **BC, SC**	• Close off water supply to tanks and disconnect existing tanks on roof • Remove tanks and move them to the adjacent ground below • Prepare new location for tanks and install as above	• Occupies space at ground level that could be put to other use • Location increases ease of access for tampering with potable water supply • OSH issues associated with working with electricity, at height, earthworks, and	• Increased onsite water storage capacity, increasing facility resilience • Reduces the need to close schools for lack of water supply during drought conditions or other water supply interuptions • Reduced vulnerability of exisitng water storage to extreme	Principles 1, 4 and 6. Principle 13. Avoid significant negative effects on public health	See BMPs for Concrete works in Appendix 3. See recommendations for: Water Resources Air quality

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		handling of cement products • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels	events, increasing facility resilience • Improved access to water storage infrastructure for maintenance, with safety implications • Use of solar power for pumping, reducing reliance on off-site, fossil fuel sources • Opportunity to reuse excess excavated material as backfill on site or in nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure		Traffic circulation and safety Solid Waste See OSH recommendations in Appendix 4 for working at height, cement handling
4. *Rainwater Harvesting* - Allow for supply and installation of rainwater harvesting system	• Install/improve guttering and pipework and site drainage where necessary for rain water collection, first flush and	• Occupies space at ground level that could be put to other use • Poorly maintained guttering and drainage systems may increase incidence of mosquitos	• Reduces reliance on municipal supplies to meet on-site non-potable water requirements • Reduces the need to close schools for lack of water supply during	Principles 1, 4 and 6. Principle 9. Protection of natural habitats	Properly maintain guttering and drainage to avoid ponding of water

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
with pump and first flush system **All schools**	conveyance to storage • Install plumbing • Prepare location for tanks at ground level and install as above	• OSH issues associated with working with electricity, at height, earthworks, and handling of cement products • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels	drought conditions or other water supply interuptions • Increases onsite water storage capacity, increasing facility resilience • Reduces vulnerability of existing water storage to extreme events, increasing facility resilience • Improved access to water storage infrastructure for maintenance, with safety implications • Use of solar power for pumping, reducing reliance on off-site, fossil fuel sources • Opportunity to reuse excess excavated material as backfill on site or in nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	See BMPs for Concrete works in Appendix 3. See recommendations for: Water Resources Air quality Traffic circulation and safety Solid Waste See OSH recommendations in appendix 4 for working at height, cement handling

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
5. *Rainwater Harvesting*- Develop stores of rainwater by installing rainwater tanks with capacity equivalent to 30% of building consumption with potable water back up connection **No schools**	• Install/improve guttering and pipework and site drainage where necessary for rain water collection, first flush and conveyance to storage • Install plumbing • Prepare location for tanks at ground level and install as above	• Occupies space at ground level that could be put to other use • Poorly maintained guttering and drainage systems may increase incidence of mosquitos • OSH issues associated with working with electricity, at height, earthworks, and handling of cement products • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and	• Reduces reliance on municipal supplies to meet on-site non-potable water requirements, reducing the need to close schools for lack of water supply during drought conditions or other water supply interuptions • Increases onsite water storage capacity, increasing facility resilience • Reduces vulnerability of existing water storage to extreme events, increasing facility resilience • Improved access to water storage infrastructure for maintenance, with safety implications • Use of solar power for pumping, reducing reliance on off-site, fossil fuel sources • Opportunity to reuse excess excavated	As above	Properly maintain guttering and drainage to avoid ponding of water See BMPs for Concrete works in Appendix 3. See recommendations for: Water Resources Air quality Traffic circulation and safety Solid Waste See OSH recommendations in Appendix 4 for working at height, cement handling

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		buildings, or aquatic life in nearby drainage channels	material as backfill on site or in nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure		
6. *Plumbing and Fixture* - Re-plumb buildings to facilitate dual water use - potable and rainwater harvesting **All schools**	• Install dual plumbing systems to facilitate use of potable and non-potable waste supplies • Transport in plumbing materials	• Risk of cross contamination of potable supplies on site or the public pipe - borne supply • Installation of new plumbing on existing structures is unsightly	• Optimise on the use of non-potable water for non-potable use	Principles 1, 4 and 6. Principle 13. Avoid significant negative effects on public health	Ensure plumbing installation: i. Optimise on the use of harvested water supplies ii. Protects against cross contamination of potable supplies iii. Is implemented in a way that does not unduly compromise the aesthetics of the structure
7. *Plumbing and Fixture* - Remove and replace all faucets in the lavatory sinks with low volume water fixtures	• Remove and replace fixtures • Transport in new materials and transport out removed items to reuse/recycling or disposal	• Potential for reuse/recycling is not realised	• Reduced water consumption rates, effectively increasing facility capacity and resilience • Potential for reuse or recycling of removed items	Principles 1, 4 and 6. Principle 12. Pollution prevention and resource efficiency	i. Educate users in efficient water use ii. Ensure reuse/recycling options are facilitated

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
All schools					
8. *Plumbing and Fixture* - Replace water closets with vandal-proof low-flush systems **All schools**	• Remove and replace fixtures • Transport in new materials and transport out removed items to reuse/recycling or disposal	As above	As above	As above	As above

Summary Intervention 7: Electrical Energy Improvement

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. **Alternative** - Supply and install solar photovoltaic system as alternative power supply **All schools**	• Identify and prepare location for installation. Roof installation will require a review of adequacy of roof to safely accommodate the system • Transport new materials to site • Install system and integrate into facility's power supply	• PV solar system is exposed to extreme hazard events (such as high winds, flooding) depending on location	• Reduces reliance on public power supply generated off-site, increasing resilience of facility post event • Reduces consumption of fossil fuels, a non-renewable source of power, and GHG generation asosciated with facility operation	Principles 1, 4 and 6.	i. Ensure installation can withstand extreme events ii. Configure the system to supplement power requirements when public supply is available as well as meet basic needs when the public supply is interrupted iii. Install energy saving devices to reduce overall power consumption and

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
			• Reduces electricity bill, providing resources for other priorities		essential power requirements See recommendations for Transportation of materials Traffic circulation and safety See OSH recommendations in Appendix 4 for working at height
2. Alternative - Replace the electric water heater with solar water heater properly fixed to the roof framing **No schools**	• Identify and prepare location for installation. Roof installation will require a review of adequacy of roof to safely accommodate the system • Transport new materials to site • Install system and integrate into facility's power supply	• PV solar system is exposed to extreme hazard events (such as high winds, flooding) and tampering depending on location • Optimal performance of system reduced by poor location, poor maintenance (including management of shading), use of low efficiency fixtures	• Reduces reliance public power supply generated off-site, increasing resilience of facility post event • Reduces consumption of fossil fuels, a non-renewable source of power, and GHG generation associated with facility operation • Reduces electricity bill, providing resources for other priorities	Principles 1, 4 and 6. Principle 12. Pollution prevention and resource efficiency	i. Ensure installation can withstand extreme events ii. Ensure the installed system can meet essential power requirements when public supply is interrupted iii. Install energy saving devices to reduce overall power consumption and essential power requirements See recommendations for: Traffic management

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
					See OSH recommendations in Appendix 4 for working at height
3. Stand-by Generation - Supply and install generator **All schools**	• Identify and prepare location for installation • Transport new materials to site and waste off site to reuse/disposal • Install system and integrate into facility's power supply	• All risks associated with concrete construction, as earlier outlined • Noise and fumes emissions disturbing school operations and posing health and safety risks to users when in use • Reliance on a generator that buns fossil fuels less efficiently than commercial units, resulting in a higher fuel consumption and GHG emission rate per unit of power generated	• School operations may continue through power supply interruptions	Principles 1, 4 and 6. Principle 13. Avoid significant negative effects on public health	As above for construction risks (OSH, earthworks, waste management) i. Locate generator to mitigate noise and fume risks for users and surrounding neighbours and environment ii. Train staff in routine generator maintenance and operation
4. Stand-by Generation - Fuel Reserve - Procure and develop stores of fuel **All schools**	• Identify fuel storage location • Prepare site • Install fuel storage	• All risks associated with concrete construction, as earlier outlined • Fuel spill during transportation or transfer to storage • Failure of storage resulting in fuel spill	• School operations may continue through power supply interruptions	Principles 1, 4 and 6. Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid	As above for construction risks (OSH, earthworks, waste management) Train staff in O&M of fuel storage, and spill response See BMPs for Fuels and Oils

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		• Increased fire risk at facility		significant negative effects on public health	
5. Electrical Wiring & Lighting Systems - Improve electrical systems, inspection and re-certification **All schools**	• Determine requirements • Institute improvements to electricals using a certified electrician • Schedule and facilitate inspection and re-certification	• OSH issues in working with electricals	• Increased safety against shock and electrocution for facility users • Reduced fire risk • Greater efficiency in electricals performance	Principles 1, 4 and 6. Principle 12. Pollution prevention and resource efficiency	i. Use a licensed electrician to undertake all electrical works ii. Maintain builiding electrical certification in accordance with legal requirements for public institutions iii. Recycle mateirals removed to extent possible
6. Electrical Wiring & Lighting Systems - Improve the lighting in all areas based on the international standard for light levels **All schools**	• Determine existing systems • Develop requirements based on international standards • Procure new lighting and transport to site • Install improvements • Transport away waste material to recycling or disposal	• OSH issues in working at height, and with electricals • Waste management issues associated with management of lighting to be replaced	• Improved lighting performing optimally in terms of power consumption and replacement costs	Principles 1, 4 and 6. Principle 12. Pollution prevention and resource efficiency	i. Arrange for bulbs to be crushed by SWMA at its facility, and properly disposed of
7. Electrical Wiring & Lighting Systems -	• Install grills over lighting fixtures	• OSH issues in working with power tools, at height	• Ensure lighting is able to persist	Principles 1, 4 and 6.	See OSH recommendations in Appendix 4 for working at

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
Protect emergency lighting **All schools**			through extreme events		height and with power tools
8. Electrical Wiring & Lighting Systems Perform routine repairs and maintenance - Energy supply **All schools**	• Monitor to set programme • Replace defective items as required • Report and request assistance as required	• Staff ill-equipped to maintain do harm to equipment or themselves	• Improved performance and longevity of AC systems, reducing power consumption and GHG gas leakages and replacement costs	Principles 1, 4 and 6.	i. Develop a monitoring and reporting protocol for ancillary staff ii. Train staff in monitoring and routine maintenance of lighting, and reporting requirements for issues beyond site staff capacity iii. Maintain a small stock of replacement bulbs, plugs, etc. on site

Summary Intervention 8: Air Conditioning Systems

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. Perform major repairs and maintenance -	• Remove and replace defective parts as required	• GHG gas leakage from defective or damaged pipes	• Improved performance of AC systems, reducing power consumption and GHG gas leakage	Principles 1, 4 and 6. Principle 11. No significant or	i. Ensure AC technicians certified by Ministry of Sustainable Development are used

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
Pipes and Insulation **Schools:** **CS, PC, MP, VFP**	• Transport in new materials • Transport out waste materials to reuse, recycle or disposal as appropriate • Store new and waste materials on site as required • Undertake repairs	• Waste generated for disposal	• Improved comfort level of working spaces in the face of rising temperatures	unjustified contribution to climate change Principle 12. Pollution prevention and resource efficiency	ii. Ensure wastes are properly managed
2. Increase capacity of system - Cooling generating systems **Schools:** **CS, MP**	• Remove and replace defective items/parts as required • Transport in new items/materials • Transport out waste materials to reuse, recycle or disposal as appropriate • Store new and waste materials on site as required • Undertake works	• OSH issues associated with working with electricals and cooling systems • Emission of GHGs from existing systems during works	• Improved performance of cooling systems, reducing power consumption and GHG gas leakages • Improved comfort level of working spaces in the face of rising temperatures	Principles 1, 4 and 6. Principle 11. No significant or unjustified contribution to climate change Principle 12. Pollution prevention and resource efficiency	i. Standardise unit brands at a national level to facilitate future maintenance of units and stocking of required parts ii. Ensure AC technicians certified by Ministry of Sustainable Development are used
3. Allow for supply and installation of new individual AC units **Schools:**	• Transport in new items/materials • Transport out waste materials to reuse, recycle or disposal as appropriate	• OSH issues associated with working with electricals and cooling systems • Emission of GHGs from	• Improved performance of AC systems, reducing power consumption and GHG gas leakages • Improved comfort level of working spaces in the	Principles 1, 4 and 6. Principle 11. No significant or unjustified	i. Ensure AC technicians certified by Ministry of Sustainable Development are used ii. Standardise unit brands at a national level to facilitate

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
CS	• Store new and waste materials on site as required • Undertake installation works	existing systems during works	face of rising temperatures	contribution to climate change Principle 12. Pollution prevention and resource efficiency	maintenance of replacement units and parts
4. Routine maintenance and servicing of AC units **No schools**	• Monitor to set programme • Service/replace defective items as required • Report and request assistance as required	• Staff ill-equipped to maintain do harm to equipment	• Improved performance and longevity of AC systems, reducing power consumption and GHG gas leakages and replacement costs	Principles 1, 4 and 6. Principle 11. No significant or unjustified contribution to climate change Principle 12. Pollution prevention and resource efficiency	i. Develop protocols for ancillary staff, for monitoring and routine maintenance ii. Train ancillary staff in routine inspection and maintenance iii. Use certified technicians for call out maintenance iv. Maintain a stock of spares

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Summary Intervention 9: Information Technology

Intervention	Activities required	Potential adverse impacts	Potential benefits	Relevant E&S Principles (AF policy)	Recommended mitigation measures
1. Install an intercom system for each school **All schools**	• Procure system • Transport system and store on site • Install system • Dispose of waste generated	• Poor aesthetics of a poorly designed system on existing buildings	• Improved school wide communication and associated efficiencies and safety benefits	Principles 1, 4 and 6.	i. Plan to ensure aesthetics of buildings are not compromised by systems ii. Standardise at a national level to facilitate maintenance of replacement units and parts

Summary Intervention 10: Fire Protection

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. Detection & Alarm - Procure and install smoke detectors **All schools** **2. Detection & Alarm** - Procure and install fire alarm system **All schools**	• Procure specified items • Transport and store as required • Install items • Transport waste generated off site	• Aesthetics affected by installations on exsiting buildings • Poor performance of items due to poor design or maintenance	• Increased safety of plant and users against fire and other hazards	Principles 1, 4, and 6.	iii. Plan to ensure aesthetics of buildings are not compromised by systems iv. Standardise at a national level to facilitate maintenance of replacement units and parts

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
3. **Suppression -** Install fire extinguishers at strategic locations throughout the school **All schools** 4. **Safety -** Install panic bar locks in the library, computer room, and music room which are likely to have occupants while the doors are closed **Schools: AMI, AMP, BC, BP, CS, MP, VFP**					v. Stock spare parts as recommended by manufacturer vi. Maintain in accordance with manufacturer recommendations vii. Train ancillary staff in routine monitoring and maintenance of the system viii. Include fire drills for users routinely, in the features of the system, and in accordance with the response plan ix. Engage Fire service to inspect all installed systems to an agreed schedule
5. **Suppression -** Repair or replace damaged fire hose reels and cases **Schools:** **PC** 6. **Safety -** Install illuminated exit signs at strategic locations	• Remove and replace defective items as required • Transport in new materials • Transport out waste materials to reuse, recycle, or disposal as appropriate	• Waste generated for disposal	• Improved performance of fire response system, reducing risk of fire to plant and users	Principles 1, 4, and 6.	Train ancillary staff in routine monitoring and maintenance in accordance with manufacturer recommendations. Engage Fire service to inspect all installed systems to an agreed schedule. See recommendation for:

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
Schools: **BP, CS, MP, VFP**	• Store new and waste materials on site as required • Undertake repairs				Solid waste
7. Suppression - Fireproof steel beams and columns **Schools:** **AMI, AMP, PC, MP, DC, VFI, VFP**	• Transport fire-resistant cement board and/or gypsum board to site storage • Cut boards to fit cladding requirements of beams (gypsum board or cement board) and columns (cement board) • Install boards – this requires carrying, cutting, applying joint compound, and sanding. • Stockpile and transport waste trimmings to disposal site	• OSH issues associated with handling unweildy materials, working with power tools, sanding of joint compound • Poor management of waste material generated, creating an eyesore on property • Disruption of community traffic during transportation of inputs or waste	• Increased resilience and aesthetic of repaired element and the entire structure	Principles 1, 4, and 6.	See recommendations for: Traffic circulation and safety Solid waste See OSH recommendations for use of power tools, working at height, cement/gypsum board handling, and joint compound sanding

Summary Intervention 11: Disability Accessibility

Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
1. All ground floor classrooms to be made wheelchair accessible **All schools** **2.** Construct ramps to provide handicap access to the first floor at BC **Schools:** **BC(?), DC** **3.** Increase all exit doors to match the requirements of the OECS Building Code **All schools**	• Prepare ramp foundations as required • Stockpile waste material for reuse/transport as required • Remove doors and store for disposal • Break openings for specified doors, providing for 150mm concrete surround • Transport in materials and store/stockpile as required • Construct ramps • Cast new door openings • Install new doors • Remove waste material	• OSH and public health issues associated with earthworks, breaking of concrete and handling of cement products • No access for differently abled provided to upper floors • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Inadequate separation of waste streams, squandering or limiting opportunities for reuse • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and	• Improved differently abled access to lower floors, and increased safety of all, including differently abled users • Opportunity to reuse excavated and demolition material as backfill on site or nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principles 1, 4 and 6. Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency	Ensure differently abled are not disadvantaged because they can only access lower floors See BMPs for demolitions, Concrete works in Appendix 3. See recommendations for: Water resources Air quality Traffic circulation and safety Solid waste See OSH recommendations for cement handling

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Intervention	Activities Required	Potential Adverse Impacts	Potential Benefits	Relevant E&S Principles (AF policy)	Recommended Mitigation Measures
		buildings, or aquatic life in nearby drainage channels			
4. Equip washrooms with adequate handicap access **All schools**	• Retrofit washrooms as required. This may include widening of some openings, provision of a stall in each groundfloor washroom that is wheelchair accessible, adjusting plumbing and fixtures to suit, and installation of grab bars	• OSH and public health issues associated with breaking of concrete and handling of cement products • Poor management of waste material generated, creating an eyesore, generating dust nuisance for school and neighbours, blocking drainage channels • Disruption of community traffic during transportation of inputs or waste • Inadequate separation of waste streams, squandering or limiting opportunities for reuse • Poor management of cement and/or concrete (in storage of cement, mixing of concrete on site, disposal of excess) affecting the school infrastructure and buildings, or aquatic life in nearby drainage channels	• Improved differently abled access to washrooms • Opportunity to reuse demolition material as backfill on site or nearby works • Opportunity to use excess concrete to improve school or neighbourhood infrastructure	Principles 1, 4, and 6. Principle 12. Pollution prevention and resource efficiency	See BMPs for Concrete works in Appendix 3. See recommendations for: Water resources Traffic circulation and safety See OSH recommendations in Appendix 4 for cement handling

6.1.2 Recommended Mitigations

Recommended mitigations are detailed in the table below. Where recommended measures are considered best practice or are required in compliance with the law, they have ascribed a cost of USD 0, as they should not result in additional cost.

Table 6.1: Recommended Environmental Mitigation Measures

Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Water Resources				
Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency	**Water-1: Stormwater, Erosion, and Sediment Control** Stormwater runoff and drainage shall be properly managed at all work areas using BMPs. BMPs and drainage systems shall be designed to accommodate rapid rainfall events that can be expected in the area. The following procedures shall be implemented to prevent soil loss, erosion, and sediment transport in project areas during construction: • Earthworks activities shall be scheduled, to the extent possible, to avoid the months of heaviest rainfall. • Soil disturbance shall be minimised to the extent possible, in terms of both quantum and area of impact. • All disturbed areas shall be stabilized as soon as possible (i.e. covered, compacted, vegetated, or secured with BMP materials). • Material stockpiles will be properly managed. • Project traffic shall be restricted to designated areas. • Sediment shall be controlled and prevented from leaving disturbed project areas. Refer to Water, Erosion and Sediment Control BMPs in Appendix 3 for more information. All BMPs shall be properly inspected and maintained on a frequent basis to ensure they are functioning properly.	Contractor Client representative	During Construction During Construction	0

Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency	**Water-2: Water Quality Monitoring Program** Water quality in adjacent watercourses will be visually monitored on a daily basis and after any significant rainfall event. Quantitative water quality monitoring will be engaged in if the WRMA or other responsible authority receives complaints about adverse water quality associated with the works, or finds cause to direct that this is required. If so directed, the contractor shall implement a water quality monitoring program as specified by the relevant authority in consultation with project management, to ensure the project does not cause or substantially contribute to a condition that exceeds acceptable water quality standards.	Contractor	Before, during, and after Construction	Provisional sum recommended in case WRMA requires quantitative WQ monitoring at any site: 1000
Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency	**Water 3: Wastewater Management** The contractor shall provide temporary sanitary conveniences for site staff. These are to be serviced in accordance with supplier recommendations. Refer to wastewater management in Solid and Liquid Waste Management, and Management of Hazardous Waste in Appendix 3 for more information. Wastewater generated will be disposed of at a Ministry of Health approved facility. It is noted that it may be possible to use facilities already available at the existing school site.	Contractor	During Construction	0

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Air Quality				
Principle 13. Avoid significant negative effects on public health	**Air-1: Fugitive Dust Management** The following procedures shall be implemented where dry exposed soils are located in project areas: • Water shall be applied to active construction areas to prevent visible dust, to the extent that water is readily available. Water shall not be over applied so that it creates runoff that leaves the site. • Vehicle speeds shall not exceed 25 kilometers (15 miles) per hour on unpaved surfaces. • Disturbed areas shall be stabilized and restored once project activities are completed. Refer to Management plan for noise, dust and vibration in Appendix 3 for further information.	Contractor	During Construction	Include a sum for watering as required. $500/site
Principle 13. Avoid significant negative effects on public health	**Air-2: Construction Emissions Controls** The contractor shall be responsible for ensuring all vehicles and equipment are properly operated and maintained according to the manufacturer's specifications, and equipped with appropriate emission control devices (i.e., catalytic converters, etc.). Malfunctioning equipment shall be repaired immediately or removed from the site. Similarly, during operations, the schools management is to ensure that all vehicles and equipment are properly operated and maintained according to the manufacturer's specifications, and equipped with appropriate emission control devices (i.e., catalytic converters, etc.). Malfunctioning equipment shall be repaired immediately or removed from the site. Refer to Equipment operations and Maintenance plan in Appendix 3 for further information.	Contractor School management	During Construction During operation	0

Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Noise				
Principle 13. Avoid significant negative effects on public health	**Noise-1: Noise Abatement and Community Coordination** Construction noise and the associated effects shall be reduced or minimized, to the extent possible, by implementing the following procedures: • Select quieter equipment and construction activities, whenever feasible; • Ensure motorized vehicles and equipment are equipped with the greatest possible noise reduction parts, such as mufflers, silencers, insulators, and enclosures; • Locate activities as far from sensitive receptors as feasible; • Limit civil work activities to daytime hours (7 am to 6:30 pm) to the extent feasible; • Avoid civil works during sensitive morning, evening, and nighttime periods (such as during church services), to the extent feasible; • Notify and coordinate with residents adjacent to project areas prior to construction; • Install hoarding around the site; and • Implement a Grievance Redress Mechanism that would facilitate receipt and response to noise complaints among other things, to record and respond to noise complaints during construction. Refer to Management plan for noise, dust and vibration in Appendix 3 for further information.	Contractor	During Construction	0

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Landuse, Landscape and Visual Character				
Principle 13. Avoid significant negative effects on public health	**Landscape-1: Hoarding** Hoarding is to be erected on the building site perimeter to protect the members of the public but also to provide a temporary shield from the view of the public. The hoarding should effectively contain activity within the site and prevent encroachment of the work onto adjacent public spaces. Refer to Hoarding in Appendix 3 for more information.	Contractor	During Construction	0
Principle 13. Avoid significant negative effects on public health	**Landscape-2: Site cleanliness and exit on completion of works** Site is to be maintained in a clean and tidy state. Site is to be properly cleared upon works completion. All waste material and excess construction material is to be removed from the site. Refer to Housekeeping in Appendix 4 for further information.	Contractor	During construction	0

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Traffic Circulation and Safety				
Principle 13. Avoid significant negative effects on public health	**Traffic-1: Traffic Management Plan (Construction)** The contractor will develop a traffic management plan applicable for the various phases of the works, for approval by the GoSL and its assigned representatives. This is required to assure the safety of the workforce and the traveling public, whether on foot or by vehicle and to keep traffic flowing as freely as possible. It is important to plan activities to optimise work efficiency and safety, and to minimise traffic delay, congestion and general inconvenience to the road user. The principles of safe and efficient traffic management are: 1. Compliance with the principles of prevention, and application of the hierarchy of risk prevention and protection; 2. Provision of clear and early warning of obstructions in the roadway; 3. optimisation of road space and the provision of an adequate safety zone and workspace at work locations; 4. provision of clear directions relating to decisions/actions required from road users; 5. consideration for the needs of vulnerable road users; 6. minimisation of potential conflict between road users; 7. provision of credible traffic signs and temporary requirements; and provision of appropriate speed limits and restrictions. Refer to Motor Vehicles and Mobile Equipment for further guidance.	Contractor GOSL and its representatives	Before Construction Before Construction	0

Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Principle 13. Avoid significant negative effects on public health	**Traffic-2: Traffic Control (Construction)** Information on specific traffic arrangements will be publicized by suitable media and informational signage posted at suitable locations from 7 days in advance of the works, and regularly thereafter up to and through the period that the arrangements are in effect. Public notices will be similarly disseminated when the arrangements are changed, and/or normal traffic arrangements are reinstated. Local traffic laws and speed limits shall be observed at all times. Appropriate safety precautions shall be taken when transporting large equipment on public roadways.	Contractor	During Construction	Costs of PR Provisional sum of USD 400 per site

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Solid Waste				
Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	**Waste-1: Waste Management Plan (works phase)** The contractor shall prepare and implement a Waste Management Plan for approval by the SWMA. At a minimum, the plan must comply with the waste management legislation, and shall address the sources of waste; waste minimization, reuse, and recycling opportunities; and waste collection, storage, and disposal procedures. The Waste Management Plan should distinguish between solid and liquid waste, as applicable, and include procedures for addressing waste that may be hazardous to health and the environment. In addition, the Waste Management Plan shall address the following: • All food waste shall be contained in covered bins and disposed of on a frequent basis to avoid attracting wildlife. • Trash bins shall be accessible at all locations where waste is generated. • The project area shall be kept clean and free of litter and no litter shall be allowed to disperse to the surrounding area. • Solid waste shall be removed from the site and transported to the municipal landfill. • Waste shall not be dumped or buried in unauthorized areas or burned. • Human waste shall be properly contained and disposed of. • The construction contractors shall ensure all workers receive training on proper disposal of all waste prior to working on the project site. Illegal dumping of waste is prohibited, and any contractor engaging in this practice will be prosecuted to the full extent of the law. Consideration shall be given to: • Balancing cut and fill as far as possible to minimize haulage and disposal issues	Contractor	Before Construction During Construction	0

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
	• Reusing materials where possible • making potentially useable material reasonably available to surrounding communities and to workers. • identifying and obtaining approval of alternate locations for disposal of suitable spoil material. Refer to solid waste and spoil in Solid and Liquid Waste Management, and Management of Hazardous Waste in Appendix 3 for more information			

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Chemicals Management				
Principle 9. Protection of natural habitats Principle 10. Conservation of biological diversity Principle 12. Pollution prevention and resource efficiency Principle 13. Avoid significant negative effects on public health	Refer to both Fuels and Oils, and Chemicals in Solid and Liquid Waste Management, and Management of Hazardous Waste in Appendix 3 for more information	Contractor	Before Construction During Construction	Provide a sum of USD600 per site for storage of chemicals, oils and fuels, and materials for clean up.

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Csot (USD)
Natural Hazards and Climate Change				
Damage to infrastructure, building and contents from natural hazards	**Natural hazards-1: Insurance** Insure the property, users and contents against natural hazards.	GOSL	After construction	Varies with each property. MOE may be able to negotiate a concessional rate based on numbers.
Principle 13. Avoid significant negative effects on public health	**Natural hazards-2: Emergency Response Plan (Construction Phase)** Ensure that all prequalified bidders have an acceptable safety record. Prepare an Emergency Management Plan and implement as appropriate. Refer to Emergency Procedures to be instituted in Appendix 3.	GOSL Contractor	Bid stage During construction	0
Principle 13. Avoid significant negative effects on public health	**Natural hazards-3: Emergency Response Plan (Operations Phase)** Prepare an Emergency Management Plan and implement as appropriate. Have regular drills to test emergency preparedness of all users and parents/guardians. The same principles apply during the operations phase. Refer again to Emergency Procedures to be instituted in Appendix 3.	School Management	After Construction	0

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Health and Safety				
Principle 13. Avoid significant negative effects on public health	**Safety-1: Occupational Health and Safety Plan** The contractor shall prepare and implement a. Occupational Health and Safety Plan that addresses the risks and prevention procedures applicable to the project work. A draft OSH plan is provided as Appendix 4 as a guide to the contractor. At a minimum, the Contractor's Occupational Health and Safety Plan shall address hazards that may be encountered during construction, including prevention and response procedures, for the following: • General occupational hazards that may be encountered (e.g., moving machinery and motorized equipment, working at heights or in confined spaces, repetitive motions, falling objects, exposure to heat, loud noises, and hazardous materials, personal protective equipment (PPE)); • Minimum training requirements for operating vehicles, equipment, and machinery, in accordance with applicable laws and industry standards; • Emergency prevention and response procedures for fire, accidental spill of chemical or other hazardous material, motor vehicle accident, to be incompliance with the Laws of Saint Lucia, relevant national policies and industry best practise; • Natural hazards that may be experienced during construction (e.g., hurricanes and tropical storms, landslides, earthquakes, volcanic eruptions, and flooding), including designated response procedures and evacuation areas for each project area that are consistent with the GoSL's natural hazards and emergency response plans; • Biological hazards in the environment (e.g., Covid-19, mosquitoes, vermin); • Disease prevention; • Community safety considerations (e.g., traffic and unsafe areas);	Contractor	During Construction	0

Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
	• Emergency preparedness and response procedures, including the locations of hospitals and medical services in the event of an injury or medical emergency. The contractor shall provide all workers with training on the contents of the Occupational Health and Safety Plan prior to working on the site. Refresher trainings shall be given on an occasional basis and before beginning work in new project areas. Weekly toolbox meetings will be held with all workers present, to review the previous week's issues including OSH concerns and how they should have been addressed, adjustments going forward, and the upcoming week's activities.			
Principle 13. Avoid significant negative effects on public health	**Safety-2: Personal Protective Equipment** The contractor shall supply all workers with personal protective equipment (PPE) appropriate to task, and ensure workers use the proper PPE during all work activities. PPE for workers may include any or all of the following, depending on the task(s) assigned: • Safety headgear • Steel toed boots • Safety glasses or impact-resistant eye protection • Ear protective devices • Harnesses for workers operating at heights • Respirators • Gloves • High visibility clothing or vests All PPE shall be properly fitted for each worker, and workers shall be trained in the proper use of PPE, prior to working on the project site. See PPE in Appendix 4. If this is implemented during the Covid-19 pandemic, face masks will have to be provided and hand hygiene measures will also have to be instituted.	Contractor	During Construction	Covid-19 protocols may have to be instituted. Allow a provisional sum of USD 500 per school.

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Principle 13. Avoid significant negative effects on public health	**Safety-3: First Aid and Emergency Response Equipment** The contractor shall ensure there are at least two trained first aiders on site at any one time. The contractor shall ensure that the project site(s) is equipped with first aid and emergency response equipment. The contractor shall ensure that all safety equipment is maintained in good working order.	Contractor	During Construction	0

6.1.2.1 BMPs

Relevant BMPs to be required of the contractors are provided in Appendix 3.

6.1.2.2 OSH

Relevant OSH requirements of the contractors are provided in Appendix 4.

6.1.3 Timing of Proposed Works

Ideally, the works should be undertaken during school holidays where possible. However, school operation may also continue through works implementation, depending on the scale and scope of the works. Some of these works will require that individual classrooms be vacated to enable the works within that space to be completed, for the safety of the occupants or simply because workers would distract children from their lessons. Significant works could require that the building block or even the school be closed. When virtual instruction is warranted, both teachers and parents require sufficient notice to make the appropriate arrangements. Depending on the scale and scope of the works planned, the following are recommended:

1. Properly plan the works to minimise the scale of the disruption, in consultation with school management. Always inform school management of any change in plans. This will enable them to plan school operations to minimise loss of instruction time, from temporarily relocating affected classes to providing virtual instruction as necessary. They will also be able to coordinate with parents of affected students on a timely basis.
2. Time works that generate noise, dust, fumes, or other potential health and safety hazard for school users for hours after school, weekends and holidays.
3. Hoard off active work areas to keep school users away from potential hazard zones.

6.1.4 Contractual Matters and Other Construction Aspects

Employment Generation

It is expected that construction activity on these twelve sites will generate employment. All subcontractors and workers are expected to be local given the proposed works size and scope.

Procurement of local services and supplies

Many building supplies may be purchased directly from local suppliers, including water tanks, electrical materials, concrete blocks, concrete, cement, aggregates, reinforcing steel, and lumber. Special orders may be required to ensure that material meets the specifications of the design consultant, for roofing material, windows, PV solar systems, fire protection systems, cement/gypsum board, intercom, and IT systems. It may be more cost-effective for the Ministry to procure such items in bulk and supply the various sites as required. Emissions associated with bulk procurement compared to separate orders are not likely to be significantly different, as all shipments from overseas suppliers will be delivered via regular shipments into the country.

Equipment rental from local service providers is expected for road, wall, and drain construction. Crane service may also be required on some projects.

Contracting

If there is some flexibility in the contracting model, a deliberate decision on how the works will be contracted out is required. Bidders will include contractors eligible to bid based on the requirements of the project funder. Given the costs of construction, local contractors are expected to prequalify for the proposed works, assuming that each school is a separate works

package. If the Ministry decides to undertake the works by hiring petty contractors from the school area, this approach will likely maximize the employment benefits derived in the immediate vicinity of the works. However, this approach should not be taken at the expense of works quality or incrementally greater environmental damage. Contractors selected to undertake these works should have the required capacity and experience, be made to comply with recommended mitigation measures and understand the repercussions of non-compliance. Contractors should be expected to apply appropriate measures to mitigate the usual potential construction impacts such as noise, dust, vehicle emissions, spillage of chemicals, erosion and sedimentation, waste disposal, worker and public health and safety, and traffic disruption.

6.1.5 Requirements in Operations Phase

The budget for maintenance and operation of school plant is very small and constrains the quality of routine maintenance that may be engaged in. This should be reviewed if the significant project benefits to the school and nearby communities are to be sustained. All schools have full-time caretakers responsible for grounds (drainage, vegetation) and building maintenance including routine electrical and plumbing maintenance. New systems to be managed include :

- Rainwater harvesting
- Solar-powered water heating
- Solar PV
- Fire alarm and response
- Emergency lighting

The following is recommended:

1. Review the O&M budget for schools, and consider the age of plant and size of the school among other factors.
2. Ensure caretakers are trained in routine maintenance requirements and know when to advise management to seek out further maintenance support from the Ministry.
3. Ensure caretakers are equipped with the supplies necessary to undertake their routine maintenance works.
4. Ensure school management is trained to monitor requirements and to routinely report as required.

6.2 Social Impacts and Mitigations Recommended

Table 6.2: Recommended Social Mitigation Measures

Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Loss of Shelter Space				
Principle 2 Avoid loss of or impede access to Emergency Shelter Principle 3 Avoid adverse impacts that marginalized and vulnerable groups may face.	**Emergency Shelter 1: Loss of space** A review of the suitability of 2 schools, Bexon Combined and Balata Primary as structures to remain designated Emergency Shelters. If the review recommends retrofitting to the standard requirements of an Emergency Shelter, then this will result in loss of access to safety on the onset of a hazard (fire, hurricane, flooding, loss of homes, etc). Alternative buildings within the community that meet the standard as an Emergency Shelter would need to be identified. The alternative buildings must be easily accessed by pedestrians and traffic and disability compliant to the extent possible. The contractor shall develop a Community Sensitization Plan and engage members of the community in discussions on the initiative to review the status of the buildings as Emergency Shelters and alternative plans. The Plan will address how vulnerable groups will such as the elderly and persons with disabilities will be accommodated in the event of the need to take action.	Contractor	Before and during the review	Consultancy 10,000.00
Principle 2 Avoid loss of or impede access to Emergency Shelter Principle 3 Avoid adverse impacts that marginalized and vulnerable groups may face.	**Emergency Shelter 1: Loss of support to school community** The review will result in loss of support to the school community as emergency providers will have to suspend emergency services to the school community in order to facilitate the review. The Ministry of Education and the Emergency Services institutions will ensure that a contingency plan to address unforeseen circumstances is put in place.	Min of Education Contractor	Before the review	0.00

Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Csot (USD)
Equal Opportunty to Participate				
Principle 5: Avoid discrimination in the participation of women and men. Avoid disproportionate adverse effects between women and men during the development and implementation of the project. .	To avoid gender discrimination and gender inequality women and men from the community will be given equal opportunity to share their views on the project, its implementation and the benefits to be derived. Community engagement measures which reflect the principals of inclusion and participation shall be put in place to avoid discrimination: The MoE shall: • Hold public/community meetings prior to the start of construction at each site and during construction (especially at sensitive stages) with the residents of the host communities and other key stakeholders including staff, students and parents to explain the project activities, schedule, possible inconveniences that may be experienced, safety considerations, and how they can submit complaints about the project. The Ministry of Equity and Community Empowerment shall: • Provide capacity and leadership to active community-based groups to facilitate meaningful interaction with the Implementing agency and the contractor. Introductory sessions on DRRE shall be part of this undertaking.	GOSL Contractor	Before and during construction	2000.00 per site

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Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
Labour Standards and Safety				
Principle 6 Core Labour Standards: Avoid lack of awareness safety standards	**Labour Standards 1**: - The protection of workers especially those who are in vulnerable categories, avoidance of child labour and forced labour, the promotion of fair and equal treatment of all workers irrespective of status, orientation or affiliation are key aspects of labour standards to be practiced. The contractor shall ensure compliance with employment conditions prescribed in National Labour Laws. **School Safety (staff and students) 1**: - During construction phase children may be at operational. The users of the school may be exposed to hazards (accidents, noise, dust, etc). **Community Safety 1:** - Community members may be exposed to hazards (accidents, noise, dust, etc) as well as the inconvenience of posed by increased and intense traffic involved in project activities (hauling of debris, materials, etc). Measures to mitigate the likely impacts from those hazards are as follows: ▪ The MoE shall inform the users of the school and the members of the community of the risks and provide them with information which they can act upon. The contractor shall: ▪ Install temporary signage and fencing around the project site to deter users of the school and members of the community. This shall be complimented with modern surveillance and security systems. ▪ Prepare a Safety Plan in keeping relevant The Labour Code 2006 and its Amendment and ISO Standards. **School Safety 2**: - Each site will experience influx of labour as contractor mobilize to undertake pre-construction and construction activities. These workers may be carriers of infectious disease which can affect staff and students	GOSL Contractor	Before and during construction	

Issues/Potential Impacts	Mitigation Measure	Responsible for Implementing	Timing of Requirements	Cost (USD)
	at the sites. Regarding measures to address the potential contraction and spread of infectious disease the MoE shall: ▪ Publicize via radio, TV, and social media platforms sensitization messages on the protocols regarding interaction between school users and workers in light of COVID-19 The Contractor shall: Ensure that minimal COVID-19 testing is administered to all potential workers. Collaborate with the relevant health authorities on sensitizing members of the public. Ensure that each site acquires COVID-19 certified status to signal to the school and the community that all the necessary precautions are being taken to prevent the spread of COVID-19. Install informational signs at the construction sites to inform the community and the public of the project.			

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6.3 Cumulative Impacts

The potential impacts of these proposed projects are overwhelmingly positive, as they will improve:

- the functionality and safety of the schools under normal operating conditions,
- school performance through an adverse event,
- continuity of operations after an event
- the aesthetic appeal of the immediate environment
- the outlook of the school as a cherished community asset
- the confidence of the community as a safe space and a community meeting point deliberately on community development initiatives.

The proposed works will also enhance the performance of these buildings when serving as shelters. Twelve schools will benefit from the initiative, which is a significant proportion of the national stock of school plant. The templates developed may be applied to identify required improvements in other schools in the country. Any lessons learnt in the implementation of this project may be applied to future school works to further improve expected outcomes.

Most of the proposed construction works are small. Activity likely to cause negative environmental impacts relate primarily to one or more of excavation works, equipment operation, concrete works, and working at height. As such, adverse potential impacts at any one school are typically limited in the area affected and are easy to mitigate through application of good construction practice. The schools are spread widely across the country, and work at one school will not impact areas that could be affected by work at another, so there are no cumulative impacts that could result from project implementation, even if several sites are worked on simultaneously.

If several projects are implemented simultaneously, this could strain project management resources available within the Ministry of Education.

6.4 Residual Impacts

The positive impacts outlined above are expected to persist for the life of the school, assuming maintenance and upgrades in accordance with normal requirements for upkeep.

Employment generation will be temporary, except for any new maintenance jobs that may be created.

There are no significant residual adverse impacts from the construction activity, once recommended mitigation measures and BMPs are instituted.

During the operational phase, refurbished rehabilitated structures sometimes become the target of theft and vandalism. This may pose a security and safety risk.

6.5 Analysis of Alternatives

6.5.1 Project Alternatives and Options

The proposed works were identified on the basis of a climate screening to identify and prioritise climate vulnerabilities to be mitigated. The works do not require demolition unless the element being replaced has been determined to be irreparable or at end of life.

Locally available materials specified for use in the works (e.g. cement, aggregates, hardware) are generally accessible across the country.

Procurement approaches considered by the client should seek to ensure that community labour is utilised on the works.

It is recommended that:

1. Demolition materials and debris should be used if possible, as close to the site of works as possible rather than disposed of at Deglos.
2. Where there are options for sourcing of locally available materials, these should be procured as close to the site as possible, once other factors (cost, quality) do not preclude this.
3. Likewise, labour should be sourced from the project area.

6.5.2 The "Do Nothing" Alternative

None of the anticipated benefits would be derived in the education sector and the communities where the schools are located if these works are not implemented. These buildings would continue to be exposed to the same or higher levels of climate risk, reducing school building resilience, resilience of the education system, shelter performance, and lack of adaptive capacity.

6.6 Uncertainties in the Analysis

Regarding social analysis, it is impractical to obtain reliable data. Existing social inventory data lack sufficient statistical information. Sources or experts may be reluctant to provide quantitative information regarding data quality and uncertainty, preferring instead to provide relative levels of uncertainty or other qualitative inputs. In such a case, it may be necessary to elicit expert judgements about the nature and properties of the input data.

The use of expert judgement to make these quantitative uncertainty estimates is acceptable, provided that it takes into account all the available data and involves reasoned formation of opinions by someone with special knowledge or experience with the particular quantity being examined, and provided that the judgement is documented and can be explained with sufficient clarity to satisfy outside scrutiny (Cullen and Frey, 1999). The key requirement in making estimates of uncertainty by expert judgement or otherwise, is that all the possible sources of uncertainty are considered. Frequently, there are few observations from which to determine input data into these inventories, and so there must be considerable reliance on expert judgement. There should be a recognition that the results of quantitative uncertainty analyses for the ESIA provide, at best, an estimate of their uncertainty, but that there are also substantial uncertainties attached to these sources. https://www.ipcc-nggip.iges.or.jp/public/gp/english/A1_Conceptual.pdf Furthermore, social uncertainties could be gathered and predicted by enhancing society's knowledge and understanding of the value of the asset in the community's sustainability. https://pdf.sciencedirectassets.com/278653/1-s2.0-S1877705815X00257/1-s2.0-S1877705815022067/main.pdf?X-A Environmental uncertainties arise in production and resources based on the principle of reducing CO2 emissions and carbon footprint]. Stakeholders need to consider those uncertainties that keep CO2 emissions and carbon footprint at a high level and thus impact the design of a BIM environment.

The measurement of uncertainty is important. Policy analysis with incredible certitude can harm the formation of public policy in multiple ways. If policymakers incorrectly believe that existing analysis provides an errorless description of the current state of society and accurate predictions of policy outcomes, they will not recognize the potential value of new research aiming to improve knowledge. Also, they will not appreciate the potential usefulness of decision strategies that may help society cope with uncertainty and learn.

(https://www.pnas.org/content/pnas/116/16/7634.full.pdf)

This project presents an opportunity to consider a new approach to policymaking for resilience in the education system. It presents an opportunity for the analysis and choice of an adaptive policy which would require a new process for policy making that explicitly takes into account the uncertainties and dynamics of the problem being addressed.

(https://www.rand.org/content/dam/rand/pubs/papers/2009/P8051.pdf)

7.0 Environmental and Social Management Plan

Mitigation measures outlined in the previous sections are recommended to avoid or reduce impacts to less than significant levels. The following were also provided for each recommended mitigation measure:

- The potential impact to be mitigated
- The party(s) responsible for implementation of the specified measure(s)
- The timing required for implementation of the recommended measure

This section and provides details of institutional arrangements required to properly manage and monitor this project, and summarises costs of proposed mitigation and monitoring.

7.1 General Considerations

Effective implementation of the recommended measures is necessary to avoid, minimise or offset adverse impacts and to promote beneficial impacts, resulting in an enhancement of the overall environmental performance of this project. Effective environmental management can only be achieved if it is carried out within a formalised framework based on some fundamental general principles. These are:

- Environmental management should be fully integrated within the overall project management framework, directed towards achieving an environmentally sustainable project which meets its intended purpose, functions efficiently throughout its life, and results in minimal adverse environmental impact.
- Environmental management should not be considered separate from other activities relating to preparation, implementation, and subsequent operation of the project.
- Individual management/monitoring responsibilities and functions need to be clearly defined to ensure that there are no gaps which might prejudice environmental performance of the project.
- Procedures relating to environmental management should be formulated to cause minimum disruption to, and fully integrate with, other aspects of project management. The usual management structure, reporting systems, and meetings should be used for environmental management.
- Successful environmental management requires a strong commitment at all levels of project management, and in all bodies concerned if it is to achieve worthwhile results. Effective and timely liaison between the various relevant bodies is also vital.
- Environmental monitoring is a basic tool to provide information for decision-making by project management. It should be organised in a manner that facilitates the early recognition of potential problems, so that appropriate remedial action can be initiated before serious environmental damage, danger or inconvenience have been caused.

7.2 Organisational Aspects

The procurement rules of the government will be followed for the selection of contractors. Contractors will be required to meet stipulated criteria, whether through a prequalification

process or as part of the tender submission. Selected contractor(s) will be required to have on their project management teams, personnel with the appropriate project management and other skills required for the successful construction of this project.

Project environmental management and monitoring usually involve a number of bodies, both private and public, each with its own organisational structure, role, and responsibilities, and this project is no exception. These bodies need to work co-operatively, within a coordinated framework, if efficient and effective environmental management is to be achieved.

7.2.1 Ministry of Education (MOE) and Sustainable Development and Environment Department (SDED)

The MOE supported by the SDED is the Client on this project and will play a lead monitoring role, represented on site by supervising consultants. The MOE has an overarching responsibility to ensure that public safety and convenience are not detrimentally affected by the contractor's activities in public spaces, primarily public roadways and within school compounds.

7.2.2 Ministry of Infrastructure (MOI)

The Transport Board of the MOI is required to approve any signage proposed to be erected by the contractor on public roads, intended to warn the public of construction traffic and of any approved diversions required.

Most of the proposed works will be confined to within the school premises. If any significant disruption of normal traffic is anticipated, such as loss or reduction of one or more traffic lanes or parking, or slow traffic due to construction traffic turning on or off site, this would be most likely at school entrances in high traffic areas e.g. Ave Maria Infant and Primary Schools.

7.2.3 Ministry of Physical Development (MOPD)

The MOPD is required to review and approve all plans for demolition and new construction. Remedial works within existing structures do not require planning approval.

The MOPD also has overall responsibility at a national level for ensuring that all aspects of the project, including environmental aspects, are properly managed and implemented, in accordance with this ESIA and the approved plans.

Development Control within the Physical Planning Section of MOPD will have overall responsibility for managing, overseeing, and coordinating project monitoring on behalf of the Government. This includes ensuring that environmental aspects are given due consideration during construction. Ad hoc inspections by the Development Control Officers with responsibility for the various area are anticipated. These officers will call in their counterpart(s) in other government or statutory agencies if the situation warrants.

7.2.4 Fire Service

The Fire Service is required to review and approve plans submitted for DCA approval.

7.2.5 Department of Labour

Although not a statutory requirement, the Labour Department has an interest in reviewing building plans to ensure that OSH requirements in the operational phase are satisfied.

This Department is also responsible for checking contractor compliance with the prevailing labour laws and regulations, in particular the Labour Act. They will respond to and investigate any complaint made by an employee against the contractor. Ad hoc inspections by Labour Officers are anticipated.

7.2.6 Ministry of Health, Environmental Health Department (EHD)

This Department is responsible for administering many of the public health provisions of the Public Health Act and its subordinate regulations. In particular, they will be concerned, in the interest of public health protection, with the Contractor's sanitation provisions within the worksite and in the proper management of activities relating to emptying and disposal of septage from septic tanks.

The EHD is required to review and approve plans submitted for DCA approval.

7.2.7 Water Resources Management Agency (WRMA)

Water Resources Management Agency is responsible for licensing all water abstractions and discharges, and for management of water resources nationally. They have an interest in ensuring that the rights of all existing and prospective users downstream of activity that affects the quality and/or quantity of water resources are not jeopardised.

7.2.8 Supervisor/Construction Supervision Consultants

A suitably qualified supervising consultant will be hired by the MOE/SDED to supervise and monitor all elements of the works. Environmental management and monitoring responsibilities will relate primarily to ensuring that provisions that will protect the safety of workers are complied with and that the Contractor is in compliance with all approved plans such that the impact of construction activities on the environment as well as on building occupants, and users of roadways, adjacent properties and public spaces is minimised. The supervising consultant is to be authorised under the Contract to order immediate suspension or a halt to any activity which is causing or is likely to cause significant environmental damage, and to require the contractor to make good any such damage at his own expense, in accordance with the instructions of the supervising consultant. The supervising consultant is also to have the power to require the immediate and permanent dismissal from the site of any member of the workforce who is committing or has committed acts prejudicial to the environment including unsanctioned felling of trees, theft or interference with property, washing of tools in watercourses and offensive behaviour. As such, the supervising consultant is required to monitor the following, provision for which should be made in the Contractor's Contract documents:

- Contractor to take all reasonable steps to protect the environment on- and off-site, and to avoid damage or nuisance to persons or property arising from pollution, noise or other issues arising as a consequence of his methods of operation.
- All necessary precautions are to be taken by the contractor to prevent land and water pollution, and the contractor is responsible at his own cost for taking immediate remedial action and payment of compensation for any environmental damage resulting from his actions.
- Contractor to develop a simple **Environmental Management Plan** to be approved by the supervising consultant that addresses:
    - Traffic management
    - Health and safety (of the workforce and the public)
    - Emergency preparedness (particularly for flood and landslides)
    - Noise management
    - Construction waste management (to include a description of how wastes will be stored, collected, and disposed of in accordance with the laws of Saint Lucia)

- Oil and other hazardous material management (including estimated quantities to be used, storage plans, spill control plans, and waste disposal practices to be followed)
- Worker sanitation
- Site stabilization and erosion control
- Reinstatement upon completion of works, if applicable

- The contractor's **Site Management Plan** to be approved by the supervising consultant must show details of:
  - storage of materials
  - stockpile locations
  - parking of heavy equipment and other vehicles
  - erosion control measures
  - measures to be employed to protect drainage and watercourses from accidental spills, debris, and silt
  - location of waste receptacles and sanitary facilities

The Environmental Management Plan and Site Management Plan must comply with the BMPs provided earlier.

7.3 Pre-Construction Phase Activities and Responsibilities

For the purposes of environmental management, the pre-construction phase is considered to extend from the initial stages of project preparation to completion of final designs and tender documents, Contract award, and Contractor preparations in advance of mobilisation on site. Environmental management activities during this phase comprise ensuring that:

1. all government procedures relating to environmental matters have been (or will be) complied with, prior to commencement of construction,
2. detailed designs incorporate appropriate features aimed at minimising adverse impacts and enhancing beneficial impacts,
3. tender documents for contractors contain appropriate clauses to allow effective and efficient control of environmental impacts arising from construction activities,
4. Contractor submissions listed below are in compliance with contractual requirements.

The design recommendations for improved environmental performance are to be incorporated into the project plans in advance of the commencement of site works. The Contractor will submit for approval by the MOE/SDED or its designated Consultant, the following documentation:

1. Method Statement including Environmental Management Plan and Site Management Plan
2. Waste Management Plan
3. Health and Safety Plan
4. Traffic Management Plan
5. Disaster Preparedness and Emergency Response Plan
6. Proposed Construction Programme

These documents, once approved, should be submitted to DCA as well as other relevant authorities such as the Transport Board, EHD. SWMA and Labour Department for approval. Thet should be used by the relevant authorities for monitoring purposes. Any proposed amendments

are to be submitted to the Supervisor and MOE/SDED, and relevant authorities upon their approval.

The MOE/SDED must make relevant monitoring agencies as well as its own staff aware of the requirements for their monitoring and supervision of the construction.

7.3.1 ESIA, Detailed Design and Tender Document Aspects

Preparation of detailed designs and tender documents is the responsibility of the design consultant.

The design consultant has overall responsibility for day-to-day management, quality control and direction of all activities of his team during detailed design and tender document preparation, including preparation of the ESIA. In addition to preparation of this ESIA, the consultants' Environmental Specialist has the responsibility for making recommendations for appropriate environmental mitigation measures and other considerations to be fully reflected in project designs and tender documents. However, it is the Project Manager's responsibility to decide which of the recommendations are accepted and are actually incorporated in the designs and tender/contract documents, having taken all relevant considerations into account.

7.4 Construction Phase Activities and Responsibilities

From the point of view of environmental management and monitoring, the construction phase is considered to extend from the time of Contract award, through Contractor mobilization to completion of the construction works.

Environmental management during the construction phase will cover three principal aspects by the project management team:

1. Final review of environmental aspects of designs and tender documents to ensure that they form a sound and comprehensive basis for addressing construction and operational environmental impacts.
2. Ensuring that contractors and sub-contractors are properly briefed in relation to the importance of environmental protection during construction.
3. Managing environmental aspects of construction implementation in such a way that adverse impacts associated with the construction process are satisfactorily mitigated and reduced to an acceptable level.

Contractor briefings should include the background and context of the approach to environmental management which will be taken during the construction phase, and should draw attention to the following:

1. Their contracts contain a number of clauses which are intended to control adverse impacts, in line with meeting the environmental policies of the Government.
2. Construction supervision will include monitoring of, and reporting on, environmental aspects, on a daily basis.
3. Environmentally-friendly construction involves little more than the adoption of good construction practices.
4. A summary of key adverse impacts and the contractual obligations which will be imposed on contractors in order to minimise occurrence and severity of construction impacts.

High-level project management during construction, including general oversight and direction, will be the responsibility of the Contractor's Project Manager and the supervision consultants. Overall

primary responsibility for day-to-day construction supervision and contract management, and therefore for environmental management during construction, will lie with the Contractor's Foreman.

A senior member of the contractor's workforce will be designated Health, Safety, and Public Liaison Officer.

7.4.1 Environmental Monitoring and Reporting

Environmental monitoring is an essential tool in relation to environmental management as it provides the basis for rational management decisions regarding impact control. The monitoring programme for the present project will be undertaken to check on whether mitigation and benefit enhancement measures have actually been adopted, and are proving effective in practice, and to provide a means whereby any unforeseen impacts can be identified, and to provide a basis for formulating appropriate additional impact control measures if these appear to be necessary.

There are two basic forms of environmental monitoring:

1. Compliance monitoring, which checks whether prescribed actions have been carried out, usually by means of inspection and/or enquiries.
2. Effects monitoring, which records the consequences of activities on one or more environmental components, and usually involves physical measurement of selected parameters or the execution of surveys, to establish the nature and extent of induced changes.

Although a combination of these may be used for this project, compliance monitoring will be given more emphasis, because the majority of impact controls take the form of environmental protection measures incorporated in the design and contract documents, and the extent to which these are complied with by the contractor and his contractors/sub-contractors plays a major part in determining the overall environmental performance of the project. Compliance monitoring also affords the opportunity for a rapid response to construction impacts.

Effects monitoring may be undertaken by other monitoring agencies such as the SWMA and WRMA, and in some instances could continue beyond the construction phase, facilitating the evaluation of long-term and/or cumulative impacts on the social and physical environment.

7.4.2 Day-to-day Monitoring and Reporting

Day-to-day environmental monitoring will be undertaken by the Contractor's Site Foreman working under the supervision and immediate direction of the Contractor's Project Manager. The work of the Site Foreman will comprise systematic observation of all site activities as a check that the requirements relating to environmental matters are being complied with as per the environmental conditions and specifications, and that no unforeseen impacts are occurring. The Contractor's Project Manager's inspections will also cover wider environmental matters not directly concerned with actual construction such as off-site temporary storage and impacts of traffic diversions and haulage activities on the public.

Monitoring will take the form of visual observations. No instrumental monitoring will be carried out unless the situation deteriorates such that water quality monitoring is deemed warranted by WRMA.

Environmental issues will be specifically addressed and reported against in Progress Meetings.

The Foreman will report to the Project Manager and the supervising consultant on a daily basis, using conventional report forms with coverage extended to include key environmental matters. The supervising consultant will decide on the appropriate course of action to be

taken in cases where unsatisfactory reports are received from the Foreman regarding environmental matters. In the case of relatively minor matters, verbal advice to the Contractor on the need for remedial action may suffice. In all serious cases the supervising consultant has the responsibility and authority to order a stop to any aspect of the works where serious environmental damage or public nuisance/safety hazard is either imminent or has already been caused.

Weekly reports prepared by the Contractor's Project Manager will summarise the results of the daily site monitoring, remedial actions which have been initiated, and whether or not the resultant action is having the desired result. The reports will also identify any unforeseen environmental problems and will recommend suitable additional actions.

It is recommended that the MOE/SDED require that these reports be available for inspection by their officers, or officers of other named authorities such as MOPD, DCA, SWMA, Labour Department and WRMA.

Site inspections by the Supervising Consultant will take place with emphasis on early identification of any environmental problems and the initiation of suitable remedial action through instructions to the contractor. Where remedial actions have been required, further checks will need to be made to ensure that these are actually being implemented to the agreed schedule and in the required form. As experience of the principal problem areas is gained, attention will be concentrated on activities which are known to be the most troublesome.

The Supervising Consultant is required to report substantively on environmental issues in its Monthly Reports. A stand-alone environmental report will be submitted monthly to the MOE/SDED, with copies to key agencies to be agreed with the Ministry. Such agencies may include the MOPD and WRMA. The monthly report will also alert monitoring authorities to upcoming site activities that they have a responsibility to monitor.

7.4.3 Monitoring by MOE/SDED

MOE/SDED is required to maintain high-level oversight to ensure contractor compliance with requisite environmental performance standards, supported by the Supervising Consultant. MOE/SDED may also carry out monitoring and investigation of matters arising from complaints by the public regarding with implementation of the project.

It is recommended that MOE/SDED give 1 month's notice of the intended date of commencement of construction to:

- other monitoring agencies so that they can make the necessary arrangements for their own monitoring; and
- stakeholders that may be affected by the works, sot they have sufficient time to institute alternative arrangements that may be required.

7.4.4 Progress Meetings

The project management team will meet regularly at a frequency to be agreed.

The progress meetings shall include an agenda item which specifically covers environmental matters. Environmental matters will usually form a relatively small part of the overall business to be discussed at such meetings, and it is recommended that environmental matters should be the first item on the meeting agenda, so persons reporting may be excused for the remainder of the meeting.

7.5 Operational Phase Activities and Responsibilities

From an environmental management and monitoring viewpoint, the operational phase of the project commences at the point where construction works have been completed and the newly-constructed works are put into use. Normally, routine maintenance works do not result in significant adverse impacts, and environmental management and monitoring requirements are minimal. Environmental management needs to be focused on taking actions to ensure that adequate maintenance resources are made available and deployed in a timely manner, and monitoring on ensuring that the maintenance works are carried out in an environmentally-friendly manner.

Optimal benefits arising from implementation of the project will be sustained only if effective routine and periodic maintenance is carried out. Maintenance activities will include:

1. intermittent fire inspections
2. intermittent mechanical (solar water heating systems and pumps) and electrical inspections and certification
3. intermittent water tank and roof guttering inspection and servicing including removal of silt and debris
4. intermittent inspection and maintenance of roof frame and other elements
5. regular pressure washing of the building and walkways
6. regular painting of the building and other painted elements
7. intermittent drainage inspection
8. regular lawn and parking area cleaning
9. minor electrical and plumbing repairs as needed

The first six listed will require use of external service providers and/or statutory authorities. School personnel are not permitted to climb higher than 4’ and cannot be assigned work that requires the climbing of ladders. The remainder of listed activities can be undertaken by the school caretakers, assuming that they are adequately trained and provided with the requisite tools, consumables, spare parts and fittings. The caretakers should be given the responsibility of maintaining a log of maintenance work undertaken and stores and consumables used, using a simple template that should be developed by the Ministry. Caretakers and other maintenance staff should be regularly trained in the Ministry requirements.

Quarterly site inspections by MOE should be sufficient to provide a check on whether or not routine maintenance is being carried out to the requisite standard. The Ministry should develop a national school maintenance schedule that prompts routine inspections and works by Ministry personnel and specialists as required, and monitors the state of repair and rate of consumption of materials for each school, providing information to trigger more aggressive maintenance works as required.

Emergency drills should be undertaken to prepare staff and students to respond to an adverse event. Records of these should be maintained by the MOE.

7.6 Costs Associated with Environmental Management Action Plan

7.6.1 Construction Phase

Environmental management and monitoring carried out by the project management staff during construction will be an integral part of general supervision duties and will be covered by the construction supervision budget. As such, general costs associated with environmental

management and monitoring will be an integral part of specific items to be incorporated into overall project budgets, and no separate budget items will be necessary to cover these aspects.

Marginal costs incurred by the contractor in complying with environmental protection clauses in their works contracts should be incorporated into their unit rates and bill items, and will thus be included in the tender prices. It should be noted that no significant increase in construction costs is expected in connection with requiring compliance with environmental protection clauses, since these merely require the contractor to behave in a responsible manner in relation to the environment and affected communities, in accordance with modern, good, international construction practice.

Incremental costs identified are as follows:

Activity	Cost (USD)	Provisional sum (USD)	Notes
Water Quality Monitoring if required by WRMA	0	1000/site	Provisional sum, only if required by authorities based on performance.
Watering of site and adjacent roads for dust control as required	500/site	0	
Traffic management measures (signage, public notices)	400/site	0	
Chemicals, fuels and oils storage and spill response	600/site	0	
TOTAL	1500/site	1000/site	

7.6.2 Operations Phase

In the operational phase, costs of maintenance and supervision should be included in the recurrent budget of the MOE. Inspections and/or certifications to the requisite schedules by Ministries of Health, the Fire Service, the Electrical Inspector, Ministry of Infrastructure should not incur costs. Provision should be made for:

1. Works to clean water tank and roof guttering
2. Specialist inspections and recommendations for structural, electrical and mechanical
3. Works to maintain solar water heating systems and pumps, and electricals
4. Works for pressure washing and painting
5. Works for building repairs

Efforts should be made to use community contractors for small maintenance works, to increase community support and buy-in. In some schools, the Parent Teachers Association (PTA)is more invested in the school maintenance than others, and there is a tradition of

parents providing labour to undertake small works just in advance of school re-opening. This should be encouraged, as it builds a sense of community and strengthens the school network. PTA fundraising efforts are also very helpful in some schools, as this supplements the meagre maintenance budget provided by the Ministry.

The buildings should be insured against hazards to which they are exposed.

7.7 Stakeholder Engagement Plan and Grievance Redress Mechanisms

7.7.1 Stakeholder Engagement During Preparation of the ESIA

Project stakeholders are individuals, groups, or organizations who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project. They are either directly involved in the project or have interests that may be affected by the project's outcome. They normally include the members of a project team: project managers, project sponsors, executives, customers, or users, and other persons having the ability to influence the project, either positively or negatively. Primary stakeholders comprise persons and other community individuals and groups that are directly and indirectly affected by the project impacts. Secondary stakeholders are the institutional (the government agencies, non-profit, community-based) organizations, including potential beneficiaries and other people who have an interest in the project. Table 7.1 presents a brief analysis of the various stakeholders of the project.

Table 7.1: Project Stakeholders

Stakeholder Type	Individuals/Group/Organizations	Level of Influence
Policy Makers	• Permanent Secretary • Deputy Permanent Secretary • Chief Education Officer • Deputy Chief Education Officer – Instruction • District Education Officers assigned to Districts 1,3,4,5,6,7 • Plant and Equipment Department • Head of Corporate Planning Unit	Primary key stakeholders (individuals and groups) High stake, high influence.
School Management and Members of Impacted Communities	• District Education Officers • Principals • School Safety Committees • RC Church (for beneficiary schools for which they have shared jurisdiction) • Community stakeholders representing impacted communities and community support – community leaders and representatives of significant active community-based groups as identified by DEOs and Principals Institutional stakeholders: • Ministry of Infrastructure, Ports, Energy and Labour	Primary key stakeholders (individuals and groups) High stake, but low influence.

Stakeholder Type	Individuals/Group/Organizations	Level of Influence
	• NEMO and their select District Disaster Committee representatives • Fire Department • Department of Environmental Health • Ministry of Physical Planning	
School Users	• Principals • School/District Counselors • Teachers/Staff • Students • Representatives of beneficiary communities • Community Members	Primary key stakeholders (individuals and groups) High stake, high influence.
Customer/Client/ Implementing Agency/Implementer	• Ministry of Infrastructure • Design Consultants • Project Co-ordinator	Secondary project partners/Advocates/Supporters
Project Sponsor/Fiduciary Support/facilitator	• Ministry of Education • Adaptation Fund • Project Management Unit	Secondary Advocates/Supporters

7.7.2 7.8.2 Stakeholder Engagement During Preparation of the Esia

The Project Management Unit and the Team of Consultants jointly conducted the majority of the stakeholder engagement activities during the preparation of this ESIA. Several stakeholder meetings were held at different times and venues. Table 7.2 lists the Government Stakeholders who were engaged.

Table 7.2: List of Government Stakeholders Consulted

Category of stakeholders	Stakeholder (Agency, Group, Individual, Participants)	Modality	Date
Ministry of Education Innovation Gender Relations and sustainable Development (MEIGRSD) – **Policy and Implementation**	**Attendance at Presentation by ECMC Ltd** Bernez Khodra - MEIGRSD, GOSL/National Designated Entity (NDE) – Health & Safety Officer (HSO) Fiona Phillip-Mayer - MEIGRSD, GOSL/NDE – Chief Education Officer Kendall Khodra - MEIGRSD, GOSL/NDE – Deputy Chief Education Officer Dawson Ragunanan - MEIGRSD, GOSL/NDE – Assessment Officer Kay Clarke Nicholas - MEIGRSD, GOSL/NDE – District VII Education Officer Steven Auguste - MEIGRSD, GOSL/NDE – District VI Education Officer Francellette Laurencin - MEIGRSD, GOSL/NDE – District III Education Officer Keifa Breen - MEIGRSD, GOSL/NDE – Corporate Planning Tracy Dolcy - MEIGRSD, GOSL/NDE – Corporate Planning Adey Paul - MEIGRSD, GOSL/NDE – Principal of Ciceron Secondary School (District IV Education Officer Representative) Alison King - Climate Change/Vulnerability & Disaster Risk Assessment Expert Ezra Jn. Baptiste, PhD. - Gender and Environmental & Social Risks and Impacts Expert Marietta Edward, PhD. - National Strategies (Policies and Plans) Development Expert John Francis - John C. Francis and Associates (JCFA) – Fire Protection Expert Egbert Louis - ECMC – Senior Advisor Catherine Edmund - ECMC – Staff Engineer	Meeting via Web Conferencing	June 1, 2021

Ministry of Education Innovation Gender Relations and Sustainable Development (MEIGRSD) – **School Management**	**<u>Attendance at Presentation by ECMC Ltd</u>** Bernez Khodra - NEMO – School Safety Officer/Liaison Officer Cyrus Cepal - MEIGRSD, GOSL/NDE – District I Education Officer Steven Auguste - MEIGRSD, GOSL/NDE – District VI Education Officer Wayne Benti - MEIGRSD, GOSL/NDE – Babonneau Primary School Vice Principal (District I) Sandy Louisy - MEIGRSD, GOSL/NDE – Fond Assau Combined Principal (District I) Avril Emanus - MEIGRSD, GOSL/NDE – Ave Maria Girl's Infant School Principal (District III) Valerie St. Helen-Henry - MEIGRSD, GOSL/NDE – Ave Maria Girl's Primary School Principal (District III) Marcellina Newton - MEIGRSD, GOSL/NDE – Mon Repos/Patience Combined School Principal Kevin Mathurin - MEIGRSD, GOSL/NDE – Mon Repos/Patience Combined School (District V) Fern Dornelly - MEIGRSD, GOSL/NDE – Micoud Primary School Principal (District V) Examin Philbert - MEIGRSD, GOSL/NDE – Augier Secondary School Principal (District V) Tiffany Auguste - MEIGRSD, GOSL/NDE – Vieux Fort Primary School (District VI) Jacqueline Inglis - MEIGRSD, GOSL/NDE – Desruisseaux Combined Principal (District VI) Joyceline Charles - MEIGRSD, GOSL/NDE – Saltibus Combined Principal (District VII) Peter Daniel - MEIGRSD, GOSL/NDE – Balata Combined Principal (District I) Ayesha Auguste - MEIGRSD, GOSL/NDE – Garcelle Edward - MEIGRSD, GOSL/NDE – Emmanuel Osman - MEIGRSD, GOSL/NDE – Corporate Planning Samanthia Justin - Department of Sustainable Development - Critical Focal Point to CTCN **In attendance:** Alison King - Climate Change/Vulnerability & Disaster Risk Assessment Expert Ezra Jn. Baptiste, PhD. - Gender and Environmental & Social Risks and Impacts Expert Marietta Edward, EdD. - National Strategies (Policies and Plans) Development Expert	Meeting via Web conferencing	June 7, 2021

	John Francis - John C. Francis and Associates (JCFA) – Fire Protection Expert Catherine Edmund - ECMC – Staff Engineer Egbert Louis - ECMC – Senior Advisor, Moderator		
MEIGRSD - Heads of School Health and Safety Committees	**Teachers present at discussion on Including Disaster Risk Reduction in Schools** Andre Henry, Vieux Fort Infant Aprylle Mitchell, Micoud Primary Avril Emanus, Ave Maria Girls Infant Embert Ricardo Placide, Ave Maria Girls Primary Emmanuel Osman, Saltibus Combined Marcia Francis, Desruisseaux Combined Margarita Mc Farlane, Balata Primary Soloman Alexander, Fond Assau Primary Sophia Mitchell, Corinth Secondary In attendance: Bernez Khodra NEMO – School Safety Officer/Liaison Officer Dr. Mariette Edwards, Moderator	In-person Focus Group held at the at the MEIGRSD Conference Room	June 7, 2021
Institutional	**Attendance at Presentation by ECMC Ltd** Bernez Khodra - National Emergency Management Offices (NEMO) – School Safety Officer/Liaison Officer Mabius Francis - St. Lucia Fire Service Cheryl St. Romaine - MEIGRSD, GOSL/NDE – Environmental Health Department Serona Leonce - GOSL/NDE – Ministry of Infrastructure, Ports, Energy, and Labour - Department of Labour Alison King - Climate Change/Vulnerability & Disaster Risk Assessment Expert Ezra Jn. Baptiste, PhD. - Gender and Environmental & Social Risks and Impacts Expert Marietta Edward, EdD. - National Strategies (Policies and Plans) Development Expert Egbert Louis - ECMC – Senior Advisor Catherine Edmund - ECMC – Staff Engineer	Meeting via Web conferencing	June 10, 2021

Principals, Staff and Students – Bexon Combined School	Students: Males – Dacius Prince, Jiovanni Clericin, Danzy DuPlessis, Jean Quan Peter Females – Shaynia Paul, Chardia Duplessis, Laria Ferdinand, Christa Belony Teachers – Ancie Albert-St.Hill (Principal), Sharon Alfred, Glenda Khodra-Momorelle, Kirby Joseph In attendance: Mariette Edwards, Alison King, Bernez Khodra, Ezra Jn. Baptiste	In-person focus group	June 10, 2021
Principals, Staff and Students – Vieux Fort Primary School	In attendance: Mariette Edwards, Alison King, Bernez Khodra, Ezra Jn. Baptiste	In-person focus group	June 11, 2021

7.7.3 Communications and Outreach Campaign

The Communications and Outreach Campaign is modeled on Saint Lucia's Climate Change Communications Strategy Under the National Adaptation Planning Process 2018. (2018-05-23-EC-SLU-NAP-Climate-Change-Communications-Strategy.pdf(napglobalnetwork.org). Following are the headings and topics covered in the strategy which could used to further elaborate a Communications and Outreach Campaign for the Project.

The strategy should seek to answer the following questions: • What stakeholders does the Government of Saint Lucia need to engage? • What changes in knowledge, opinions or behaviour do we seek to change? • What messages should be used, and what channels of communication will be most effective? • How are communications-related responsibilities shared by different government actors—and what processes or procedures will foster better internal coordination.

The strategy should consider the following main goals: • Encourage a whole-of-government approach to climate resilience schools; • Build broad-based public awareness on the Government of Saint Lucia's policies and frameworks on climate resilience in the education system; • Convince the public of the need for investment in climate resilience in the education system and the benefits of investing sooner rather than later; • Demonstrate the practical steps that individuals, communities, and educational institutions can take to strengthen resilience in the education system; • Raise the profile of Saint Lucia's initiatives on climate resilience schools regionally and internationally, particularly among policy makers and donors; and • Support civil action to educate and mobilise Saint Lucians on climate change by providing them with tools, resources and opportunities.

The objectives of the strategy should be fully integrated into the various stages of the project cycle – planning, implementation, and monitoring and evaluation.

The strategy should focused on both internal and external audiences. Internal audiences include political leadership, Ministries and Agencies. Externa audiences include the media, technical experts, and development partners.

Key Messages. The messaging strategy must convey the Government of Saint Lucia's most important points on building climate resilience in the education sector. It must also be tailored to specific audiences such as staff and students at schools, Ministries and agencies, communities. Some messages will be cross-cutting for all audiences ('universal messages'), while other messages will be primarily of interest to specific stakeholders.

Various channels of communication should be identified. These should be appropriate. A variety of traditional and new media will be needed to communicate the government's initiatives on building climate resilience in the education system.

Connecting objectives, messages, audiences and channels. Critical to the success of the communications strategy is drawing lines to connect specific objectives, messages, audiences and channels. This involves segmentation, in which audiences are understood, not as a homogeneous whole, but as a diverse set of stakeholders that vary by age, income, political affiliations and value systems. By segmenting audiences, it is possible to better tailor messages to their interests, values and levels of knowledge, and select channels of communication, based on the ones that they already use.

Monitoring and Evaluation: A variety of tools gives insights into whether a communications strategy is having its intended impact, as well as where changing circumstances (for example, a shift in public opinion on an issue) requires a corresponding change in the communications plan. These include: media monitoring, website analytics, periodic public surveys, evaluations.

Supporting Actions - Moving from a communications strategy to a communications plan. This involves entails formulating tactics that connect messages to audiences in ways that meet the strategic objectives. These include: develop sector and issue-specific messaging; incorporate climate resilience schools initiative in the new climate change website in the Ministry of education; develop catchy, compelling communications materials on climate resilience schools initiative; quick and easy access to government experts by journalists; create an open-source archive of learning materials on climate change including DRRE.

These essential elements of the strategy—specific objectives, well-crafted messages, clearly defined audiences, diverse channels and platforms, goal setting and impact assessment—set the foundation for an impactful communications outreach and campaign.

7.7.4 Stakeholder Engagement Plan

A Stakeholder Engagement Plan has been prepared for the project (refer to Appendix 7). The Stakeholder Engagement Plan defines key stakeholders, the timing for interaction with each stakeholder group prior to, during, and after the project, and the approaches to reach stakeholders. Stakeholder engagement will be ongoing throughout the project life.

7.7.5 Grievance Redress

At the Implementing Entities level, the Fund's risk management framework (https://www.adaptation-fund.org/wp-content/uploads/2015/06/AF-risk-management-framework_Board-revised.pdf) requires that IEs establish their own grievance mechanism. This mechanism needs to be accessible, transparent, fair and offer an effective process for receiving and addressing people' complaints about environmental or social harms caused by any such project/programme. Complainants and implementing entities should use the implementing entity's grievance mechanism as a first step. However, the ACHM can be used in cases where the Parties have failed to reach a mutually satisfactory solution through the implementing entities' grievance mechanism within a year. The ACHM requires a written submission of a complaint by at least one of the Parties.

Proposed Grievance Redress Mechanism - First Step

In order to ensure the implementation of the Project in a timely manner and effectively address any anticipated and unanticipated risks that would be encountered during implementation, including the development of the necessary actions of mitigation and avoidance, a Grievance Redressal Mechanism (GRM) is proposed. The GRM will enable the Project Authorities to address any grievances against the Project. Based on this ESIA the grievances anticipated for the Project are flaws in the consultation process, noise and pollution, roads and traffic, access to project benefits (e.g., no or insufficient jobs created for local communities). This mechanism needs to be accessible, transparent, fair and offer an effective process for receiving and addressing people's complaints about environmental or social harms caused by any such project/programme.

Objectives of the Grievance Redress Mechanism

The objectives of the Grievance Redress Mechanism are as follows:

- Ensure all Government of Grenada and World Bank safeguards are adhered to in all subprojects and activities
- Address unanticipated negative environmental and social impacts of all sub-projects and activities
- Resolve all grievances which emanate from the project activities

- Establish relationships of trust between project staff and local communities and stakeholders
- Build up a relationship of trust amongst the project staff and the affected parties.
- Ensure transparency in dealings amongst stakeholders including affected parties through a proper communication system. Some concepts important to grievance redress are defined below.

Responsibility for Grievance Redressal

The Permanent Secretary in the Department of Education has the overall responsibility for grievance redress. The Project Manager within the Department of Education designated as the key officer to assist the Permanent Secretary to facilitate the Grievance Redress Mechanism. The main tasks will be to ensure the following:

- Coordinate the procedures of Grievance Redress Mechanism (GRM) before the commencement of project activities.
- Coordinate the GRM Committee to review and make decisions on complaints handling and redress issues according to the flow chart below. As deemed necessary other individuals may be convened to form a larger committee for complex cases.
- Create awareness of the Grievance Redress Mechanism (GRM) amongst all the stakeholders (internal and external) through public awareness activities.
- Maintain records of grievances received and grievance resolution and make these available to the World Bank upon request.
- Monitor the project activities of contractors and consultants on Redressed of Grievances.
- Regularly contact all points of receipt of complaints, receive the complaints made and assist in Redressing of all Grievances by coordinating with the concerned parties.
- Prepare the progress for monthly/quarterly reports.
- The contractor shall take reasonable action to address grievances as required by local laws and this ESIA.

Grievance Redressal Process

The key stages involved in the project's grievance redressal process are described below.

First Level of Redress - Project Management

- ***Receive Grievance*** - All complaints should be received by the Project Manager. Through the consultation process, stakeholders will be formed of various avenues through which the mechanism can be accessed. The point of receipt of complaints is someone other than the Project Manager in middle management in the Government Service. The full details of the recipient shall be communicated to all affected stakeholders through notices on radio, television, the print social media, and through other accessible and popular channels. All grievances received by the established points of contact should be forwarded to the Project Manager within 24 hours of receipt.
- ***Modes of Receiving Grievances*** - Complaints can be made in person, writing, verbally over the phone, by fax, emails or any other media. The person receiving the complaint will try to obtain relevant information regarding the grievance and the complainant and will immediately inform the Project Manager (PM).

- ***Acknowledge Grievance*** - All grievances will be acknowledged by telephone or in writing by the PM using the Grievance Acknowledgment Form within 48 hours of receipt and the complainant informed of the approximate timeline for addressing the complaint if it can't be addressed immediately. The PM will work with the Ministries or contractors to ensure the speedy resolution of the grievance. If the complaint cannot be resolved at this level it is taken to the next level.
- ***Register/Log Grievance*** - After receiving and recording the grievance on the GIF, it will be registered in the Grievance Redressal Registration and Monitoring Sheet.
- ***Screen*** - The concerned PM reviews the complaint and assigns a grievance owner. The complaint will be forwarded to the grievance owner who will be responsible investigating the claim and liaising with both the aggrieved party and project staff in order to come to a mutually acceptable resolution. The grievant owner will be given a specific timeline for resolving the claim. Meetings with grievant/complainant will be held, if necessary, in an attempt to resolve the matter.
- ***Investigate*** - The grievance owner will investigate the complaint. This investigation will include but is not limited to, meetings with the grievant/complainant, site visits, meetings/interviews with project staff and collection of relevant documentation and other forms of evidence. For meetings, the deliberations and decision will be recorded on the Meeting Record Form. Community representatives or representatives of the complainant will be allowed to sit in on these meetings.
- ***Resolution*** - The resolution at the first tier should normally be completed within 15 working days of receipt of grievance and notified to the concerned party through a Disclosure Form. If the grievance is not be resolved within this period, it can be referred to the next level of the Grievance Redressal system.

Second Level of Redress - Grievance Committee

A Grievance Redressal Committee (GRC) will be formed. that will consist of members of a Project Steering Committee, civic leaders and relevant representatives. The GRC will be called into place when a first tier resolution is not found, but it could also meet on a quarterly basis to evaluate the performance of the project level GRM. From this perspective it is a standing body. This committee will be chaired by the representative of the implementing line ministry/agency. The permanent secretary of the Ministry of Education and the Ministry of Infrastructure will assign their respective representative to the GRC. The Ministry of Education can invite active NGOs to nominate a representative.

The functions of the GRC are as follows are to 1. Provide relief and support to the affected persons in a timely manner; 2. Prioritize grievances and resolve them at the earliest reasonable time; 3. Provide information to PIUs on serious cases at the earliest plausible time; 4. Coordinate the process of the Affected Persons getting proper and timely information on the solution worked out for his/her grievance; 5. Study the normally occurring grievances and advise the PM as to their scale and scope. The PM will coordinate the convening of the meetings of the GRC. He/She is also responsible for briefing the GRC on the deliberations of the first level of Redressal and on the views of both parties. (Complainant and the Project).

The GRC will hold the necessary meetings with the affected party/complainant and the concerned officers and attempt to find a solution acceptable at all levels. GRC will record the minutes of the meeting in the format using the same format detailed in Annex 4. The decisions of the GRC will be communicated to the complainant formally and if she/he accepts the resolutions, the complainant's acceptance will be obtained on the Disclosure Format.

Third Level of Redress - Ad Hoc Complaint Handling Mechanism (ACHM)

The ACHM process may start after the complainants and the implementing entity have used the entity's grievance mechanism and failed to reach a solution within a year. The Adaptation Fund (Fund) makes the Ad Hoc Complaint Handling Mechanism (ACHM) available to Implementing Entities and members of the communities that are adversely affected by the implementation of project/programmes funded by the Fund. The purpose of the ACHM is to assist in responding to complaints raised against project/programmes funded by the Fund through a participatory approach. The process may be discontinued at any stage should a solution be found or the case be closed for other reasons.

No specific form/format is required, but a complaint must be submitted in writing in any UN language (Arabic, Chinese, English, French, Russian or Spanish) either (1) by email to afcomplaints@adaptation-fund.org or (2) by hard copy to the Adaptation Fund Board Secretariat, 1818 H Street NW, N7-700, Washington, DC 20433, USA.

Any individual or group of two or more people who live in the project area and believe they are adversely affected by the implementation of projects or programmes funded by the Fund, or their duly appointed representative can submit a written complaint to the ACHM.

Complaints can be sent up to the date of the submission of the final evaluation report of the project concerned.

An eligible claim should meet the three basic criteria as follows:

1. Complainants living in the project area believe they are adversely affected by the implementation of projects or programmes financed by the Fund;
2. Complaint is related to adverse impacts of the Fund's financed project; and
3. Complaint is submitted no later than the date of submission of the final evaluation report of the project concerned.

Frivolous, malicious, or vexatious complaints and complaints related to activities that have no relevance to the Fund-supported project are not eligible. Please refer to paragraph 28 of the ACHM document for other ineligible claims.

If complainants or their representative(s) believe that there may be a present or future risk of retaliation for raising their concerns, they can request confidentiality of their identifying information in a written complaint or in a writing at any time throughout the process.

In keeping with AF Ad Hoc Complaint Handling Mechanism (ACHM) the required contents of a written complaint are as follows:

1. Name, title, addresses and contact details (phone, fax, email address, etc.) of the complainant and representative(s) if appointed. If representative(s) submits a complaint, he/she must attach to the complaint a written evidence that s/he is authorized to act on behalf of the people submitting the complaint, and whom s/he is representing;
2. Confidentiality: whether the complainant and/or representative(s) request confidentiality;
3. Information relevant to the project concerned: title, location, sector, and description of the project;
4. Adverse impacts/harm: A description of project activities believed to be the actual or potential source of the harm and nature of the harm attributed to those activities; and

5. Description of efforts taken to resolve the complaint through the implementing entity's grievance mechanism and of failure to reach a mutually satisfactory solution through the mechanism within a year.

Sample Form Of A Project/Programme Complaint

To: Adaptation Fund Board Secretariat,
1818 H Street NW, N7-700, Washington, DC 20433, USA
Email: afcomplaints@adaptation-fund.org

1. I/We, [insert names], lodge a complaint concerning the project [insert title of the project] and live and/or represent others who live in the area known as [insert name and location of area].
2. This complaint is being submitted before the date of the submission of the final evaluation report of the project concerned.
3. We have suffered, or are likely to suffer, adverse impacts/harms as a result of the Adaptation Fund's financed project [insert a brief description of the project or programme] located in [insert location/country].
4. [Describe the damage or harm you have suffered, or are likely to suffer from the project or program].
5. We have complained to the Implementing Entity [Insert name of the Implementing Entity of the Fund] through its complaint handling mechanism on the following occasions [list dates] by [explain how the complaint was made]. Despite efforts, we believe that we failed to reach a satisfactory solution within a year for the following reasons [describe reasons].
6. I/We [do/do not] wish our identifying information to be disclosed (ignore if not applicable).

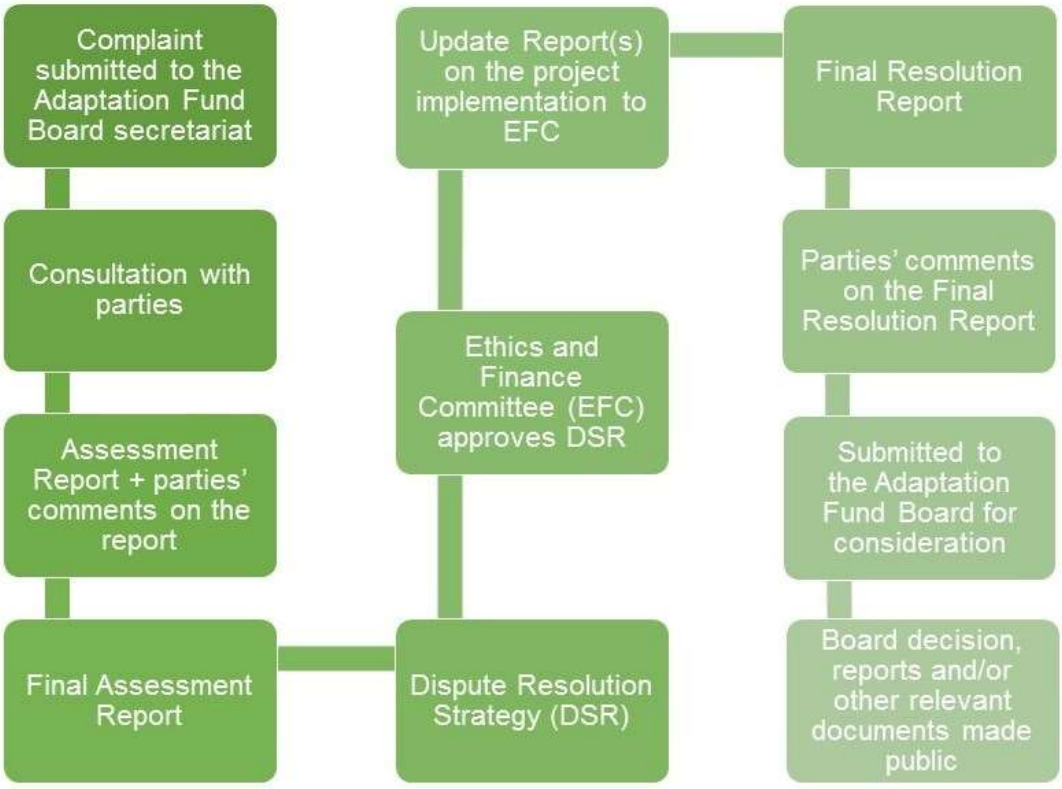
Signatures:

Date:

Contact address, telephone number, fax number, and e-mail address:

List of attachments:

The ACHM Process is Outlined in the Following Chart



Source: https://www.adaptation-fund.org/projects-programmes/accountability-complaints/ad-hoc-complaint-handling-mechanism-achm/

Appendix 1 - ESIA Preparers

Contributor	Areas of Contribution
Alison King	Environmental Impacts
Ezra Jn Baptiste	Social Impacts

Appendix 2 - References

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Education Act Cap 18.01 2005
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Works and Roads Act Cap. 8.05

Appendix 3 - Best Management Practices (BMPs) to be Applied by Contractors

CONTENTS

Best Management Practices (BMPs) to be Applied by Contractors

1.0 Introduction

The following best practices for contractors are recommended for the works to be undertaken to increase climate resilience of twelve schools in Saint Lucia, for environmental impact mitigation. Occupational Health and Safety considerations are contained in Appendix 2. These are provided for the guidance of the contractor in its preparation of its own plans.

All relevant regulatory requirements, design requirements, and specifications should be complied with. The Contractor is required to prepare the following, that should be guided by, among other things, the contents of this and the above-mentioned documents:

1. Works programme
2. Method statement
3. Construction drainage plan (where any earthworks are required)
4. Safety statement, Work Health and Safety (WHS) Management Plan, and Safe Work Method Statements (SWMS)
5. Emergency response plan
6. Traffic management plan
7. Waste and hazardous materials management plan

All of these outputs should be approved by the Client before site clearance commences.

2.0 General Requirements for Protection of the Environment

1. The Contractor is to take all reasonable steps to protect the environment on- and off-site, and to avoid damage or nuisance to persons or property arising from pollution, noise, or other issues arising as a consequence of contractor methods of operation, including the following:
    a. Incorporate EHS issues into the agenda of regular meetings with workers.
    b. Order immediate suspension or a halt to any activity which is causing, or is likely to cause significant environmental damage, and commit to make good any such damage at his expense, in accordance with the instructions of the relevant authorities.
    c. Require the immediate and permanent dismissal from site of any member of the workforce who is committing or has committed acts prejudicial to the environment including theft or interference with property, washing of tools in watercourses and offensive behavior.
    d. Give all construction workers and persons on site, specific instructions not to harm birds and reptiles, and to allow the animals to retreat into the forests and other natural habitats.
    e. Provide and enforce worker use of appropriate, accessible toilet facilities and appropriate, accessible solid waste disposal facilities.
2. The Contractor is to be held responsible at his own cost for taking immediate remedial action and payment of compensation for any environmental damage resulting from his actions.

3.0 General Safety and Convenience of the Public

Aside from measures to be instituted to ensure worker and public safety as outlined in the *Preliminary Occupational Safety and Health (OSH) Plan* (see Appendix 2), the Contractor is required to:

1. Carry out all works so as not to interfere unnecessarily or improperly with the convenience of the public, or access to and use and occupation of public or private roads and footpaths.
2. Adopt every reasonable means to prevent damage to roads or bridges beyond the project boundary, by contractor or sub-contractor traffic. The Contractor will be held liable by the Ministry for Infrastructure Development, Public Utilities, Energy, Transport, and Implementation for any repairs required to any damage to road infrastructure beyond the project boundary during construction. The Chief Engineer is to be notified to provide advice prior to any such repairs being undertaken.
3. Carry out all haulage using vehicles of types and capacities appropriate to task and comply with gross vehicle weight restrictions imposed by the Ministry for Infrastructure Development, Public Utilities, Energy, Transport and Implementation and all laws and regulations pertaining to vehicle use on public roads.
4. Move heavy equipment to the work site with traffic assistants to ensure that the safety of motorists and other road users is not compromised.
5. Transport tracked equipment to site on appropriate transporters; do not permit these to track directly on the road pavement.
6. Comply with speed restrictions.
7. Park vehicles preferably within the project site. Parking along the public roadway must not increase hazards associated with the works.
8. Stockpile materials so that they do not encroach on, or in any way adversely affect operation of, sections of roadway which are in use by the public.

Refer to the *Preliminary Occupational Safety and Health (OSH) Plan* (Appendix 2) for further information.

4.0 Hoarding

Hoarding on the worksite perimeter is primarily to protect the members of the public passing by the construction site but also provides a temporary shield from the view of the public and prevents unauthorised access, theft, destruction, and/or vandalism. The H&S assessment of the site should determine the risks to the public. It is important that consideration is given to rights of way, work areas that are next to the site, houses nearby, and children and/or vulnerable people who live in the surrounding areas. The hoarding should effectively contain activity within the site and prevent encroachment of the work onto adjacent public spaces. Hoarding should be placed such that objects cannot fall outside of the site boundary. The following guidance is provided:

1. Signs should be erected on the hoarding to establish who has access to the site.
2. Unauthorised access to the site should be prevented, through appropriate security measures.
3. Highlight fence posts in pedestrian areas with warning or barricade tape, to avoid tripping hazards.
4. Hoarding must be designed to withstand strong winds and adverse weather. If wind loading is an issue, adequate bracing must be provided.
5. Ensure that delivery and site vehicles moving in and out of the site do not affect pedestrians or other traffic. Use a traffic controller with high visibility vest if in any doubt.
6. During deliveries, do not block public walkways for longer than is absolutely necessary as this causes undue hazards and risk to the public.

7. Secure all building materials, safety equipment, and plant machinery in compounds away from perimeter fencing.

5.0 Demolition

Demolition of an element of a structure that is load-bearing or otherwise related to the physical integrity of a structure is considered high-risk construction work. Without being prescriptive regarding the approach likely to be taken by the contractor, it is likely that the demolition will be achieved with a combination of workmen using hand-tools and heavy equipment. A decision on intended reuse of demolition material is required, as this will factor into how destructive the demolition may be. The following guidance is provided.

Risks associated with the carrying out of the demolition must be managed. In order to do this the contractor must systematically:

- Identify hazards;
- assess the risks associated with these hazards;
- implement control measures; and
- maintain and review the effectiveness of control measures.

Examples of demolition hazards include:

1. unplanned structure collapse.
2. falls from one level to another.
3. falling objects.
4. the location of above and underground essential services, including the supply of gas, water, sewerage, telecommunications, electricity, chemicals, fuel, and refrigerant in pipes or lines.
5. exposure to hazardous chemicals – these may be present in demolished material or in the ground where demolition work is to be carried out (contaminated sites).
6. hazardous noise from plant and explosives used in demolition work, and
7. the proximity of the building or structure being demolished to other buildings or structures.

When assessing the risks associated with demolition work consider the following:

1. the structure to be demolished and its structural integrity.
2. the method of demolition including its sequencing.
3. the scheduling of the work.
4. the layout of the workplace, including whether there are fall hazards both for people and objects.
5. what plant and equipment will be used and the skill and experience required by the people who will use it safely.
6. what exposures might occur, for example to noise or ultraviolet (UV) rays.
7. the number of people involved, and.
8. local weather conditions.

The most effective control is to eliminate a hazard. If not reasonably practicable, the risk must be minimised by one or a combination of:

- Substitution – for example using a mechanical demolition method rather than a manual method, if it is safer.

- Isolation – for example, use concrete barriers to separate pedestrians and powered mobile plant to reduce the risk of collision, and
- Engineering controls – for example fitting an open cab excavator with a falling object protective structure to minimise the risk of being struck by a falling object.

If risk remains, it must be minimised by implementing administrative controls so far as is reasonably practicable, for example, install warning signs and establish an exclusion zone around the demolition work. Any remaining risk must be minimised with suitable personal protective equipment (PPE), such as providing workers with hard hats, steel cap boots, and high visibility vests. Administrative control measures and PPE rely on human behaviour and supervision and are used on their own, which tend to be the least effective in minimising risks.

Factors that should be considered when choosing suitable control measures include:

- items of plant and equipment – large structures may require scaffolding or powered mobile plant to work on suspended floors.
- stockpiling arrangements at the workplace, for example, the location of demolished material to control dust, and
- transporting the demolished material, including access to the workplace, the length and nature of the haul route, and the type of load shifting equipment to be used.

Review control measures and revise them if, for example, they are not effective in controlling the risk; there is a change that gives rise to a new or different health and safety risk, or a new hazard or risk is identified.

A Method Statement must be prepared by a competent person on behalf of the contractor for approval by the client before the demolition work starts. It must:

1. identify the type of high-risk construction work being done.
2. specify the health and safety hazards and risks arising from that work.
3. describe how the risks will be controlled.
4. describe how the control measures will be implemented, monitored and reviewed, and
5. be developed in consultation with workers and their representatives who are carrying out the high-risk construction work.

6.0 Water, Erosion and Sediment Control

Water, erosion, and sediment control are a concern both during construction and operation. Earthworks can lead to adverse environmental effects, in particular the risk of erosion and sedimentation. Any earthworks will change the natural surface and sub-surface water flow. If not designed correctly, culverts and other water crossings can restrict the flow of water, especially at high water flows, which can lead to problems with blockages and the build-up of debris, causing failure of the structure and release of sediment. The release of sediment into watercourses is a significant factor in the degradation of stream and coastal habitats. Cut and fill batters, excavations for drains and ditches, buried services, roadways, and culvert inlets are all prone to erosion, especially if they are constructed from light, mobile material and/or are located in areas with high intensity rainfall.

Note that health and safety aspects are addressed in the OSH plan.

Poor drainage can result in site damage in a very short time, with safety, environmental and financial consequences. It is essential to reduce the amount of water and its speed, to minimise its erosive power and the amount of sediment generated. Controlling storm water run-off and groundwater is fundamental.

For water control, a contractor may use drains, berms, culverts, flumes, and sediment control structures such as slash filters and sediment traps. Some sites will require additional, more expensive controls such as catch drains or silt fences.

In its operational phase, a well-drained site will be less likely to flood during extreme events; the likelihood that foundations of built elements will be undermined or weakened will be reduced; maintenance requirements will be reduced, and erosion and sedimentation will be better controlled.

A temporary drainage plan is required of the Contractor for the construction phase. Although many of the rules and guidelines for water control relate to the construction phase, the following considerations should also be integrated into the design phase as appropriate:

1. Minimise the disturbance area of earthworks.
2. Minimise the volume of disturbed material.
3. If possible, avoid any areas that are wet, or that have steep fragile soils.
4. If possible, avoid steep unstable slopes.
5. Ensure water is directed onto stable ground.
6. Cut off or redirect water as often as possible.
7. Avoid directing lots of water into one place.
8. Ensure runoff is directed away from exposed steep slopes like fill slopes.
9. If possible, protect watercourses by maintaining a vegetation buffer or using methods to reduce sediment entering the stream.

6.1 Planning of Earthworks for Protection of Water Resources

1. Locate areas of high pollution risk including material laydown and spoil disposal areas away from water courses and drainage paths. Maintain setbacks of these from drainage channels and the coastline to minimise impacts on aquatic and marine environments.
2. No materials shall be stockpiled so that they result in siltation or blockage of drains.
3. Comply with all design requirements and specifications for earthworks.
4. Minimise the earthworks disturbance area and the volume of disturbed material.
5. Select machinery appropriately for the intended job. Sometimes it is best to forego operational efficiency and substitute a different, less efficient machine for an improved outcome e.g. use an excavator to shift and carefully place material rather than use a dozer which has less control over the material.
6. Use existing (paved) roads to the extent possible to minimize sediment generation by equipment tracking through the site.
7. Undertake earthworks when conditions are suitable.
8. If possible, avoid any areas that are wet, or that have steep, unstable, or fragile soils.
9. Where fresh earthworks have the potential to erode and deliver sediment to sensitive receiving environments, and re-vegetation is specified, this must be done as quickly as possible.
10. Stabilise exposed areas as soon as practicable after construction.
11. Backfill and grade excavated areas as quickly as possible. Use cut material or recycled demolition waste from elsewhere on site where appropriate.

12. Re-vegetate cleared and exposed areas quickly, using approved species and in accordance with the landscaping plan if possible.

6.2 Awareness

Make all construction personnel aware of the environmental values and the required mitigation measures, in advance of commencing the works.

6.3 Supervision and monitoring

1. Monitor aquatic and coastal water quality parameters to establish baselines and quantify impacts.
2. Pre-determine in consultation with the relevant agencies, levels of turbidity and sediment at which work should be halted. Halt work in the event monitored turbidity and sediment levels exceed pre-determined levels.

6.4 Delineate the works

Ensure that the site boundary fully encompasses the limits of the project area and that equipment operation or earthworks activity does not migrate beyond this boundary.

6.5 Spoil removal and disposal

1. Identify other uses for excavated and other "waste" material such as topsoil, preferably within the project site, or adjacent community.
2. Strip off the topsoil, and either remove it or stockpile it for later use (whether on or off site). Do not use this material as fill.
3. Remove any felled trees, stumps, or other vegetation from the site.
4. Do not dispose of removed vegetation in drainage channels, and prevent debris from vegetation removal operations from falling into drainage channels.
5. Identify and obtain approval of spoil disposal sites that are readily accessible and reduce haul distance.
6. Where space safely permits, load excavated material directly onto a truck for cartage and placement in the spoil disposal area, to avoid double handling and erosion of spoil heaps in the vicinity of the works.

6.6 Earthworks stability

1. Design stable cuts and fills. Select an appropriate cut and fill angle for earthworks stability. Do not over-flatten as this increases the area of exposed soil and erosion susceptibility. Advantages of a steep cut slope are less right of way; less excavated material; less side cast and shorter slope exposed to erosion. Disadvantages are difficulties with re-vegetation; increased likelihood of raveling and drain plugging; risk of increased slumping; and increased risk of rotational failure.
2. Stabilise earthworks through:
    - Spreading and compaction of fill material
    - Appropriate water control e.g. cutoff drains above the works area
    - Minimising rilling by increasing runoff intercept, using methods such as spreading slash on the exposed soil surface, oversowing, etc.

- Round the top of cut batter slopes to reduce tendency for material to erode from the edge of the batter.

6.7 Drainage

1. A temporary drainage plan is required of the Contractor for the construction phase. The drainage plan should integrate strategies to effectively minimise erosion, control sediment, and protect water resources. The following principles should be followed to minimize the volume of contaminated runoff generated:
   - Divert clean water away from exposed soils and working areas.
   - Minimise erosion of exposed soils.
   - Prevent contaminated water from entering water courses untreated.
2. Establish and maintain temporary drainage and sediment control during and after the construction period, until the site has stabilized.
3. Ensure runoff is directed away from exposed steep slopes like fill slopes.
4. Ensure the worksite has temporary sediment control during the construction process, especially if heavy rain is forecast.
5. Install perimeter controls in the form of diversion/catch drains[7], silt fences, or earth berms[8] on the upstream perimeter of the works and elsewhere as required, to keep clean runoff from entering exposed earthwork areas.
6. Use vegetated swales where possible to slow and infiltrate water and trap pollutants in soil where they can be naturally destroyed.
7. Avoid directing lots of water into one place.
8. Cut off or redirect water as often as possible.
9. Ensure water is directed onto stable ground.
10. Avoid directing sediment-laden water into water courses.
11. Where appropriate, use retention devices such as silt traps to capture site run-off so that sediment can settle.
12. Shape excavated areas to allow effective drainage.
13. Minimise ponding of water that may encourage mosquito breeding.

7.0 Solid and Liquid Waste Management, and Management of Hazardous Materials

7.1 Solid Waste and Spoil

1. Develop a Waste Management Plan.
2. Abide by the provisions of the Saint Lucia Solid Waste Management Authority Act.

[7] Catch drains are used to intercept surface water flow from areas above sensitive batters, or earthworks areas, and direct this water away to more stable areas. Often these drains are positioned at the top of batter slopes. If the material is prone to erosion and scouring, an alternative is to use berms or banks to direct the water flow.

[8] Berms are low embankments that direct water rather than dispersing it. Use berms where water control is needed to help protect fills. Berms have cut-outs that direct the water to solid ground or more stable or manageable water control areas. Berms should be compacted and preferably seeded with grass or other vegetation to control scouring. It is important that inspection and correct maintenance are carried out on a regular basis.

3. Plan for collection and disposal of solid waste as part of the site management plan, to address the following requirements:
   (a) Size solid waste receptacles on the assumption that solid waste will be carted off site to a prescribed schedule, with transportation to be in compliance with standards set by the waste management authority.
   (b) Arrange for a daily collection of putrescible waste.
   (c) Implement requirements for provision of adequate non-polluting worksite sanitary facilities including:
      i. Provision of a sufficient number of adequate waste receptacles across the site (including appropriate and accessible containment for worker food waste).
      ii. Location of suitably sized solid waste receptacles to minimise possible adverse traffic safety, environmental and aesthetic impacts.
      iii. Prevention of entry of solid waste into drainage or coastal waters.
      iv. Observation of legal requirements for proper containment of the waste.
4. Enforce worker use of appropriate, accessible solid waste disposal facilities.
5. Prohibit burning of waste on site.
6. Dispose of solid waste at the approved disposal site.
7. Reuse and recycle materials where possible.
8. Keep soil/spoil and green waste separate from other construction waste, to be reused on or near the site where possible, with appropriate sediment control, or taken to an approved landfill or other disposal sites.
9. Handle vegetative material to minimize the risk of possible weed seed transfer.

7.2 Wastewater

1. Abide by the Public Health Act in the provision of sanitary facilities for workers on site.
2. Provide adequate non-polluting worksite sanitary facilities and prohibit the use of worksite pit latrines.
3. Routinely service worksite sanitary facilities in accordance with supplier's recommendations.
4. Do not permit raw sewage to enter the drainage or coastal waters.
5. Require workers to use the non-polluting site sanitary facilities provided.
6. Workers who refuse to use sanitary facilities are to be subject to dismissal.

7.3 Fuels and oils

1. Develop a Hazardous Materials Management Plan to include management of fuels and oils.
2. Handle fuels and oils to minimize the risk of contaminating the site.
3. Adopt pollution prevention measures relating to fuel and oil storage/dispensing arrangements, to prohibit other than emergency maintenance of equipment and vehicles on the site.
4. Design and manage fuel dispensing areas to prevent soil and water contamination. Place fuel dispensers on concrete/asphalt surfaces, and equip them with automatic shutoff mechanisms.

5. Require usage of spillage trays during on-site refuelling of minor equipment.
6. Locate fuel storage away from storm drains and surface water bodies.
7. Contain fuel tanks within secondary containment systems or use double-wall construction.
8. Roof secondary containment to keep out rainfall. If a discharge port is used on the containment structure, use a spring-loaded valve, and only discharge clean water to a grassy swale or other approved site, and not to a water body.
9. Dispose of waste oils arising from emergency servicing of construction equipment at a licensed recycling facility or other facility approved by the waste management agency.
10. Prohibit washing of vehicles, plant, and tools in or adjacent to any watercourse. All washing is to be carried out at designated areas within the work site which are provided with oil/grease traps.
11. Maintain a sufficient stock of adsorbent and neutralizing material on site to respond to a spill.
12. In the event of an oil spill, the response should be as follows:
    (a) Use personal protective equipment (PPE).
    (b) Secure source of spill with appropriate tools.
    (c) Keep area free of any and all flames, sparks, naked light sources, and excess heat.
    (d) Use sand or sawdust to trap spilled fluids and prevent continued flow. Secure area with caution tape.
    (e) Scoop excess oil up with bucket and spade or shovel and store it with regular waste oils.
    (f) Use additional sawdust/sand to soak up remaining oil.
    (g) Use shovel to remove topsoil to the extent that oil has penetrated. Replace with fresh soil or filler material.
    (h) Dump contaminated soil in a compactor or open skip. Be careful not to put into a container or location near open flames or excessive heat.
13. Report oil spills to the relevant authorities.

7.4 Chemicals

1. Develop a Hazardous Materials Management Plan to include management of chemicals.
2. Abide by requirements of the Pesticides Control Act.
3. Develop a pollution prevention programme.
4. Prohibit application of fertilisers and pesticides on site.
5. Avoid generation of hazardous waste. Reduce the amount of hazardous waste generated through use of alternative solvents or practices.
6. Minimise solvent use.
7. Minimise and carefully control use of chemicals.
8. Advise relevant authorities of the type and quantity of chemicals to be stored on site for construction purposes. Storage location of permissible quantities is to be approved by the relevant authorities, and appropriate precautions taken.
9. Properly label and store all containers.

10. Store all chemicals in dedicated spaces that have been built in accordance with stipulated storage requirements.
11. Clearly mark designated storage areas.
12. Ensure that storage is kept secure from vandalism.
13. Always place dry materials above liquids, never vice versa.
14. Never place liquids above eye level.
15. Undertake chemical mixing and equipment cleaning of residual in accordance with the label.
16. Do not wash equipment unnecessarily.
17. Clean equipment over an impervious area, that is to be kept swept clean.
18. Properly dispose (recycle or transport to an appropriate facility) solvents, oils, and other hazardous waste.
19. Immediately clean up all spills and dispose of them as potentially hazardous waste.
20. Immediately report all spills to the appropriate authority(s).
21. Provide and require workers to always use all PPEs required by the chemical label. Store PPE in a location where it is easily accessible in the event of emergency, but not in the chemical storage area.
22. Assess the level of training and supervision required by staff, and provide training as required.

7.5 Concrete Works

The operation of concrete plant has the potential to cause dust and other air pollution. Cement dust, fresh concrete, and mixer wash water can give rise to significant pollution of watercourses and major fish kills.

Mitigations will be as follows:

1. Minimise the amount of concrete to be mixed on site. Concrete requirements should typically be met by readymix.
2. Fit all moveable plant with effective dust suppression equipment, and operate and maintain them in accordance with the manufacturer's manuals.
3. Take particular care when activities are carried out in or in the vicinity of drainage systems, ravines, and water bodies to ensure that pollution does not occur.
4. Although quantities of concrete mixed on site are anticipated to be small as readymix will be preferentially used, take necessary precautions to ensure that materials such as cement dust, fresh concrete, lime, and petroleum products do not pollute water bodies.
5. Construct a concrete mixing bay to minimize concrete losses.
6. Washing of readymix equipment or dumping of excess concrete on site is prohibited.

8.0 Management Plan for Noise, Dust, and Vibration

1. Take measures to minimise dust, noise, and vibration generation.
2. Abide by normal working hours as far as possible. Where activities take place outside the hours of 7:00 am to 6:30 pm, adopt appropriate measures to reduce noise levels. No construction work should be conducted within 200 m of any occupied building outside the hours of 7:00 am to 6:30 pm. Piling should not occur at all outside of the hours of 7:00 am to 6:30 pm.

3. Keep records of complaints and actions taken in response.
4. Preferentially locate material stockpiles that have potential to generate dust, in locations that may be protected from wind by topography, vegetation, and/or hoarding.
5. Preferentially locate stockpiles downwind of occupied buildings that could potentially be affected.
6. Utilise or remove (as appropriate) stockpiled materials as quickly as possible to minimize quantities exposed to wind.
7. Wet stockpiles, backfilled areas, and site roads as required to minimize dust generation.
8. Cover friable materials in stockpiles or being transported with a tarpaulin, to minimize dust emissions.
9. Erect hoarding around laydown areas where there is a risk that neighbouring users may be affected by noise and dust.
10. Use existing paved road as far as possible, to access laydown and spoil disposal areas, to minimize dust and sediment generation. Minimise the extent of temporary access roads constructed. Construct site roads in a manner to minimize mud generation.
11. Fit all moveable plant with effective dust suppression equipment and operate and maintain plant in accordance with the manufacturer's manuals.
12. Fit internal combustion engines with silencers.
13. Ensure that noise specifications for equipment are compliant with acceptable international standards for the occupational environment.
14. In relation to use of the public road:
    (a) Ensure that trucks are loaded and driven in a manner which does not result in spillage. Do not overload trucks. Ensure that all truck tailgates and dropsides are properly secured, there is no overloading of loose materials above truck sides, and all loads are properly secured.
    (b) Take particular care to ensure that concrete mix trucks and fuel tankers[9] are loaded and driven in a manner which does not result in spillage.
    (c) Public roads which have material deposited on them as a result of the developer's activities are to be cleaned and kept free of mud, soil, and other materials. The developer will be responsible, at his own cost, for cleaning up spillages or shed loads without undue delay.
    (d) Do not stockpile materials on the public roadway.
    (e) Minimise quantum of mud and dust tracked onto the public roadways from the spoil disposal or any other site.
    (f) Wet public roads as required to minimize dust generation.
    (g) Cover/secure granular/light loads brought on site, and waste materials brought off site by a tarpaulin to minimize dust emissions and blowing of debris off vehicles.

9.0 Equipment Operations and Maintenance Plan

1. Keep engine-driven equipment tuned up and running at peak efficiency. Maintain equipment and vehicles over impervious (concreted) areas, in accordance with manufacturer's specifications.
2. Wash vehicles, plant, and tools at designated areas within the work site or other approved locations which are provided with oil/grease traps.

[9] Subject to restrictions on quantity of fuel allowed to be stored on site

3. Immediately attend to any vehicles/plant/machinery which emit undue smoke or noise, for repair or maintenance.
4. See above requirements for oils and fuels management, including:
   (a) Secondary containment for any fuel stored on site.
   (b) Minimise quantities stored.
   (c) Pollution prevention measures relating to fuel and oil dispensing arrangements.
   (d) Use of spillage trays during on-site refuelling of equipment.
   (e) Disposal of waste oils arising from servicing of equipment at an approved recycling or other agency-approved facility.
5. Monitor drivers to ensure they operate vehicles safely.
6. Require drivers to have passed the Defensive Driving course.

10.0 Plan to Minimize Depletion of Finite/Non-Renewable Natural Resources

1. Conserve water and power.
2. Minimise wastage, thereby minimizing requirements for transportation to disposal sites with its attendant impacts.
3. Reduce haulage requirements by (re-)using materials as described below, as close to the point of generation as possible.
4. Utilise resources available on site to the extent possible within the standards set, and maximise re-use of waste materials to the extent possible, as approved. Opportunities include:
   (a) Reuse of approved cut material on site for fill.
   (b) Use of slash and felled trees in erosion control on site.
   (c) Separation of excavated topsoil for use in site landscaping, or to be made available to other interested users in the area.
   (d) Use of spoil at approved disposal site to improve the end use of the site upon completion of the works.

11.0 Emergency Procedures to be Instituted

1. At the project planning stage, it is essential to think through the possible incidents and emergencies which could arise during construction works and plan accordingly (risk assessments). These may include:
   - pollution incidents – spillages, failure of temporary works, slope collapse, vandalism, fire, etc.
   - extreme weather events – heavy rainfall, flooding, high winds.
   - Accidents.
2. Put in place an emergency response plan on site with a procedure for dealing with emergencies and communicate this procedure to all site staff before works commence. This plan must be approved by the client before works commence.
3. Site staff responsible for taking action in emergencies must be:
   - aware of their responsibilities;
   - trained in the appropriate response; and

- must know how to use the necessary equipment such as spill control equipment and shut-off valves.

4. Refer also to the preliminary occupational health and safety plan for the project, for further information on emergency response requirements.

12.0 Dissemination of Project Information to Relevant Authorities and the Public

1. Liaise with all emergency services where appropriate.
2. Inform affected communities and interests in accordance with the Client-approved communications plan. Information should include:
   - the type of activity to expect;
   - the implications for road users and nearby communities;
   - provisions to be made to reduce adverse impacts;
   - commencement date;
   - operating hours;
   - anticipated duration of activity; and
   - a number to call for further information or to lodge any complaint or concern.
3. Changes made to the construction programme should be similarly publicized.
4. Inform neighbouring property owners and occupiers in advance of any activity that has the potential to impede access to their properties or other public spaces.
5. Keep records of complaints and actions taken in response.
6. Ensure that motorists have real-time information in advisory radio broadcasts.

Appendix 4 - Preliminary Occupational Health And Safety Plan For UNIDO Schools Project

CONTENTS

1.0 Introduction

Accidents do not just happen. They are caused because someone acted unsafely or failed to act in a responsible, safe manner. This document sets out a Preliminary Occupational Health and Safety Plan for the proposed works to increase climate resilience of twelve schools in Saint Lucia and contains information and procedures to provide for the occupational safety and health of personnel on the site. This Preliminary OSH plan should be read in conjunction with the Best Practices to be Applied by Contractors in Appendix 3 to the ESIA developed for the project. Both of these plans support the commitment of the Government of Saint Lucia to provide a safe project environment free from recognized hazards. This can only occur if everyone cooperates and becomes safety conscious.

Construction workers are exposed to risk of injury from the movement of construction vehicles and equipment within the works zones. Workers who operate construction vehicles or equipment risk injury due to overturn, collision, or being caught in running equipment. Workers engaged in or in the vicinity of excavation works are exposed to the hazard of excavation cave-ins or collapse. Workers on buildings are at risk from working at height. In general, the relationship of on-the-job activities to health effects is not well understood, especially those relationships between continued exposure over long periods of time and the resulting impact on an individual's health. this OSH plan takes a conservative approach in an attempt to reduce the overall occupational exposure of individuals to workplace hazards.

2.0 Responsibilities for Safety and Health

2.1 Contractor

The Contractor is ultimately responsible for the occupational safety of his workers and is required to comply with the standards and guidelines regarding health and safety contained in the national legislation identified in the ESIA, including:

- Accidents and Occupational Diseases (Notification) Act
- Labour Act

The company policy on occupational health and safety is to be provided to the Client in advance of the works. The company's safety statement and other relevant information are to be provided to the Client Representative for approval in advance of works commencement. See Annex 1 for more guidance on the Work Health and Safety (WHS) Management Plan submissions required in this regard.

The Contractor is required to make safety a matter of continuing concern, equal in importance to all other operational considerations, and to develop and administer systematic policies, procedures, and practices for protecting workers from job-related safety and health hazards.

The Contractor must, as far as is reasonably practicable:

- Manage and conduct work activities in a way to ensure, the safety, health, and welfare at work of employees;
- Manage and conduct work activities so as to prevent, any improper conduct or behavior likely to put employees at risk;
- Ensure:
  - Design, provision, and maintenance of the works site in a condition that is safe and without risk to health;

- Design, provision, and maintenance of safe means of access to and egress from the works;
- Design, provision, and maintenance of plants and machinery or other articles that are safe and without risk to health.

- Provide systems of work that are planned, organized, performed, maintained, and revised as appropriate, to be safe and without risk to health;
- Provide and maintain facilities and arrangements for the welfare of employees at work, including sanitation, first aid, etc.;
- Provide information, instruction, training, and supervision to ensure the safety, health, and welfare of employees at work e.g. Toolbox talks, site inductions, other training as required;
- Determine and implement the safety, health and welfare measures necessary for the protection of the safety, health and welfare of employees;
- Provide procedures to deal with emergencies that may arise while employees are at work; and
- Consult and cooperate with safety and health representatives, if any, and other employees at the workplace regarding safety and health at the workplace.

A job safety analysis should be undertaken by the Contractor at the job site to include:

- Identification of the hazards;
- An assessment of the risks from the identified hazards;
- Control measures required to eliminate or minimize the risks;
- Identification of the person(s) responsible for implementing and monitoring the control measures.

A systematic monitoring and review system must be implemented to assess the effectiveness of the controls. Where the risk is adequately controlled, the controls should be maintained and the hazard should be monitored. Where the risk is not adequately controlled, appropriate action, with further monitoring and review, must be taken.

The Contractor is required to delegate specified authorities and responsibilities for occupational safety to the project's senior site staff and designated Health and Safety Officer(s).

The Contractor is required to carry the requisite insurances and provide evidence of these to the Client Representative.

2.2 Senior Site Staff

All senior site staff including the designated Health and Safety Officer(s) are required to study this plan. They will also be responsible for conveying the information contained to all personnel under their direct supervision.

A qualified senior member of the site staff is to be designated as Health and Safety Officer with the responsibility to ensure that all workforce health and safety matters are properly and fully addressed. Senior site staff is ultimately responsible for the safety performance of the site, notwithstanding the authority and responsibilities for occupational safety assigned to the designated Health and Safety Officer.

The Health and Safety Officer(s) must continually review the safety and health aspects of the project, and ensure the following have been adequately addressed:

1. The identification of hazards, the elimination of the hazards, or the reduction of risks to an acceptable level during construction;
2. Finalization of the Safety and Health Plan before construction commences;
3. Notification of the relevant authorities before construction commences;
4. The proper implementation and operation of all relevant management plans;
5. Suitably qualified staff are on site to ensure heath and safety provisions are adequate;
6. Coordination of implementation by the various contractors;
7. Co-operation and the provision of information between contractors;
8. The reporting of accidents to the relevant authorities;
9. Appointment of a site safety representative;
10. Provision of information to site safety representatives;
11. Checking of safe working procedures;
12. Provision and maintenance of welfare facilities;
13. Compliance of contractors and others;
14. Corrective action is taken where necessary; and
15. Notification of relevant authorities in any instances of non-compliance with any written directions issued.

2.3 Supervisors

Supervisors are at the point of implementation for most safety activities. Competent persons must be assigned to maintain supervision during excavation and other works. Supervisors will assume the responsibility of thoroughly instructing their personnel in safe practices to be followed in their work situations. They will consistently enforce safety standards and requirements to the utmost of their ability and authority. Supervisors will act positively to eliminate any potential hazards concerning activities under their jurisdiction, and they will set an example of good safety practices.

2.4 Employees

Every employee is expected, as a condition of employment, to be concerned with personal safety, safety of fellow workers, and safety of the general public, and is required to support the safety plan objectives. All employees are responsible for compliance with safety procedures, standards and regulations established. This is essential to prevent injury to themselves, other persons, or damage to equipment and property. They are also responsible for promptly reporting to their supervisor any hazardous conditions or procedures that affect themselves, their fellow workers, or the general public.

2.5 Visitors

Visitors to the site must first check with the site office for authorization. The site office is to inform the site supervisor accordingly. Visitors must then check with the site supervisor before proceeding onto the site. Visitors are required to comply with directives of the Supervisor while on the site.

3.0 Workers' Rights

A copy of the following workers' rights should be provided to all workers before the project commences.

Workers have the right to:

1. Working conditions that do not pose a risk of serious harm.
2. Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSH standards that apply to their workplace.
3. Participate in developing health and safety plans to ensure that workplace hazard risks are adequately mitigated.
4. File a complaint asking for the relevant authorities to inspect their workplace if they believe there is a serious hazard or that the Contractor is not complying with OSH requirements. The authorities are expected to keep all identities confidential.
5. Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with the Contractor or the relevant authorities. If a worker has been retaliated against for using their rights, they should file a complaint with the relevant authorities as soon as possible.

4.0 General Safety Rules

A copy of the following general safety rules should be provided to all workers before the project commences:

1. Practical jokes and horseplay have no place on the job. Any employee participating in such activities shall be subject to disciplinary action.
2. Consumption of alcoholic beverages and/or use of illegal drugs on the job or during working hours is prohibited.
3. All hazard warning signs are to be obeyed.
4. Only personnel properly authorized and trained are to operate equipment.
5. All machinery and equipment are to have appropriate safety guards installed in accordance with the manufacturer's recommendations and good safety practices. The guards should not be removed except for service.
6. Appropriate clothing suitable to the type of work performed is to be worn:
    a. Bare feet or sandals are not permitted in any work area.
    b. Loose clothing is not to be worn near machinery or equipment with moving parts.
    c. Jewellery such as rings, identification bracelets, etc., is to be removed when work involves climbing, material handling, or operating mechanical equipment.
7. Personal protective equipment (PPE) and/or clothing are to be worn as required. Hard hats should be worn at all times by workers in or around excavations, trenches, sewers, or other sub-surface operations.
8. All accidents, no matter how slight the injury and all near misses are to be reported as soon as possible to the immediate supervisor.

4.1 Site Signage

A site safety sign, an example of which is depicted opposite, should be erected at all works locations.

5.0 Specific Safety Rules

The following safety procedures shall be followed.

5.1 Excavation and Trenching Operations

5.1.1 Hazard Assessment

1. Workers involved in excavation work are exposed to:
   a) Cave-ins and related hazards
   b) Hazards involving falling loads and mobile equipment
2. Site conditions should be examined by a competent person designated by the Contractor, to classify soil and rock deposits and determine safe slopes for excavations. Safe slopes depend on the height of the face, soil types and geological conditions, moisture content of the soil and any surcharge loads. Soil moisture content and geological conditions may change as excavation progresses, causing safe slopes to become hazardous. A competent person must be capable of identifying existing and predicting hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to workers, and is to be authorized to take prompt corrective measures to eliminate them. Tasks performed by the competent person should include:
   a) Classifying soil
   b) Inspecting protective systems
   c) Designing structural ramps
   d) Monitoring water removal equipment
   e) Conducting site inspections
3. Safety factors to be considered may include:
   a) Traffic
   b) Proximity and physical condition of nearby structures
   c) Soil classification
   d) Surface and groundwater
   e) Location of the water table
   f) Overhead and underground utilities
   g) Weather
   h) Quantity of shoring or protective systems that may be required
   i) Fall protection needs
   j) Number of ladders that may be needed
   k) Other equipment needs

5.1.2 Protective Systems

1. Apply excavations standards appropriate to the site conditions. Standards include:

a) Sloping the side of the excavation to an angle not steeper than that recommended for the soil type;

b) Designing a sloping and benching system in accordance with relevant data.

2. Cribbing of trenches should commence at a depth of 5 feet. Earth banks more than 5 feet in depth, when not shored or braced, should be sloped to a safe angle. Excavation work should be under the supervision of someone with the necessary experience and authority to modify the shoring and method of excavating as necessary to ensure safety. Excavations less than 4 feet should also be guarded when hazardous ground movement may be expected.
3. Prohibit excavations that would undermine sidewalks, pavement, and appurtenant structures unless the Contractor provides an appropriately designed support system or other effective methods of protecting workers from possible collapse.
4. Provide for regular inspection by a competent person. Contractors must ensure that a competent person inspects all excavations, adjacent areas and protective systems DAILY for possible cave-ins, indications of failures in protective systems and equipment, hazardous atmospheres, and other hazardous conditions. Inspections must be done prior to the start of work and as needed throughout the shift. Inspections are also required after natural events such as rainstorms or hazard-increasing occurrences such as blasting work. If an inspector finds any unsafe conditions during an inspection, the Contractor must clear workers from the hazardous area until the necessary safety precautions have been taken.
5. Frequently check soil condition and state of any battering, benching, and shoring.
6. Protect workers from excavated or other materials or equipment that could pose a hazard by falling or rolling inside the excavation by placing or keeping such materials, tools, or equipment at least 2 feet from the edge of trenches, curbs, or embankments and/or by using a retaining device to keep materials or equipment from rolling into the excavation.
7. Provide a warning system (such as barricades, hand or mechanical signals, or stop logs) when mobile equipment is operated adjacent to an excavation, or when such equipment must approach the edge of an excavation, and the operator does not have a clear and direct view of the edge.
8. Protect workers and members of the public from falling into excavations by the use of appropriate barriers and warning signs.
9. Protect workers from loose rock or soil that could fall or roll from an excavation face by scaling to remove loose material, installing protective barricades at appropriate intervals, or using other equivalent forms of protection.
10. Institute and enforce work rules prohibiting workers from working on faces of sloped or benched excavations at levels above other workers unless the workers at the lower levels are adequately protected from the hazards of falling, rolling, or sliding material or equipment.
11. Institute and enforce work rules prohibiting workers from standing or working under loads being handled by lifting or digging equipment.
12. Require workers to stand away from vehicles being loaded or unloaded to protect them from being struck by any spillage or falling materials.
13. When chains, ropes, cables, slings, etc., are placed under tension, workers and observers should be warned to stay beyond the range of whipping strands in case they should separate due to tension.

14. Contractors are responsible for maintaining materials and equipment used for protective systems. Defective and damaged materials and equipment can cause protective systems to fail and lead to other excavation hazards.
15. Unless a competent person determines otherwise, workers should not enter a trench excavation unless it has been safely sloped, benched, shored up or the workers are protected by a trench shield.
16. Workers in an excavation that is properly sloped or shored should not be in danger of being buried by a cave-in. Provide an adequate means of exit, such as ladders or steps, located so as to require no more than twenty-five (25) feet of lateral travel.
17. Provide sufficient industrial-grade portable ladders to enable workers to gain access to or egress from the excavation. Workers should not climb shoring systems as these may weaken and trigger a collapse.
18. Workers should not enter an excavation where water has accumulated or is accumulating unless adequate precautions are taken to protect them. Such precautions can include support or shield systems to prevent cave-ins, water removal to control the water level, or the use of a safety harness and lifeline. If a Contractor uses water removal equipment to control or prevent water accumulation, the equipment and operations must be monitored by a competent person to ensure proper use. If excavation work interrupts the natural drainage of surface water, use diversion ditches, dikes, or other suitable means to prevent surface water from entering the excavation and to provide adequate drainage of the adjacent area. In addition, a competent person must inspect excavations subject to runoffs from heavy rains.
19. Prevention is the best insurance. Watch the texture of the earth as it is removed. If it is unstable (sand, loose fill, etc.) warn workers to stay away from the edge until the shoring is installed.
20. The public should be directed away from hazardous areas and material piles.

5.2 Working at Height

1. Falls are the leading cause of death in construction. Workers in positions where they may fall shall use suitable equipment to prevent them from falling.
2. Fall protection is required when working at heights of 6 feet or greater above a lower level. It applies at heights of less than 6 feet when working near dangerous equipment, e.g. over machinery with open drive belts, pulleys, or gears. Fall protection may be needed for a worker who is on a ramp, runway, or another walkway; at the edge of an excavation; in a hoist area; on a steep roof; on, at, above, or near wall openings; on a walking or working surface with holes (including skylights) or unprotected sides or edges; above dangerous equipment; above a lower level where leading edges are under construction; on the face of formwork and reinforcing steel; or otherwise on a walking or working surface 6 feet or more above a lower level.
3. Generally, fall protection can be provided through conventional fall protection such as guardrail systems, safety net systems, or personal fall arrest systems. Other systems may be used when performing certain activities. For example, when working on formwork, a positioning device system could be used. Selection of systems that prevent falls of any kind is encouraged, such as guardrails designed to keep workers from falling over the edge of a building.
4. It is presumed that using conventional fall protection (that is, guardrails, personal fall arrest systems, or safety nets) is feasible and will not create a greater hazard to use. However, there

are some circumstances when a Contractor can use a site-specific fall protection plan instead of conventional fall protection.

5. The Contractor is responsible for:
    - assessing the workplace to determine if walking or working surfaces have the necessary strength and structural integrity to safely support the workers and whether fall protection is required.
    - Planning ahead to ensure that the job is done safely. First, decide on how the job will be undertaken and the tasks involved, and identify fall hazards and safety equipment that may be needed to complete each task. Plan and select fall protection suitable to the work.
    - Providing fall protection and the right equipment for the job, including the right kinds of ladders, scaffolds, and safety gear.
    - Training everyone to use the equipment safely.
6. Guardrail systems are barriers erected to prevent workers from falling to lower levels. If guardrail systems are used, the following provisions apply:
    - Top rails must be 42 inches plus or minus 3 inches above the walking or working level.
    - Screens, midrails, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking or working surface when there are no walls or parapet walls at least 21 inches high.
    - When midrails are used, they must be installed at a height midway between the top edge of the guardrail system and the walking or working level.
    - When screens and mesh are used, they must extend from the top rail to the walking or working level and along the entire opening between top rail supports.
    - When necessary, screens and/or mesh must be installed so as to prevent a worker from falling underneath.
    - When intermediate members (such as balusters) are used between posts, they must not be more than 19 inches apart.
    - Other structural members (such as additional midrails and architectural panels) must be installed so that there are no openings in the guardrail system more than 19 inches wide.
    - Guardrail systems must be capable of withstanding a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.
    - Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members must be capable of withstanding a force of at least 150 pounds applied in any downward or outward direction at any point along the midrail or other member.
    - Guardrail systems must have a surface to protect workers from punctures or lacerations and to prevent clothing from snagging.
    - The ends of top rails and midrails must not overhang terminal posts, except where an overhang poses no projection hazard.
    - Steel and plastic banding cannot be used as top rails or midrails.

- Top rails and midrails of guardrail systems must have a nominal diameter or thickness of at least 1/4 inch to prevent cuts and lacerations.
- If wire rope is used for top rails, it must be flagged at not more than 6-foot intervals with high-visibility material.
- When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section must be placed across the access opening between guardrail sections during those times when hoisting operations are not taking place.
- When guardrail systems are used at holes, they must be set up on all unprotected sides or edges. When a hole is used for the passage of materials, it must not have more than two sides with removable guardrail sections. When the hole is not in use, it must be covered or provided with a guardrail system along all unprotected sides or edges.
- If guardrail systems are used around holes being used as access points (such as ladderways), gates must be used. Alternatively, the point of access must be offset to prevent workers from accidentally walking straight into the hole.
- If guardrails are used on ramps and runways, they must be erected on each unprotected side or edge.
- Manila, plastic, or synthetic rope used for top rails or midrails must be inspected as frequently as necessary to ensure its strength and stability.

7. A **personal fall arrest system** is a system used to safely stop (arrest) a worker who is falling from a working level. It consists of an anchorage, connectors, and a body harness. It also may include a lanyard, deceleration device, lifeline, or suitable combinations of these. Body belts (safety belts) **are prohibited** for use as part of a personal fall arrest system[10]. When Contractors choose to use a personal fall arrest system as a means of worker fall protection they must:
   - Limit the maximum arresting force on a worker to 1,800 pounds when used with a body harness.
   - Be rigged so that a worker can neither free fall more than 6 feet nor contact any lower level.
   - Bring a worker to a complete stop and limit the maximum deceleration distance a worker travels to 3.5 feet.
   - Have sufficient strength to withstand twice the potential impact energy of a worker free falling a distance of 6 feet or the free fall distance permitted by the system, whichever is less.
   - Be inspected prior to each use for wear, damage, and other deterioration. Defective components must be removed from the service.

Positioning Device Systems

A positioning device system is a body belt or body harness system rigged to allow a worker to be supported on an elevated vertical surface, such as a wall, and work with both hands-free while leaning.

- Body belt or body harness systems are to be set up so that a worker can free fall no farther than 2 feet.

[10] Limited use of body belts (safety belts) can still be used as part of a positioning device system or fall restraint system as outlined under Positioning Device Systems and Fall Restraint Systems.

- Body belts or harnesses must be secured to an anchorage capable of supporting at least twice the potential impact load of a worker's fall or 3,000 pounds, whichever is greater.

Fall Restraint Systems

A fall restraint system is also a means of prevention. The system, if properly used, tethers a worker in a manner that **will not allow a fall of any distance.** This system is comprised of a body belt or body harness, an anchorage, connectors, and other necessary equipment. Other components typically include a lanyard, a lifeline, and other devices. For a restraint system to work, the anchorage must be strong enough to prevent the worker from moving past the point where the system is fully extended, including an appropriate safety factor.

Controlled Access Zones

- A controlled access zone is a work area in which certain types of work may take place without using conventional fall protection systems.
- Worker access to these areas must be carefully controlled. Only workers actually engaged in the activity would be allowed in the controlled access zone.
- When used to control access to areas where leading edge and other operations are taking place, the controlled access zones must be defined by a control line or by any other means that restrict access.
- When control lines are used to define a controlled access zone, they must be erected at least 6 feet and no more than 25 feet from the unprotected or leading edge, except when precast concrete members are being erected. In the latter case, the control line is to be erected at least 6 feet and no more than 60 feet or half the length of the member being erected, whichever is less, from the leading edge.
- The control line must extend along the entire length of and approximately parallel to the unprotected side or leading edge and be connected on each side to a guardrail system or wall.
- Control lines must consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions. When used, each control line must:
  - Be flagged or otherwise clearly marked at not more than 6-foot intervals with high-visibility material.
  - Be rigged and supported in such a way that the lowest point (including sag) is not less than 39 inches from the walking or working surface, and the highest point is not more than 45 inches from the walking or working surface.
  - Have a breaking strength of at least 200 pounds.

Other Hazards that Require Fall Protection

Excavations

Each worker at the edge of an excavation 6 feet or deeper must be protected from falling by guardrail systems, fences, or barricades when the excavation cannot be readily seen because of plant growth or other visual barriers.

5.3 Motor Vehicles and Mobile Equipment

5.3.1 Vehicle and Equipment Suitability, Inspection and Maintenance

1. Keep operator manuals in the equipment cab.

2. Ensure ready access to repair manuals by maintenance personnel at all the work locations.
3. Contact the equipment manufacturer to obtain operator and repair manuals when purchasing used equipment.
4. Clearly identify and label all machine controls and make sure that the manufacturers' safety features are working.
5. Mobile plant with any structure that may come in contact with overhead power lines shall have a warning sign displayed in the cab.
6. Where operating noise levels may cause damage to hearing, an ear protection warning sign shall be displayed.
7. Vehicles/mobile plants shall display a valid license, warrant, or certificate of fitness if they are to be used on a public road.
8. All slow-moving equipment operated in public right-of-ways should be equipped with a triangular-shaped reflective sign.
9. Install and maintain equipment attachments and their operating systems according to manufacturers' specifications.
10. All pulleys, shafts, and belts shall be guarded to the minimum original manufacturer's specifications.
11. Where there is a provision for doors (hinges, door jams, and latches), doors shall be fitted and closed while the plant is in use.
12. Use high conspicuity tape to delineate height and width of construction vehicles and equipment.
13. Trucks and mobile equipment required to work at night shall be equipped with working lights to illuminate the work area. Such lighting shall, among other things, ensure that operators can see workers on foot in the vicinity.
14. Mobile plant shall be equipped with a braking mechanism capable of holding itself and its load on any slope on which it is operated.
15. Use equipment with rollover protective structures (ROPS). Purchase and have installed retrofit ROPS and seatbelts for older equipment.
16. Mobile plant shall be maintained in a safe operating condition in accordance with the manufacturer's specifications.
17. Allow equipment to be repaired only by persons who have been trained and authorized to work with that piece of equipment. Assign responsibility for each piece of equipment to an individual worker.
18. Designate a supervisor to be responsible for DAILY pre-shift equipment checks and verifying that any problems are corrected. Although equipment may be inspected by various people, the supervisor must be responsible for ensuring that inspections are performed daily, that necessary repairs are made, that scheduled maintenance is performed, and that records of all inspections and repairs are maintained.
19. All employees should be responsible for a safety check EACH WEEK of any vehicle or mobile equipment they are assigned.
20. Require employees to report equipment problems to the designated supervisor and give employees the authority to shut down unsafe equipment without repercussion.
21. The Contractor should develop pictorial checklists to make equipment inspections easier.

22. Workers are to be paid for the time they spend performing equipment safety checks.

23. Safety checks shall include:

    a) Lights
    b) Horn
    c) Directional Signals
    d) Brakes[11] and Brake Fluid
    e) Motor Oil
    f) Power Steering & Fluid Reservoir
    g) Windshield Washers and Wipers
    h) Tires
    i) Clutch
    j) Hydraulic systems

5.3.2 Vehicle Operation

1. Drivers of vehicles must possess a valid Drivers License appropriate to the class of vehicle being driven, and they must be thoroughly familiar with the regulations governing motor vehicle operation.
2. Vehicle drivers and equipment operators must not take prescriptions or strong medication before operating a vehicle. Follow all instructions on the label of a drug as well as the instructions of your doctor. Medicines, illnesses, or extreme fatigue may affect the driver's ability to judge distance, speed, and driving conditions.
3. Position all adjustments for safe driving before putting the vehicle into gear i.e. seat, inside and outside mirrors, sitting positions, etc.
4. All persons who drive or ride in vehicles will wear seatbelts while the vehicles are in motion.
5. No more than three persons shall be permitted to ride in the front seat of any vehicle. Persons should not be transported in vehicles unless safe and secure seating can be provided for each person.
6. Load Security:
    a) Supplies transported in motor vehicles should be secured in such a manner that they will remain stationary at all times, including sudden stops.
    b) Only materials and equipment necessary for the job are to be transported in or on vehicles.
7. Parking Vehicles:
    a) Unless working conditions require otherwise, parked vehicles should be parked as follows: motor turned off, key shall be removed from the ignition, emergency brakes shall be set and the vehicle shall be left in gear.
    b) When equipment is parked on an incline, chock wheels in addition to setting parking brakes. Chocks should be of sufficient size and configuration to immobilize the equipment. If there is a curb, turn front wheels towards the curb If parked on a downgrade; turn front wheels away from the curb if vehicle is parked on an upgrade.

[11] Brakes shall be tested by driving the vehicle a short distance and applying the brakes to bring it to a stop.

c) Vehicles are not to be parked on the wrong side of the street facing traffic, except in cases of emergency.

d) When trucks or vehicles must be stopped on streets or highways, adequate warning signals must be used, as well as a flagman if traffic warrants.

e) Turn signals are not to be used as a parking warning.

f) Before leaving the curb, look to see that no vehicles are approaching from either direction and signal your intention.

8. When backing up a vehicle, be sure the way is clear. Get out of the vehicle when necessary and inspect the area to be backed into. Back up slowly. Sound horn while backing when necessary. If there are two employees, one should get out and direct the driver.
9. Never leave the vehicle with the engine running. Always remove the keys from the ignition when a vehicle is unattended.
10. Drivers must be particularly alert while driving near children. Children must not be allowed to play in, on, or about the vehicles.
11. Stay within posted speed limits. Slow down when conditions warrant.
12. Vehicles shall be driven at a speed which allows the vehicle to be stopped within half the length of clear road that can be seen in front of the vehicle.
13. Do not assume the right-of-way. If in question, always yield the right-of-way or stop the vehicle.
14. Do not tailgate behind another vehicle. Do not allow another vehicle to tailgate behind you. Slow down, pull over to the side, let the tailgater pass.
15. Signal intentions at least 100 feet or 30 m in advance, including changing of lanes and actual changing of directions. Avoid sudden braking.
16. Turn on low beam headlights during dark periods of the day, such as rain storms or fog. Headlights should be "on" 1/2 hour before sunset until 1/2 hour after sunrise when driving at night. Parking lights designate a vehicle is parked. Never drive with parking lights on.
17. Gasoline Fueling Motor Vehicles:
    a) Shut off the motor of the equipment.
    b) Do not smoke near gasoline pumps.
    c) Keep the nozzle against the edge of filler pipe.
    d) To avoid spilling gasoline, do not fill the tank too fast or too full.
18. In the event of an accident involving the Contractor's vehicles, the following procedures should be followed:
    a) Render first aid, if qualified to do so, and arrange for medical help if necessary.
    b) Notify Law Enforcement Officials immediately. Unless it is necessary, the vehicle should not be moved until authorized by the investigating officers.
    c) Exchange names, driver's license numbers, and vehicle numbers with the other party involved. Obtain names and addresses of any witnesses to the accident. Offer no information regarding the responsibility for the accident or what should have been done to avoid the accident.
    d) The driver of a Contractor’s vehicle must report an accident to his supervisor as soon as possible. The supervisor should report this accident to the proper authorities as soon as possible.

5.3.3 Mobile Plant Operation

5.3.3.1 General

1. Operate mobile plant and machinery to the manufacturer's specifications.
2. Do not exceed load capacities when lifting materials.
3. Mobile plant shall not be operated on slopes that exceed the maximums in accordance with the manufacturer's specifications.
4. Where the stability of a mobile plant is compromised by slope, weather, or ground conditions then a specific hazard management plan is to be developed, implemented, and monitored.
5. Continually evaluate safety programs to address changing conditions at the worksite.
6. Mobile plant cabs shall have all objects secured.
7. Emergency exits shall not be hindered by protective structures.
8. Securely latch attachments (such as quick-disconnect buckets) before work begins.
9. Follow the manufacturer's instructions for using positive locks on quick-disconnect equipment.
10. Make frequent visual inspections of quick-disconnect systems, especially after changing attachments.
11. Seatbelts shall be worn at all times on all mobile plant. Use the seatbelts supplied by the manufacturer. Supervisors are responsible for ensuring that all employees wear seatbelts.
12. No person shall:
    - get on or off moving mobile plant
    - ride on mobile plant not provided with proper seating
    - ride on a load carried or towed by a mobile plant.
13. When mobile plant is shut down or left unattended with the engine running:
    - brakes shall be applied where fitted
    - blades and accessories shall be resting on the ground.
14. Mobile plant operators shall ensure people are clear before slewing, driving, or positioning the mobile plant.
15. Make sure that workers position machinery at a safe distance from excavations such as trenches.
16. Make all workers on the site aware of the machines' established swing areas and blind spots before the operator works the machine. Keep workers on foot outside these areas by marking them with rope, tape, or other barriers.
17. Before each work shift begins, review and confirm communications signals between machine operators and workers on foot.
18. Instruct machine operators to keep the bucket as close to the ground as possible when workers are attaching loads for hoisting.
19. Keep workers outside the hydraulic excavator swing areas and clear of attachments when using the machines for hoisting materials. Do not allow workers to stand under

suspended loads or suspended machine components such as the boom, arm, or bucket.

20. Do not permit workers on foot to approach the hydraulic excavator or backhoe loader until they signal the operator to shut down the machine and receive an acknowledgment from the operator.
21. Use spotters or signal persons around operating equipment when necessary. These should be stationed where they can be seen by the operator, outside the range of movement or hazardous area from loads, and warn the operator of the presence of others who may enter that area.
22. Never permit workers to ride in or work from excavator or backhoe loader buckets.
23. Provide appropriate personal protective equipment and make sure that workers use and maintain it.
24. Any piece of mobile plant that becomes unsafe, or is suspected to be unsafe, shall be shut down and secured. The mobile plant shall be inspected, repaired, and tested before returning to service.
25. When repairs are made on site, the operator's controls are to be made inoperable so that the equipment cannot be moved by another worker while repairs are being made.
26. Maintenance tasks on mobile plant while the engine is running shall only be completed by a competent or qualified person. Where maintenance is completed by two or more people, one person shall take responsibility.
27. Loading and unloading mobile plant onto a transporter or other vehicle shall only be done by a competent person.

5.3.3.2 Overhead and Underground Services

1. All wires and conduit shall be considered energized and dangerous unless formally advised otherwise by a competent person or power company representative.
2. Contact local utilities and other responsible parties to locate overhead and underground utility lines before beginning work.
3. Avoid working near overhead power lines. Establish their existence in the vicinity of the excavation. If you must work near them, consider safe methods of operation and develop a plan to avoid contact. Booms and protruding parts of construction machinery shall not be operated closer than 10 feet from overhead electrical lines. When construction machinery is operated in close enough proximity to energized lines that a full transverse of the moving parts could result in contact, a signalman shall be provided to direct the operator. Signalmen in those circumstances shall be especially watchful to prevent movement of the machinery any closer than the 10 feet minimum clearance prescribed above.
4. If excavating near poles or guy wires where the possibility of damage to cables or collapse of a pole line exists, consult the electricity company.
5. Trees within two tree lengths of power lines shall not be felled until a felling plan has been agreed between the power company, the forestry department, and the contractor.
6. Men on the ground handling suspended loads, slings, cables, or in contact with the machine, are in the most hazardous position if contact with energized electrical line

occurs. Ground crews shall be trained and repeatedly warned of the hazard and especially watchful to prevent such contact.

7. If machine contacts energized wires:
   a) Immediately contact the power company service and repair office.
   b) The operator should attempt to swing the boom clear.
   c) Persons on the rig are usually safe. If it is necessary to leave the rig, jump entirely free, being careful that no part of the body is in contact with the machine and the ground at the same time.
   d) When jumping clear of energized equipment, aim for dry ground.
   e) Once clear of energized equipment, stay clear. Keep all persons, employees, or public, away from energized equipment.
   f) If wires are down, post guards to prevent anyone from touching them.
8. While telephone circuits operate on low voltage and are not an electrical hazard in themselves, they may be energized with higher voltages when crossed with power lines accidentally at points far removed from the job site:
   a) Consider ALL lines hazardous.
   b) Do not cut or disturb guy wires. Sudden release of tension may cause an entire pole line to collapse. Observe the precautions listed for electrical power lines.
9. Establish exact location of underground services such as electrical power cables, gas pipes, sewer pipes, water pipes, telephone telecommunications cables, drainage pipes and soakwells, fuel lines and storage tanks.
10. Ensure that while the excavation is open, underground installations are protected, supported or removed as necessary to safeguard workers.
11. Underground telephone cable is generally buried with a minimum cover of 24 inches. Subsequent grading may have reduced this minimum. Pipe pushers, trenchers, boring tools, air hammers, pins for paving, and curb forms, etc., should not be used until determining the depth and location of buried telephone cables and conduit.

5.3.4 Hoisting Equipment

All hoists are to have a rated load capacity posted on the exterior of the hoist. Employees are not to exceed the specified limit.

5.3.5 Safe Equipment Operation Around Workers on Foot

1. Separate workers on foot from equipment as much as possible.
2. Schedule work tasks to keep workers on foot out of areas where heavy equipment is in use.
3. Channelize dump trucks leaving the workspace and keep workers on foot out of that channel. If delineators are used, they should be installed in such a way that the public will not notice or respond to them, but the workers will recognize them as guideposts.
4. Design the workspace to eliminate or decrease backing and blind spots. When feasible, pull trucks in and let the operation catch up to them.

5.4 Hand Tools

The following safety rules must be followed in the using of hand tools:

1. Select the right tool for the job.
2. Sharpen the cutting edges of tools and carry tools with their sharp edges down. Covers will be used, if available.
3. Sand wooden handles on shovels, rakes, sledgehammers, etc., thus preventing splinters and burns.
4. Check the handle of each tool for tightness.
5. Check the head on each tool and have the tool dressed, if it has mushroomed (includes burrs and chipped edges). i.e. hammers, chisels, punches, sledgehammers, etc.
6. Wear shatter-proof, clear goggles, or safety glasses when using chisels, punches, wedges, grinders, drills, wire brushes, etc. Be sure no one is in the area before using such a tool.
7. Avoid using metal measuring tape, fabric tapes containing woven metal strands, rope with wire cord, or other tools and equipment that have conductive properties while around energized electrical circuits or equipment.
8. Use only properly insulated tools (screwdrivers, wire cutters, etc.) when working around energized electrical circuits or equipment.
9. Return tools to their proper place so that they do not fall from a ledge and/or create a trip/fall hazard.

5.5 Power Tools

Power tools substantially increase the number and types of hazards to an employee. Hazards range from electrical shock of a short circuit to being struck by chips, shavings, and other debris during operation.

5.5.1 Electrical Systems

1. All electrical wiring used on site must meet the specifications of the relevant regulatory authority.
2. If extension cords are used, they must be of the three-conductor type with matching plug and receptacle.
3. All electrical outlets must be grounded and maintained in good condition.

5.5.2 Electrical Equipment

1. All electrical tools used in an operation must be double insulated or grounded by a three-wire cord with a polarized, three-prong plug, to a properly grounded three-hole receptacle.
2. Electrical tools or machines shall be visually inspected each time they are used for damage to cords and ground connections. The most common defects occur at the point where the cord is attached to the tool, or where the cord is attached to the plug. Be sure to check for a secure connection that allows for an insulation plate on the inside portion of the plug.
3. Where electrical equipment is used in wet locations, use only low voltage equipment and wear rubber boots and rubber gloves or use GFI circuits.
4. Never operate power tools without the guards provided.

5. The operator's eyes must be protected with safety glasses at all times when using power tools.

5.5.3 Grinders

1. Only those employees who are familiar with mounting grinding wheels are permitted to do so. A ring test on each of the new grinding wheels should be completed before installation (a ring test is made by supporting the wheel freely on a rod through the arbor hold and tapping it lightly with a wooden object; a clear, metallic ring indicates absence of cracks.)
2. Wheel must fit easily onto the spindle. A wheel that is too loose or too tight is dangerous.
3. When starting up the grinder, stand to one side, out of danger, while you allow it to reach its full operating speed for at least one minute. Allow only authorized personnel in the area.
4. Apply work gradually to a cold wheel at the beginning of each work period, as cold wheels are more subject to breakage.
5. Never store a grinding wheel on damp or concrete surfaces, nor put oily rags on the wheel.
6. Every grinding wheel must be securely fastened to the shaft before commencing work.
7. The maximum operating speed as given by the wheel manufacturer is on the wheel label. Grinding wheels are not to be operated in excess of these speeds.
8. The work-rest must be securely adjusted on all stationary grinders to about 1/8 inch from the wheel.
9. Avoid using the side of an energy wheel for grinding, unless it is especially designed for side grinding. Side grinding weakens the ordinary wheel and may cause it to burst.
10. Use the cutting surface of a grinding wheel uniformly, as a grooved wheel becomes dangerously weakened. Dress the wheel if it becomes grooved.
11. Grinder bearings must be kept properly oiled and adjusted. This will aid in the prevention of hot bearings and spindles, which are sometimes responsible for melted bushings.
12. Do not abuse the wheel by applying excess pressure.
13. Be particularly careful when grinding narrow tools and objects as they are apt to catch between the rest and the wheel.

5.5.4 Gas Welding

1. All gas welding equipment and connections should be kept free from gas and oil.
2. Never roll tanks on the floor, nor attempt to carry them by hand or hoist unless properly slung. Cylinders must be securely chained at all times.
3. Acetylene and oxygen tanks should be securely fastened with a chain in an upright position where there is no danger of their falling or being bumped.
4. Use only standard green oxygen hose with right-hand couplings, together with red acetylene hose with left-hand thread.
5. Blow out the tank valve before attaching the regulator. Never use compressed air for blowing out equipment as air may contain some oil and moisture. Use oxygen to blow out the oxygen hose and acetylene to blow out the acetylene hose.

6. Be sure that the end of your torch is cleaned before you attempt to light it. Use only friction lighters.
7. Position materials so that sparks, hot metal, or severed sections of metal do not fall on the gas supply hose, or the feet of other employees.
8. At the end of each job, welders shall carefully inspect the job site to ensure that there are no smoldering particles which could develop into a serious fire.
9. Proper goggles and gloves shall be worn. Employees shall wear steel-toed shoes.

5.5.5 Electrical Arc Welding

1. Whenever possible, welding operations should be carried on inside welding booths. If work must be performed outside of a booth, the arc shall be effectively screened to prevent injury to eyes and others.
2. Before entering the welding area, an effective warning shall be given so that the operator may be aware of your presence and help you avoid a sudden flash or other injury.
3. Like the welding operator, any person entering the welding area should also wear the proper eye protection.
4. The welding of galvanized material requires the operators to be protected when a specially designed airline respirator which fits under their helmet.
5. Deposit short ends of welding rods in containers provided for that purpose, to prevent burning holes in your shoes or starting fires.
6. When not in use, place the electric holder where it cannot cause an arc.
7. Prevent injury to yourself and others from short circuits by only using welding cables that are in good condition.
8. Only properly authorized operators shall use welding equipment. Never attempt to repair welding equipment yourself.
9. Helmets and shields will be used with all electrical welding. Do not remove your helmet while bending over a hot weld.

5.6 Hazardous Substances

5.6.1 General

1. The transport, use, and storage of all hazardous substances shall be in accordance with national legislation and regulations.
2. Install fire hydrants or other appropriate fire suppression devices at all locations where flammable materials are stored and in accordance with a plan approved by the Fire Service.
3. Hazardous substances stored on site shall be:
   a) stored safely and in accordance with the regulations
   b) located where an accidental spill cannot enter a waterway
   c) separate from equipment maintenance areas.
4. Material Safety Data Sheets (MSDS) shall be available on site for all hazardous substances being used or stored. The MSDS shall be kept where it can be accessed by all staff within 5 minutes of needing it.

5. All containers shall be labelled so that there is no doubt as to their contents.
6. A hazardous substance inventory shall be maintained for all substances on site.

5.6.2 Fuel and Oil Storage and Use

1. All tank pipes, seals, and fittings shall be leak-free and regularly inspected.
2. All tanks shall have a functioning venting system and a method to measure the quantity of fuel remaining.
3. All stationary tanks with a volume greater than 1,000 litres shall have a secondary containment capable of containing 110 percent of the tank capacity.

   Note: a tank that is double skinned is regarded as secondary containment.
4. Where secondary containment is exposed to the weather, the containment device shall have drainage fitting that allows rainwater to be released. Contaminated water must be passed through absorbent materials specifically designed for hydrocarbon capture.

5.6.3 Petrol – Additional Requirements

1. An "approved handler" shall be available where more than 100 litres of petrol is stored.
2. Only approved containers meeting the supplier standards shall be used. These containers shall:
   a) have an appropriate sealing cap
   b) be made of metal or a durable plastic that will not react with the fuel
   c) be clearly labelled or marked to identify the fuel and the potential hazards, e.g., petrol – highly flammable.
3. Containers greater than 25 litres in capacity must meet the above requirements and be marked with the UN packing symbol.
4. Petrol shall be stored at least three metres away from aerosol cans, LPG, oxygen, and acetylene.

5.6.4 Emergency Response

At least two 9 kg foam or class "B" fire extinguishers shall be available where flammable liquids are on site.

5.6.5 Explosives

Transportation, storage, and handling of explosives shall be in accordance with the national legislation and its Regulations.

5.7 Cement Handling

The following are some basic recommendations for handling and using cement safely.

1. To protect skin from cement and cement mixtures, workers should wear:
   a) alkali-resistant gloves.
   b) coveralls with long sleeves and full-length trousers.
   c) waterproof boots high enough to prevent concrete from flowing in when workers must stand in fresh concrete.

d) suitable respiratory protective equipment such as a P, N, or R 95 respirator when cement dust can't be avoided.

e) suitable eye protection where mixing, pouring, or other activities that may endanger eyes. Don't wear contact lenses when handling cement or cement products.

2. When laying concrete blocks, have different sizes on hand to avoid cutting or hammering to make them fit.
3. Work in ways that minimize the amount of cement dust released.
4. Where possible, wet-cut rather than dry-cut masonry products.
5. Mix dry cement in well-ventilated areas.
6. Make sure to work upwind from dust sources.
7. When kneeling on fresh concrete, use a dry board or waterproof kneepads to protect knees from water that can soak through fabric.
8. Remove jewellery such as rings and watches because wet cement can collect under them.
9. Clothing contaminated by wet cement should be quickly removed. Skin in contact with wet cement should be washed immediately with large amounts of cool clean water.
10. Don't wash your hands with water from buckets used for cleaning tools.
11. Provide adequate hygiene facilities on site for workers to wash hands and face at the end of a job and before eating, drinking, smoking, or using the toilet. Facilities for cleaning boots and changing clothes should also be available.
12. Skin contaminated with wet or dry cement should be washed with cold running water as soon as possible. Open sores or cuts should be thoroughly flushed and covered with suitable dressings. Get medical attention if discomfort persists. Contaminated eyes should be washed with cold tap water for at least 15 minutes before the affected person is taken to hospital.

5.8 Asphalt Cement Handling

Straight-run asphalt or asphalt cement is used for paving roads. Because of its solid to semi-solid nature, it must first be "cut" with a solvent to bring it to a more liquid state; this is known as Cut Back Asphalt. Highway workers are most likely to use straight-run asphalt.

5.8.1 Hazards Associated With Asphalt

1. There are two main hazards associated with asphalt:

   a) Fire and explosion hazards

   Most of the fire and explosion hazard comes from the vapours of the solvent mixed into the asphalt and not the asphalt itself. The hazard is determined by the flammable or explosive nature of the solvent used and how fast it evaporates. The *flashpoint* (FP) of the mixture is the combined measure of their flammable or explosive potential and is the lowest temperature at which enough of the chemical evaporates to form a mixture with air which can be ignited by a spark. The lower the flash point, the higher the fire and explosion hazard. If the flash point is below room temperature, the chemical is a potential bomb (American Federation of State County and Municipal Employees, 1989).

   b) health hazards associated with skin contact, eye contact, and/or inhalation of fumes and vapours.

Skin or eye contact may cause inflammation and skin rashes, changes in skin coloration, and an acne-like condition at hair follicles and skin pores. Exposure to sunlight may make these skin conditions worse.

Asphalt fumes created when asphalt is heated contain very small, solid, airborne particles which are easily inhaled. Inhalation of asphalt fumes can cause irritation to the nose, throat, and lungs. Fumes may also contain hydrogen sulfide vapours which are very toxic, as well as the vapours generated by the solvents used to "cut" the asphalt. Vapours from solvents that are used to "cut" asphalt can also present serious health hazards and are often more toxic than the asphalt fumes themselves. Solvents will evaporate out of the mix at a wide range of temperatures. Heating of the asphalt mix speeds up the evaporation process. The faster the solvent evaporates, the easier it is to inhale. In order to understand the hazards of asphalt, it is necessary to know what solvent is used in the mixture, how fast the substance evaporates, and how toxic the substance is. Solvents commonly used are benzene (known to cause leukemia), dioxane (toxic to liver and kidneys), and toluene (causes kidney and liver damage, and dermatitis). *The National Institute for Occupational Safety and Health* (NIOSH) has recommended that the Short Term Exposure Limit (STEL) for exposure to asphalt fumes should be set at 5 milligrams per cubic meter of air (mg/m^3) measured during any 15 minute period (American Federation of State County and Municipal Employees, 1989).

2. Asphalt cement can also result in chronic health effects such as rashes and other skin conditions, possibly including skin cancers. In addition, asphalt particles left on the hands may accidentally get into the eyes causing severe irritation to the eyes. Hot asphalt may cause severe burns if splashed onto exposed skin (American Federation of State County and Municipal Employees, 1989).

5.8.2 Material Safety Data Sheets (MSDSs)

Material Safety Data Sheets (MSDSs) should be available to employees assigned to work with or near asphalt processes. The MSDS should include specific information on the solvents present in the asphalt mix and should list all pertinent information including flashpoint, boiling point, acute and chronic effects of all chemical ingredients in the solution, protective equipment, as well as other fire and emergency cleanup information (American Federation of State County and Municipal Employees, 1989).

5.8.3 Engineering Controls

1. *Substitution.* The best method of controlling exposure to asphalt fumes and solvent vapours is to substitute a safer asphalt mix. If explosion hazards are a problem in a paving operation, MC-250 may be substituted for RC-250. The flashpoint of the mix is nearly doubled, which means that the mix is less likely to ignite.

   If the toxicity of the chemical is a problem, the Contractor may be able to order an asphalt mixture which contains a less toxic solvent (eg. toluene for benzene).

   Finally, if a less toxic solvent cannot be substituted in the mix, a less volatile solvent may be. Less volatile means that the boiling point of the new solvent will be higher so less will get into the air to be inhaled.

2. *Enclosure.* Enclosing the process where the asphalt is used is not possible in road paving and roofing operations. It may, however, be possible for smaller operations such as pipe covering processes.

3. *Mechanization and Automation.* Certain parts of asphalt processes may be mechanized. For example, stirring asphalt in a tar kettle exposes the worker to asphalt fumes, solvent

vapors, and potentially severe burns; mechanical devices can accomplish this task without exposing the employee to such risks.

4. *Local Exhaust Ventilation.* Local exhaust ventilation may be an effective way to control worker exposure to fumes and vapors, particularly in areas where enclosure of the operation is impossible.

5. *General Dilution Ventilation.* General dilution ventilation involves flooding a work area with uncontaminated air in an attempt to remove contaminants from the worker's breathing zone. The use of fans and blowers set up for this purpose, however, is often not adequate to remove the contaminants. This is generally not the most effective way of removing contaminants from the worker's breathing zone but may be used to supplement local exhaust ventilation.

5.8.4 Respiratory Protection

While engineering controls are the preferred method for controlling worker exposure to fumes and vapours, respirators should be worn where this is not possible. In selecting the proper respirator, it is important to know all of the hazards to which workers may be exposed. A NIOSH-approved dust respirator will control exposure to asphalt fumes but will do nothing to protect the worker against exposure to the toxic vapors given off by the solvent in the mix. In situations where vapours are concerned, the minimum requirement would be for a full-face mask respirator with organic vapor and particulate cartridges. Because of the possibility of eye irritation, a half-face mask respirator would be inadequate (American Federation of State County and Municipal Employees. 1989).

Improper use of respirators is dangerous. The Contractor must have a written respirator program that takes into account workplace conditions, requirements for worker training, respirator fit testing, and medical exams, as described in OSHA standard *29 CFR 1910.134* (see the *AFSCME Respirators Fact Sheet*) (American Federation of State County and Municipal Employees, 1989).

5.8.5 Fire and Explosion Hazards

1. The solvents which make an asphalt an RC, MC, or SC mixture will determine the flammability limits of the mixture. For example, RC-250, with a flashpoint near 80°F will generate flammable vapours at a much lower temperature than MC-3000. Extreme caution must be exercised when heating RC mixes. Smoking, lighted matches, torches, and other possible ignition sources must be kept away from areas where vapours are being produced.

2. Welding and brazing on tar-kettles, tanks, or other vessels which either contain or have contained asphalt are dangerous. Only qualified personnel should do such welding. The welder must be familiar with safe procedures for welding tanks which have contained flammable liquids.

5.9 Handling and Joining Cement and Gypsum Board

5.9.1 Handling

Mechanical (forklift) handling

Gypsum, gypsum-fiber, and cementitious panel products will first be moved by a forklift or similar device. The equipment must be rated capable of handling the loads. The forks should be long enough to extend completely through the width of the load and extended far enough apart to support the load so that it will not break or fall. Fork spacing between supports should

be one-half the length of the panels or base being handled. Fork carriage spread in the range of 46-84 in. (1168-2134 mm) is suitable for handling most common lengths of gypsum panels (USG, 2020).

Refer to OSH considerations for forklift operations above.

Manual Handling

Gypsum, gypsum-fiber, and cementitious panels can be very heavy, awkward loads posing the risk of severe back injury (USG, 2020):

- Use mechanical assistance such as pallet lifters or hand dollies wherever possible. Confine manual lifting and carrying to the shortest distance possible.
- Each 4-foot by 8-foot (1,220 mm by 2,440 mm) USG Structural Panel weighs approximately 170 lbs. (77 kg) and is intended to be handled by two people.
- Individual panels can be carried horizontally or vertically. When more than one panel is moved manually, they should be supported vertically by the edges and never carried flat.
- Always observe proper lifting techniques: keep the load close to your body and use your legs, not your arms, to lift.

5.9.2 Storage

Storage conditions

Gypsum, gypsum-fiber, and cementitious panel products should be stored in accordance with manufacturer recommendations - flat on a clean, dry floor to prevent moisture intrusion, permanent sag, damage, or deformity, properly supported and protected from inclement weather, direct sunlight, and/or sustained high temperatures. Left unprotected, discoloration and/or moisture in the board can provide conditions favorable for mold, mildew, and fungus growth.

The safest way to store any gypsum, gypsum-fiber, or cementitious panel product is to stack them flat on risers placed on a solid surface. Storing panels vertically on edge and leaning against wall framing can pose a serious hazard. Panels stacked on edge can easily become unstable, topple or slip and fall causing serious injury.

Flat stacking

- Gypsum, gypsum-fiber, and cementitious panel products should be stocked so their weight is evenly distributed and the floor is not overloaded. The capacity of the floor to support the load when panels are stacked must be examined and considered when stocking.
- Leave space between the units to help prevent edge damage (USG, 2020).

Vertical stacking

While vertical stacking on a job site is not recommended, floor load limits or space requirements may not sufficiently support flat stacking. In these situations:

- Distribute the panels in vertical stacks around the sides of a room, leaving at least 4-6 in. (102-152 mm) of space between the bottom of the first board in the stack and the wall. With a space of less than 4 in. (102 mm), there is a risk that the stack could be pulled over, while more than 6 in. (152 mm) applies too much weight laterally against the wall.

- Use warning tape or signage to alert workers of the potential for leaning wallboard to fall if disturbed.

5.9.3 Sanding (of Joint Compound)

Construction workers who sand drywall joint compound may be exposed to high concentrations of dust and, in some cases, respirable silica. Drywall joint compounds are made from many ingredients (talc, calcite, mica, gypsum, silica). Some of these are associated with varying degrees of eye, nose, throat, and respiratory tract irritation. Over time, breathing dust from drywall joint compounds may cause persistent throat and airway irritation, coughing, phlegm production, and breathing difficulties similar to asthma. Smokers or workers with sinus or respiratory conditions may risk even worse health problems. When silica is present, workers may also face an increased risk of silicosis and lung cancer (CDC, 2014).

Drywall sanders were found to be exposed to as much as 10 times the permissible exposure limit (PEL) of 15 mg/m3 for total dust set by the Occupational Safety and Health Administration (OSHA). The OSHA PEL for respirable dust (5 mg/m3), the very small particles that can go deep into the lungs, was also exceeded (CDC, 2014). To reduce dust exposure to workers during drywall sanding, precautions for workers include:

1. Avoid generating dust and use respiratory protection when dry sanding (CDC, 2014).
2. Use wet sanding whenever possible. Wet sanding is generally avoided because of concerns about drying time and finish texture. Wet sanding is used to protect equipment or furnishings rather than to reduce work exposures (CDC, 2014).
3. Cut dust exposures by ventilation (CDC, 2014).
4. Wear respiratory protection correctly, with attention to training, proper selection, and fit (CDC, 2014).
5. Use vacuum Sanding Systems to reduce the dust exposures. Vacuum sanding systems dramatically reduce airborne dust exposures and also result in a much cleaner work area during and after sanding. For workers, the clean working environment is more comfortable; less irritating to eyes, nose, and throat; and less likely to require respiratory protection. For the subcontractor, a comfortable worker is likely to be more productive, be absent less often, and require fewer breaks for fresh air. Using this equipment reduces respiratory protection requirements (with cost savings and reduced regulatory liability). Other cost savings will result from a cleaner environment that reduces dirt, cleanup time, and repair or repainting of stained floors and carpets (CDC, 2014).
6. Consider changing from hand-sanding to pole-sanding, particularly when working overhead. The pole increases the space between the worker and the sanding surface, which in turn reduces the amount of dust close to the worker's nose and mouth (CDC, 2014).

5.10 Ventilation

All work areas that use or store flammable or combustible liquids must have the air changed at least six times per hour.

5.11 Personal Protective Equipment (PPE)

5.11.1 General

1. The Contractor shall provide all personal protective equipment (PPE) (protective helmets, safety boots, protective clothing, ear mufflers, dust masks, gloves, etc.) appropriate to the activities being undertaken by the workforce, to protect employees from harm due to any hazard at the work area, and shall ensure it is used correctly, inspected, and maintained to fulfil its protective function. Personal Protective Equipment worn by operatives must be based on risk assessment. It is possible that any or all of the following equipment may be required:

   - class 3 safety jacket/top;
   - safety boots;
   - gloves;
   - hard hats; and
   - reflective leggings/trousers, where required.

2. The Contractor shall make it a condition of employment that these are worn when appropriate.

5.11.2 Protective Clothing for Asphalt Handling

1. Protective clothing is necessary to protect workers from asphalt burns and irritation. In addition, many of the solvents used to cut asphalt are readily absorbed through unprotected skin into the bloodstream, where they can travel throughout the body and cause damage to many different organs. NIOSH recommends thermally-insulated gloves when working with hot asphalt, long sleeve shirts, long cuffless trousers, and metal-toed safety shoes. Clothing should be loose-fitting, collars should be closed, and sleeves rolled down. Safety shoes should be at least 15 centimeters (cm) high and should be laced so that no openings are left through which hot asphalt may reach the skin.
2. When applied to the skin, barrier creams and lotions leave a thin film, which acts as a barrier against skin irritants. They should not be substituted for protective clothing when handling heated asphalt but may be useful along with other protective measures.

5.11.3 Head Protection

1. Employees are required to wear hard hats while performing construction and maintenance activities that involve working above or below ground levels, transporting materials overhead, or working near construction machinery.
2. Hard hat types should be worn by the following employees:
   a) All personnel on the job site for construction.
   b) Inspection personnel when inspecting work projects involving any of the above conditions.
   c) All other employees working with or near construction equipment such as digging, hoisting, or towing equipment.
   d) All personnel working with high voltage electrical hazards.
   e) All personnel engaged in climbing tasks or working from aerial lifts shall wear head protection equipment that meets approved standards for dielectric properties due to the possibility of contacting overhead transmission facilities.

5.11.4 Face and Eye Protection

1. Hazards involving the possibility of injuries to the face and eyes exist in both indoor and outdoor tasks. They range from dust blown into eyes on a windy day to particles of steel, sand, concrete, etc., propelled into eyes with considerable force by power tools and machinery, or splashes of corrosive dust or liquid chemicals.
2. Safety goggles or safety glasses with temple shields shall be worn when:
   a) Grinding, cutting, milling, or drilling with power tools.
   b) Using impact wrenches and compressed air tools.
   c) Chipping, scrapping, or scaling paint, rust, carbon, or other materials.
   d) Using punches, chisels, or other impact tools.
   e) Cutting rivets.
   f) Cutting or breaking glass.
   g) Chipping or breaking concrete.
   h) Pipe cutting, threading.
   i) Using paint remover.
   j) Using power-activated tools.
   k) Soldering.
   l) Cleaning dust or dirt from vehicles, machinery, etc.
   m) Sand blasting or air cleaning operations.
   n) Using metal, cutting lathes, shapers, drill press, power hack saws, and other metal working tools.
   o) Using power woodworking machinery, both fixed and portable.
   p) Tree trimming, brush chipping, street cleaning, or stump removal.
   q) Using brush cutters.
   r) Washing vehicle parts with soaps or solvents.
   s) Working under vehicles.
   t) Spray painting.
3. Goggles shall be worn when handling acids, caustics, and other harmful dusts, liquids, or gases.
4. Safety glasses shall be worn when performing electrical switching operations or activating high voltage circuits where arcs may occur.
5. A face shield (8-inch minimum) should be worn when handling heated asphalt if a full-face respirator is not worn. When liquid asphalt is hand sprayed on road surfaces as "tack coat" or "prime coat," spraying equipment with flexible hoses and a long handle should be used.
6. A face shield with proper filter lens, welder's lens, or welder's goggles shall be worn in all welding and cutting operations.
7. For electric arc welding:
   a) Welder's helmet with proper filter lens shall be worn.
   b) Portable welding screens shall be used to protect the eyes of others in the vicinity whenever potential exposure to others exists.
   c) Helpers and observers shall wear safety glasses, goggles, or handheld shields with proper filter lenses.
8. For gas welding and cutting:
   a) Welder's goggles with proper filter lenses shall be worn.

b) Portable welding screens shall be used to protect the eyes of others in the vicinity whenever potential exposure to others exists.

c) Eye protection may be required on other jobs not listed if so designated by the foreman or supervisor. Beyond this, personnel are encouraged to wear eye protection at all times.

5.11.5 Noise

1. All personnel exposed to on-the-job noise levels of 80 dBA or greater are required to have an exposure time of no more than that given in the Table below:

Duration Per Day (hr)	Sound Level (dB)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

Source: Burke et al, 2000

2. Personnel exposed to noise levels in excess of that given in the Table above are required to wear ear protection.
3. No personnel is to be exposed to noise levels in excess of 115 dBA, whether continuous or intermittent without ear protection.
4. Under no circumstances are personnel to be exposed to noise levels in excess of 140 dBA even when wearing ear protection.

5.11.6 Finger, Palm, and Hand Protection

1. One of the most dangerous ornaments worn by employees in occupational work is the ring. It should not be worn at work if there is the slightest chance it could become caught in any hook, tool, or piece of machinery.
2. Gloves with leather palms should be worn when handling rough edges or abrasive materials or when the job subjects hands to possible lacerations, punctures, or burns.

5.11.7 Foot Protection

1. Wearing of sandals or athletic shoes in work areas (where chances of foot injuries are greatest) is prohibited.
2. The following are some of the activities in which safety shoes should be worn:

   a) All other personnel working near construction equipment.

b) All personnel performing repair shop tasks.
c) All grounds keepers.

5.11.8 General Clothing

1. For safety and comfort, work clothes should be sturdy, fit well, and be washable.
2. Loose clothing worn by employees working on or near moving machinery or equipment is prohibited.
3. Steel-toed safety shoes should be worn on all jobs involving handling or moving heavy material. Excessively high-heeled shoes may create a tripping hazard. Soft-soled shoes (such as athletic shoes) do not afford protection from puncture wounds when in the field. Employees are prohibited from wearing athletic shoes while on the job.
4. Shoes with run-down heels or torn soles are hard on the feet and can cause falls. Keep your shoes in good repair.
5. The safe worker does not wear rings or other jewellery. Jewellery increases the danger of electric shock and can become entangled in machinery, causing severe injuries to employees.
6. Work clothes should be washed frequently as a safe guard against skin infections and irritations.
7. Smocks, overalls, and aprons should be worn whenever possible to keep work clothes clean.
8. Oil soaked clothes are a serious fire hazard. Keep your clothes free from oil.

5.12 First Aid and Accident Response

The following first aid rules should be followed:

1. It is recommended that each supervisor should receive Red Cross first aid and CPR training and renewal of certification as required.
2. First aid cabinets or kits should be maintained at all sites. First aid kits should be carried on all vehicles.
3. First aid supplies are to be checked on a periodic basis.
4. Minor medical treatment for cuts, scratches, etc. should be given by trained personnel. Always be sure that open wounds are thoroughly cleansed with soap and water to prevent infection.
5. There may be cases when injured employees who need professional medical attention could be transported to the nearest health centre. There may be other cases, however, when injured employees should be transferred by ambulance to the hospital. If there is any doubt about the mode of transportation, an ambulance should be called. For example, the following conditions would definitely indicate ambulance service:

   a) Employee is unconscious or in shock.
   b) Hemorrhaging.
   c) Severe abdominal cramps and/or vomiting.
   d) Any apparent fracture.
   e) Other symptoms of internal injury.

6. Develop evacuation plans/procedures for seriously injured persons.

7. All injuries, no matter how minor, are to be reported to the unit supervisor. Accident investigation report forms should be completed by the supervisor.

5.13 Emergency response

1. Develop an emergency/evacuation response plan and submit to the Client for review and approval by the agency responsible for Disaster Management.
2. There should be a vehicle and driver within 5 minutes of any worksite, available in the event transportation is required for an injured worker(s). Supervisors must have charged cell phones on their persons with sufficient credit and the following numbers stored:
   a) Nearest ambulance (Grenville)
   b) Nearest five tender (Grenville)
   c) Nearest health centre (Grenville)
   d) Princess Alice Hospital (St. Andrew)
   e) The General Hospital (St. George)
3. Limit fuel storage on site.
4. Prohibit smoking on site, with prohibition signage erected.
5. If a hurricane or other cyclonic activity threatens, tidy the site, ensure drainage channels are clear, and secure light items that may become airborne under high wind conditions.

5.14 Housekeeping

The following safety procedures shall be followed:

1. Keep work areas and storage facilities clean, neat, and orderly.
2. All aisles, stairways, passageways, means of egress, and entrances shall be kept free from obstructions at all times.
3. Do not place supplies on top of lockers, hampers, boxes, or other moveable containers at a height where they are not visible from the floor.
4. When stacking materials for storage, make sure the base is firm and level. Keep stacks level and not too high. Keep aisles clear and with adequate space to work.
5. When storing materials suspended from racks or hooks, secure them from falling, and route walkways a safe distance from the surface beneath.
6. When storing materials overhead, provide adequate toeboards to prevent objects from rolling over the edge.
7. Tools, equipment, machinery, and work areas are to be maintained in a clean and safe manner. Defects and unsafe conditions shall be reported to your supervisor.
8. Return tools and equipment to their proper places when not in use.
9. Lay out extension cords, air hoses, water hoses, ladders, pipes, tools, etc. in such a way as to minimize tripping hazards or obstructions to traffic.
10. Clean up spills of non-hazardous materials immediately to avoid hazards. For spills of hazardous materials contact the Solid Waste Management Company and Environmental Health for further guidance. In the event the removal cannot be done immediately, the area must be guarded with signs and/or ropes.
11. Nail points, ends of loops, or metal scrapings, etc., must not be left exposed when packing and unpacking boxes, crates, barrels, etc. Nails are to be removed as soon as lumber is disassembled.

12. Articles should be stored in a manner to prevent persons from coming in contact with sharp edges or points.
13. Oily and greasy rags shall be put in a closed metal container.
14. Adequate lighting shall be provided for the protection of both employees and the public.
15. Circuit breaker boxes should be kept closed at all times and free of any debris. Keep a 3-foot area in front of circuit breaker boxes clear of materials.
16. Secure the site during non-working hours.

5.15 Working hours

Fatigue reduces awareness and therefore increases the potential for accidents to occur, especially in a potentially hazardous working environment. In the interest of Employees' safety, Contractors shall not allow excessive hours to be worked.

6.0 Training

A structured system of education and training should enable both Contractor and employees to identify and manage the risks involved in excavation and keep abreast of means of limiting hazards and controlling risks.

6.1 General

1. The critical role workers play in keeping the job site safe should be emphasized to workers. Train employees in safe systems of work and safe work practices, including identification of hazards associated with the use of plant and equipment, fall protection, appropriate use of PPE, and first aid.
2. Train site workers to recognize and avoid unsafe conditions and to follow required safe work practices that apply to their specific work environments e.g. working in confined spaces, operating heavy equipment, working on foot in the vicinity of heavy equipment, working at height, handling hazardous materials.
3. Hold daily toolbox meetings at the job site to discuss and report hazards and close calls, and to discuss safety conditions for performing the day's tasks.
4. Convene regular health and safety meetings (at least once quarterly and within 48 hours of any accident or near miss) with workforce to emphasize safe work practices and expectations.

6.2 Excavation and Road Works

1. Specific practices to reduce the risk of on-the-job injuries at excavation sites include:
   a) Know where underground utilities are located before digging.
   b) Keep excavated soil and other materials at least 2 feet from excavation or trench edges.
   c) Keep heavy equipment away from trench edges.
   d) Identify any equipment or activities that could affect excavation or trench stability.
   e) Tests for atmospheric hazards such as low oxygen, hazardous fumes, and toxic gases when workers are more than 4 feet deep.
   f) Inspect trenches at the start of each shift.
   g) Inspect trenches following a rainstorm or other water intrusion.
   h) Inspects trenches after any occurrence that could have changed conditions in the trench.

i) Do not work under suspended or raised loads and materials.

j) Ensure that personal wear high visibility or other suitable clothing when exposed to vehicular traffic.

2. Train all workers (including equipment operators and supervisors) to recognize and avoid the hazards of working on foot around equipment.
3. Train workers on foot and equipment operators in appropriate communication methods (e.g. Hand signals, maintaining visual contact) when workers on foot are required to be in the same area as equipment.
4. Train all workers in hazards.

6.3 Fall Protection

1. Provide an appropriate fall protection training program to workers who might be exposed to fall hazards. Training must include how to recognize fall hazards and how to minimize them. Personnel should be trained in the most effective and quickest ways to make adjustments to a harness, spot potential problems with equipment, and rectify a bad situation if anything goes wrong.
2. The trainer must be a competent person who is qualified in the following areas:
   - The nature of fall hazards in the work area.
   - The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.
   - The use and operation of controlled access zones; guardrail, personal fall arrest, safety net, warning line, and safety monitoring systems; and other protection to be used.
   - The role of each worker in the safety monitoring system when the system is used.
   - The correct procedures for equipment and materials handling and storage and the erection of overhead protection.
   - The role of workers in fall protection plans.
   - Fall protection requirements.

6.4 Supervisors

1. Train supervisors for each job site, to be able to respond immediately to hazardous situations as needed to ensure worker safety.
2. Each supervisor should receive Red Cross first aid and CPR training and renewal of certification as required.
3. Supervisors are required to be familiarized with the project OSH plan.
4. Train supervisors to:

   a) Undertake daily pre-shift equipment checks and verify that any problems are corrected. The supervisor must be responsible for ensuring that inspections are performed daily, that necessary repairs are made, that scheduled maintenance is performed, and that records of all inspections and repairs are maintained.

   b) Identify hazards and institute appropriate mitigation measures, and document these.

   c) Ensure that all employees under his supervision comply fully with the OSH plan.

   d) Complete accident investigation report forms no matter how slight the injury.

e) Document all near misses reported.

f) Ensure that workers maintain the site in a clean and safe manner.

g) Interact appropriately with visitors to the site.

6.5 Equipment Operators

1. Train equipment operators in the proper use of the equipment they are assigned to operate. Be sure to follow manufacturers' specifications and recommendations. Only personnel properly authorized and trained are to operate equipment.
2. Train operators to conduct visual and operational checks on all machine systems and operating controls before working the machine.
3. Train equipment operators never to move equipment without making positive visual contact with any workers on foot near the equipment.
4. Train equipment operators in safe work practices to prevent equipment rollovers:

    a) Maintain proper tire pressure.
    b) Know material density and surface stability.
    c) Use spotters with two-way radio communication.
    d) Train operators to use seatbelts and to remain belted in the event of a rollover.
    e) Use edge guards on trailers to prevent rollovers.
    f) Use spotters during loading and unloading of equipment from transport trailers.
    g) Install full-width loading ramps on transport trailers.

6.6 Handling of Asphalt

All workers exposed to asphalt fumes should be trained about hazards and safe work procedures. This training should include specific information about the solvents used in mixing the asphalt.

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Appendix 1 - Work Health and Safety (WHS) Management Plan

A **Work Health and Safety (WHS) Management Plan** can assist contractors to manage their workplace health and safety obligations.

The contractor for a construction project must prepare a written Work Health and Safety Management Plan for the workplace before work on the project commences. The plan should explain how the key safety and health issues will be coordinated on site. It must be relevant to the project and should be developed on the basis of the Preliminary Safety and Health Plan provided by the Client.

The WHS management plan:

- identifies the work that is high-risk construction work
- specifies hazards relating to the high-risk construction work and risks to health and safety associated with those hazards
- describes the measures to be implemented to control the risks
- describes how the control measures are to be implemented, monitored, and reviewed.

The WHS management plan must also state:

- the names, positions, and health and safety responsibilities of all persons at the workplace whose positions or roles involve specific health and safety responsibilities in connection with the project
- the arrangements in place, between any persons conducting a business or undertaking at the workplace where the construction project is being undertaken, for consultation, cooperation, and the coordination of activities in relation to compliance with their duties. This includes other work activities taking place on site; e.g. maintenance works by a statutory undertaker.
- the arrangements in place for managing any work health and safety incidents that occur.
- information and arrangements for the welfare of workers.
- any site-specific health and safety rules, and the arrangements for ensuring that all persons at the workplace are informed of these rules.
- the arrangements for the collection and any assessment, monitoring, and review of safe work method statements at the workplace.

The plan must be written so it is easy to understand, signed, and dated by the principal contractor. It must be available for the length of the project.

The contractor must sign and date safe work method statements (SWMS) (see below) that have been received and keep them with the plan, as well as monitor their implementation.

The contractor cannot allow work to start unless:

- the plan has been discussed with or a copy given to all relevant people
- the plan is available or readily available for inspection.

The contractor for a construction project must review and, as necessary, revise the WHS management plan if there are changes in how risks will be managed. The contractor is also responsible to ensure that the relevant people are informed of the revisions.

Safe Work Method Statements (SWMS)

Purpose

The primary purpose of a SWMS is to help supervisors, workers, and any other persons at the workplace to understand the requirements that have been established to carry out the high-risk construction work in a safe and healthy manner. The SWMS:

- sets out the work activities in logical sequences
- identifies hazards
- describes control measures.

Both simple and complex activities can be broken down into a series of basic steps that will allow for full analysis of each part of the activity for hazards and potential incidents. The description of the process should not be so broad that it leaves out activities with the potential to cause incidents and prevents proper identification of the hazards nor is it necessary to go into fine detail of the tasks.

The aim of a SWMS is to:

- describe the activity or task to be undertaken.
- identify the resources, manpower, and skills associated with the task.
- assess and select control measures (as appropriate).
- systematically plan the activity so it can be completed efficiently and effectively.

The SWMS must be easy to read by those who need to know what has been planned to manage the risks and implement the control measures and ensure the work is being carried out in accordance with the SWMS.

These persons include:

- the supervisor of the high-risk construction work
- the worker carrying out the high-risk construction work
- the person who has management and control over the high-risk construction work.

Contents of a Safe Work Method Statement (SWMS)

When preparing a SWMS, the circumstances at the workplace that may affect the way in which the high-risk construction work is carried out must be taken into account.

A SWMS should also include the following information:

- details of the person(s) responsible for ensuring implementation, monitoring, and compliance with the SWMS
- the name of the principal contractor
- the address where the high-risk construction work will be carried out
- the date the SWMS was prepared
- the review date (if any).

Workers and their health and safety representatives should be consulted in the preparation of the SWMS. If there are no workers engaged at the planning stage, consultation should occur with workers when the SWMS is first made available to workers for example, during induction training, or when it is reviewed such as during workplace-specific training or a toolbox talk. The SWMS may include:

- the names of workers that have been consulted on the content of the SWMS
- the date the consultation occurred

- the signature of each worker acknowledging their participation in this consultation and the opportunity to discuss the proposed measures.

The content of a SWMS should provide clear direction on the control measures to be implemented. There should be no statements that require a decision to be made by supervisors or workers. For example, the statement 'use appropriate PPE' does not detail the control measures. The control measures should be clearly specified.

There may be situations where there are different types of high-risk construction work occurring at the same time at the same workplace, e.g. slope benching and foundation excavation. Options are to:

1. Prepare one SWMS to cover all the high-risk construction work being carried out at the workplace.
2. Prepare a separate SWMS for each type of high-risk construction work. If separate SWMSs are prepared, thought must be given to how the different work activities may impact each other and whether this may lead to inconsistencies between the various control measures.

If separate SWMSs are being prepared by different contractors operating within the same workspace, consultation, coordination, and cooperation between the contractors must occur to the extent necessary to avoid inconsistencies and ensure that each contractor is carrying the work out safely.

Generic Safe Work Method Statement (SWMS)

A generic SWMS may be prepared and used for work activities that are carried out on a regular basis. The content of this type of SWMS may be refined over a number of years. Prior to each new activity, the SWMS must be reviewed and revised to ensure it applies to the high-risk construction work and the actual workplace.

Compliance with Safe Work Method Statement (SWMS)

All contractors who are involved in high-risk construction work must develop and implement arrangements to ensure the work is carried out in accordance with the SWMS. These may include a system of routine or random workplace inspections (e.g. asking workers and supervisors a few questions about the control measures used in the SWMS to see if they understand what has to be done). If the work is not being carried out in accordance with the SWMS:

- the work must stop immediately or as soon as it is safe to do so
- work must not resume until the work can be carried out in accordance with the SWMS.

If work is stopped, the work and the SWMS should be reviewed to identify non-compliance and ensure the method in the SWMS is the most practical and safest way of doing the task. The SWMS should be revised if another method is identified as being a safer option before work resumes.

Providing Information and Instruction

A contractor must ensure that all workers who will be involved in high-risk construction work are provided with information and instruction so they:

- understand the hazards and the risks arising from the work
- understand and implement the risk controls in a SWMS
- know what to do if the work is not being conducted in accordance with the SWMS.

This information and instruction may be provided during induction training, workplace-specific, or during a toolbox talk.

Location of a Safe Work Method Statement (SWMS)

The SWMS may be kept at the workplace where the high-risk construction work will be carried out. If this is not possible, then the SWMS should be kept at a location where it can be delivered to the workplace promptly.

A contractor must ensure the SWMS is available:

- to any person engaged to carry out the high-risk construction work
- for inspection by relevant authorities

The workers that are carrying out the high-risk construction work do not necessarily need a copy of the SWMS. However, they must be aware of and understand the hazards and controls so that the work can be carried out in accordance with the SWMS.

Review of Safe Work Method Statement

A SWMS must be reviewed regularly to make sure it remains effective. A SWMS must be reviewed (and revised if necessary) if relevant control measures are revised.

The review process should be carried out in consultation with workers (including contractors and subcontractors) who may be affected by the operation of the SWMS and their health and safety representatives who represented that work group at the workplace.

When a SWMS has been revised the contractor must ensure:

- all persons involved with the high-risk construction work are advised that a revision has been made and how they can access the revised SWMS.
- all persons who will need to change a work procedure or system as a result of the review are advised of the changes in a way that will enable them to implement their duties consistently with the revised SWMS.
- all workers that will be involved in the high-risk construction work are provided with the relevant information and instruction that will assist them to understand and implement the revised SWMS.

Safety File

The Contractor should prepare a Safety File for the project and present it to the Client when the project is complete. The Safety File is developed by gathering relevant safety and health information that may assist those who are responsible for the completed project with regard to any major safety and health risks that may need to be addressed during subsequent maintenance, repair, and other construction works. The Safety File would normally include:

- construction drawings, specification and bills of quantities, used and produced throughout the project;
- the design criteria implemented and details of any equipment and maintenance facilities provided;
- where applicable, documents produced by Contractors outlining operating and maintenance procedures and schedules for plant and equipment installed as part of any incorporated structure; and
- where appropriate, details of the locations of utilities and services, including emergency services.

The Safety File should be retained by the Client.

Appendix 5 - Extract from Social Policy (Basic Aims and Standards) Convention 1962 (No. 17)

Part II. Improvement in the Standard of Living

Article 2

The improvement of standards of living shall be regarded as the principal objective in the planning of economic development.

Article 3

1. All practicable measures shall be taken in the planning of economic development to harmonise such development with the healthy evolution of the communities concerned.
2. In particular, efforts shall be made to avoid the disruption of family life and of traditional social units, especially by
   (a) close study of the causes and effect of migratory movements and appropriate action where necessary;
   (b) the promotion of town and village planning in areas where economic needs result in the concentration of population;
   (c) the prevention and elimination of congestion in urban areas;
   (d) the improvement of living conditions in rural areas and the establishment of suitable industries in rural areas where adequate manpower is available.

Article 4

1. The measures to be considered by the competent authorities for the promotion of productive capacity and the improvement of standards of living of agricultural producers shall include
   (a) the elimination to the fullest practicable extent of the causes of chronic indebtedness;
   (b) the control of the alienation of agricultural land to non-agriculturalists so as to ensure that such alienation takes place only when it is in the best interests of the country;
   (c) the control, by the enforcement of adequate laws or regulations, of the ownership and use of land resources to ensure that they are used, with due regard to customary rights, in the best interests of the inhabitants of the country;
   (d) the supervision of tenancy arrangements and of working conditions with a view to securing for tenants and labourers the highest practicable standards of living and an equitable share in any advantages which may result from improvements in productivity or in price levels;
   (e) the reduction of production and distribution costs by all practicable means and in particular by forming, encouraging and assisting producers' and consumers co-operatives.

Article 5

1. Measures shall be taken to secure for independent producers and wage earners conditions which will give them scope to improve living standards by their own efforts and will ensure the maintenance of minimum standards of living as ascertained by means of official inquiries into living conditions, conducted after consultation with the representative organisations of employers and workers.
2. 2. In ascertaining the minimum standards of living, account shall be taken of such essential family needs of the workers as food and its nutritive value, housing, clothing, medical care and education.

Appendix 6 - Listings of Saint Lucia Social Programmes

PROGRAMME	IMPLEMENTING AGENCY/ORGANISATION	BENEFICIARIES	SERVICES
1. Social Insurance (Contributory)			
National Insurance Scheme	National Insurance Corporation	All contributors to the National Insurance Fund	Suite of Benefits Sickness Benefit, Maternity Benefit, Employment Injury, Hospitalization Benefit, Funeral Grant, Retirement Benefit, Survivor Benefit, Death Benefit, Invalidity Benefit, Disability Benefit
Community Friendly Societies	Friendly Societies (various)	Members	Death Benefit
Family Indemnity Plan	Credit Unions	Members	Death Benefit
Membership Social Care Services	Mothers and fathers Groups	membership	Death Benefit Education Benefit Hospitalized Benefit
2. Social Assistance (cash/non-cash)			
Public Assistance Programme	Min of Equity	Vulnerable and poor households – means tested (SL-NET V.3.0)	Suite of Services - Cash, Eye Care, Medical Assistance at Government owned health facilities, Burial Assistance
Child Disability	Min of Equity	Universal grant to all children assessed as disabled	Child Disability Grant - $300
Persons Living with HIV	Min of Equity	Persons diagnosed with HIV	Grant - $200 towards food and medication
3. Social Assistance in Kind Programmes			
Burial Assistance	Min of Equity	Vulnerable families experiencing difficulties in financing burial	Burial Assistance - $1,500 paid directly to funeral home

PROGRAMME	IMPLEMENTING AGENCY/ORGANISATION	BENEFICIARIES	SERVICES
Community After School Programme	Min of Equity	Children from vulnerable families	Engagement in CASP from 3 pm to 5:30 pm
Disaster Assistance - Fire	Min of Equity	Fire victims	Obtain Fire Report from Fire and Emergency Services and Grant of $500
Home Care Programme	Min of Equity (SSDF)	Vulnerable and elderly	Provision of in-home carer
STIMULUS Program	Min of Equity SSDF	unemployed	Cash for work
Medical Waiver Card (Exemption)	Min of Health & Wellness	Low income and elderly	Card entitles named holder certain exemptions at government operated facilities
Medical Fee Support	National Community Foundation	Low income	Contribution towards urgent medical care
Medical Assistance (costs)	Min. of Health & wellness	Low income	Contribution towards urgent medical care
Medical Assistance - Services	St Lucia Diabetic & Hypertensive Association	Diabetics and Hypertensive Youth, children, and low-income individuals	Medical assistance to Youth, children, and adults Awareness programmes
Medical Assistance	St Lucia Sickle Cell Association	Persons with sickle cell	Support to persons suffering from the disease Food hampers Psychosocial support Awareness programmes
Medical Assistance	St Lucia Cancer Society	Low income	Support to cancer patients and families Food hampers Psychosocial support Awareness programmes
Student Welfare Assistance	Min of Education	Low income and vulnerable	Bursaries and Transportation fee waiver (Secondary schools)

PROGRAMME	IMPLEMENTING AGENCY/ORGANISATION	BENEFICIARIES	SERVICES
School Feeding Programme	Min of Education	Open to all students	Available to all primary and secondary school (5)
Community Day Care Services (GOSL)	Min of Education - ECEU	Low income	21 GOSL centres
Educational Assistance	Min of Equity (SSDF)	Low income vulnerable	Uniform and books (primary school only – covers shortfall from education
Educational Assistance	National Community Foundation	Vulnerable families	Scholarships – funding of expenditure inclusive of transportation, books, uniforms, and school bursaries
Educational Assistance	Credit Unions	Top performing students of children members	Full scholarships – maintained secures the continuation
Educational Assistance	Organisation of East Caribbean States		
Disaster Assistance	Min of Equity (Fire)	Vulnerable household	Obtain Fire Report and $500 grant
Disaster Assistance	National Community Foundation	Vulnerable	One off payment for replacement of household goods
Disaster Assistance	St Lucia Red Cross	Vulnerable	Various including building material, clothing, food
Disaster Assistance	CARITAS (Catholic Church)	Vulnerable	Food and clothing
Housing Assistance	Min of Equity - SSDF	vulnerable	Building materials
Rise St Lucia	Rise St. Lucia	Vulnerable families and youth at risk	Various – medical assistance, food hampers, bursaries, provision on devices for school children

4. Social Care Services

PROGRAMME	IMPLEMENTING AGENCY/ORGANISATION	BENEFICIARIES	SERVICES
Human Services – Family Support	Min of Equity – Division of Human Services	Families Vulnerable Children and elderly	Care and Protection – vulnerable children and the elderly
Transit Home	Min of Equity – Division of Human Services	Children in need of care and protection	vulnerable children in need of care and
Rainbow Children's Home	Private	Children in need of care and protection	vulnerable children
Upton Gardens Girls Centre	Min. of Equity- Human services	Girls in conflict with the law Girls at risk	Day Care for capacity building and rehabilitation programmes
Boys Training Centre	Min of Equity – Division of Human Services	Boys in need of Care and Protection and boys in conflict with the law	Residential programme
Foster Care Programme	Min of Equity – Division of Human Services	Vulnerable/at risk children	Placement with individuals or families
Koudmen Sent Lisi	Min of Equity - SSDF	Vulnerable households	Psychosocial support and
Boys Matter	Min. of Equity - SSDF	Boys at Risk	Psychosocial support, mentoring and life planning for boys at risk
Women's Support Centre	Division of Gender Relations	Victims of Domestic Abuse	Emergency Shelter, psychosocial support, counselling and care for victims and can include children too.
Crisis Centre	Private	Victims of domestic violence Men AND women	Provide Emergency Shelter, psychosocial support, counselling for MEN and women

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PROGRAMME	IMPLEMENTING AGENCY/ORGANISATION	BENEFICIARIES	SERVICES
Raise your Voice St Lucia	Private NGO	Vulnerable women and girls	Provide access to legal services, food hampers, mentorship, referrals, and psychosocial support
Comfort Bay (Senior Citizens Home)	Min of Equity	Vulnerable elderly	Care and protection at a residential care facility
Seniors Residential Homes	Private	Elderly in need of care	Care and protection at a residential care facility
Adult Day Care centres	Private - Help Age St Lucia	Elderly in need of care	Care at day facility
5. Active Labour Market Programmes			
National Apprenticeship Programme	Office of the Prime Minister	Unemployed youth	Provision of apprenticeship opportunities and training
Holistic Opportunity for Personal Empowerment	Min of Equity SSDF	Unemployed	Capacity building, training, and short-term employment opportunities
T-VET	Min of Education	Students and persons CVQ	Training for retooling and certification
National Enrichment & Learning Prog.	Min of Education	Anyone	Second chance, training, and certification new skills
National Skills Development Centre	Min of Education	Limited to age	Second chance, training, and certification new skills
Centre for Adolescent Rehabilitation and Education	Private	School leavers	Second chance, training, and certification new skills
BELFUND	Min. of Equity	unemployed	Microenterprise creation
Labour Unions Programmes	Private		
STIMULUS Program	Min of Equity SSDF	unemployed	

PROGRAMME	IMPLEMENTING AGENCY/ORGANISATION	BENEFICIARIES	SERVICES
6. Faith-Based Organisations Social Care			
CARITAS (Catholic Church)	Church – R. C	Vulnerable persons	Food, clothing, building material,
Salvation Army		Vulnerable persons	Feeding programme for displaced and homeless, Preschool services, food hampers, counselling, church service
DOCAS – Seventh Day Adventist Church	Church SDA	vulnerable	Food, psychosocial support, Clothing,
7. Informal Sector			
Feed the Poor Ministry	Private	Homeless	Provision of meals and clothing for vulnerable mainly based in City of Castries
Community Soup Kitchen	Private – Care – Gros Islet Help Age – Anse le Raye Help Age - Dennery	Needy, homeless, and elderly	Provision of meals
School Scholarship Programme	Grow-well – Gros Islet	Vulnerable at-risk youth (Primary and secondary school-aged)	School Scholarships, Mentorship programme utilizing golf
Girls of a Feather	Private	Girls and Young Women	Mentorship

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Appendix 7 - Stakeholder Matrix and Management Plan

Stakeholder Analysis Matrix							
No.	**Stakeholder Name**	**Area of Expertise and Target Group(s)**	**Contact Person**	**Importance**	**Influence**	**Proposed Role on the Project**	**Stakeholder Engagement Strategy**
Government:							
1.	Project Management	Management of the Project. *Target: Project Management Team.*	Project Manager	High	High	Implementation and Monitoring	Official introduction. Face to Face engagement – Key Informant Interviews (KIIs). - Emails through the Team Leader. - Periodic meetings (virtual and or face to face).
2.	Ministry/Department of Education	Education policy and practice from nursery to tertiary levels. Special needs. *Target: Management at the ministry and institutional levels, education planners, School Safety Committees*	Permanent Secretary and or designees Within the schools– the Principal and or his/her designee.	High	High	Participation in decision-making all stages of the Project. Monitoring and provision of information and resource materials.	Meetings in-person or virtually.
3.	Department of Sustainable Development	Climate Policy and practice. Target: Project	Critical Focal Point to CTCN	High	Low	Monitoring	Meeting – In-person or virtual
4.	School personnel – principals, teachers, parents, students	Administration and Management of Schools.	Principals of Schools	High	High	Participation in rationale for proposed interventions schools	Meeting - In person or virtual

Stakeholder Analysis Matrix							
No.	**Stakeholder Name**	**Area of Expertise and Target Group(s)**	**Contact Person**	**Importance**	**Influence**	**Proposed Role on the Project**	**Stakeholder Engagement Strategy**
5.	Schools' maintenance and security personnel.	Security of school premises and property	Principals of Schools	Low	Low	Participation in rationale for schools	As above.
6	Ministry /Department responsible for Community Empowerment	Community engagement, empowerment, and development *Target: management at the ministry level and community workers who work in the community*	Permanent Secretary and/or designee	medium	medium	Participation in decision-making all stages of the Project. Monitoring and provision of information.	As above.
7.	Ministry/Department responsible for Finance, Planning, Economic Development, Physical Development.	Physical Planning and Development Control. Target: Managers	Permanent Secretary and/or designee. Chief Economist. Chief Physical Planner	medium	High	Provision of financial resources. Enforcement of development control guidelines. Monitoring.	As above.
8..	Disaster Management - National Emergency Management Office Fire Department	Disaster Risk Reduction,	Director, NDMA. Chief Fire Officer	Medium	medium	Participation in decision-making all stages of the Project. Monitoring of policy and guidelines.	As above
9.	Ministry of Infrastructure	Infrastructure and Implementation. *Target: Technical Experts*	Permanent Secretary and/or his/her designee. Chief Engineer.	Medium	medium	Implementation and Monitoring	As above. Plus sites visit.
10.	Ministry of Health. Solid & Liquid Waste Management.	Health and Well-being.	Permanent Secretary and/or his/her designee.	medium	medium	Participation in decision-making all stages of the Project. Monitoring.	As Above. Face to Face etc. Plus sites visit.

Stakeholder Analysis Matrix							
No.	**Stakeholder Name**	**Area of Expertise and Target Group(s)**	**Contact Person**	**Importance**	**Influence**	**Proposed Role on the Project**	**Stakeholder Engagement Strategy**
		Target: Policymakers and Field Staff	Representative of Solid Waste Management Authority				
11.	Department of Labour	Core Labour Standards Target: Head and Field Officers	Permanent Secretary and/or his/her designee. Labour Commissioner	HighmLowedium	low	Participation in decision-making all stages of the Project. The provision of guidance on grievance matters.	As above. Plus sites visit.
12.	Department of Gender Relations	Gender sensitivity. Gender Officers.	Head of Gender Department	medium	low	Participation in decision-making. Gender mainstreaming. Incorporation of gender and intersectionality issues.	As Above. Face to Face or Virtual
Other:							
13.	Trades Unions (Teachers, Civil)	Industrial Climate Target: Executive Members	President, General Secretary	high	medium	KIIs and provision of resource materials.	As Above. Separate Face to Face etc.
14.	Parliamentary Reps (PRs)	Plans, Perspectives	PRs	medium	High	KIIs and provision of resource materials.	Face to Face KIIs or virtual
15.	Community-based Organizations (CBOs)	Knowledge/Perceptions Perspectives. Target Groups – Youth, faith-based, philanthropic, organizations for Persons with Disability, Children and the Elderly;	Representatives of CBOs etc	High	low	Provision of information and resource materials. Contribution to decision making.	Face to Face separate engagements - (Focus Group, Round Table, or Community Meeting)

Stakeholder Analysis Matrix							
No.	**Stakeholder Name**	**Area of Expertise and Target Group(s)**	**Contact Person**	**Importance**	**Influence**	**Proposed Role on the Project**	**Stakeholder Engagement Strategy**
		cultural, business organizations, Men's Groups, Women's Groups; Constituency Councils LGBTQI					
16.	Development Partners	Support to governments in various areas. Target – UNDP, UNICEF, CDB, UNESCO, other	Representatives	medium	High	Provision of information and resource materials.	Face to face (virtual, KII)

Stakeholder Analysis Matrix							
No.	**Stakeholder Name**	**Area of Expertise and Target Group(s)**	**Contact Person**	**Importance**	**Influence**	**Proposed Role on the Project**	**Stakeholder Engagement Strategy**
17.	Security and Traffic Management Department	Traffic Management *Target: Traffic Personnel Project Management Team.* Security Provision	Heads of Divisions	medium	medium	Participation in relevant stage of the project.	Official introduction. Face to Face engagement – Key Informant Interviews (KIIs). - Emails through the Team Leader. - Periodic meetings (virtual and or face to face).
18.	Utility Companies	LUCELEC WASCO Telecommunication Companies	Heads of Companies or designees	High	medium	Participation in various stages of the project.	Official introduction. Face to Face engagement – Key

Stakeholder Analysis Matrix							
No.	**Stakeholder Name**	**Area of Expertise and Target Group(s)**	**Contact Person**	**Importance**	**Influence**	**Proposed Role on the Project**	**Stakeholder Engagement Strategy**
							Informant Interviews (KIIs). - Emails through the Team Leader. - Periodic meetings (virtual and or face to face).
19.	Contractors & Construction Materials Suppliers	Quarries, construction material suppliers, transport service suppliers, etc	Managers of Construction Companies, Contractors, Suppliers, etc	low	medium	Participation in various stages of the project.	