



**ENVIRONMENTAL AND SOCIAL
MANAGEMENT FRAMEWORK (ESMF)
FOR THE
OECS REGIONAL AGRICULTURAL
COMPETTIVENESS PROJECT**
10th April, 2017



ACRONYMS

BMP	Best Management Practice
EA	Environmental Assessment
EC	Environmental Consultant
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
ESMF	Environmental and Social Management Framework
EMP	Environmental Management Plan
GoG	Government of Grenada
GoSVG	Government of Saint Vincent and the Grenadines
IBRD	International Bank For Reconstruction and Development
IFC	International Finance Corporation
ILO	International Labor Organization
MEAs	Multilateral Environmental Agreements
OECS	Organization of Eastern Caribbean States
OP	Operational Policy
PAP	Project Affected Peoples
PCRMP	Physical Cultural Resources Management Plan
PCU	Project Coordination Unit
PPP	Public Private Partnership
PPU	Physical Planning Unit
PPDB	Physical Planning and Development Board
PSIPMU	Public Sector Investment Project Management Unit
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SA	Social Assessment
SGD	St. Georges Declaration (of Principles for sustainable development in the OECS)
SWMA	Solid Waste Management Authority
TA	Technical Assistance
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank
WBG	World Bank Group

EXECUTIVE SUMMARY

The Governments of Saint Vincent and the Grenadines (GoSVG) and Grenada (GoG) are collaborating with the World Bank (WB) to implement a Competitiveness Program with the objective to lay the foundation to improve the competitiveness of the agricultural sector¹ in the OECS region through support for the preparation and implementation of Business Plans, and provision of general agricultural services.

The program would co-finance aggregators' investments such as transport, storage, post-harvest, cold chain facilities, ICT tools and mobile applications, equipment, infrastructure, or energy saving technologies; and for allied producers (farmers and fishers), investments such as equipment for land preparation and harvesting, irrigation infrastructure including rain water harvesting, greenhouses, tunnels, hydroponics, and aquaculture, fishing nets and other equipment, boat rehabilitation, cold storage, transport, etc. Technical assistance, training, and extension services would also be provided for storage, marketing, agronomy, accounting, financial literacy, food processing, machinery, packaging, labeling, traceability, quality control, or food safety and hygiene; and good agricultural practices, modern and improved technologies, climate smart agriculture, post-harvest handling or financial literacy.

Representative sub-project locations have been field-checked by World Bank environmental and social specialists, and a preliminary assessment is included in this ESMF to describe the environmental and social impacts of the project on a program-wide level. As many of the specific details of the investment works are not yet fully defined, this ESMF also includes general guidelines to screen possible future subprojects, identify potential impacts, develop mitigation plans, and include them into project environmental management activities. Finally this ESMF includes generic mitigation measures to guide the implementation of relatively simple works for which no additional assessment would be required, as well as identification criteria to identify sub-projects which require further assessment due to complex or sensitive conditions, or which would require the development of a comprehensive Pest Management Plan (PMP).

The World Bank Environmental and Social Specialists who contributed to this ESMF recognize, appreciate, and are grateful to the Project Coordination Units (PCUs) in Grenada, and in Saint Vincent and the Grenadines, who have helped to develop and coordinate this ESMF.

¹ In the context of this Project, the term "agriculture" includes fisheries.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	6
1.0 INTRODUCTION.....	6
1.1 Project Background	6
1.2 Project Description and List of Subprojects	8
2.0 LEGAL AND REGULATORY FRAMEWORK	13
2.1 National Laws	13
2.2 World Bank Safeguard Policies	14
2.3 Environmental and Social Management Capacities	17
3.0 DESCRIPTION OF EXISTING ENVIRONMENT	18
3.1 Physical Environment	19
3.2 Biological Resources and Land Use.....	22
3.3 Socio-economy and Human Settlement	23
3.4 Physical Cultural Resources	24
4.0 POTENTIAL PROJECT IMPACTS	25
4.1 Summary of Project Activities	25
4.2 Potential Positive Impacts	26
4.3 Potential Negative Impacts	27
5.0 MITIGATION MEASURES.....	34
5.1 Mitigation Measures for Typical Projects	34
5.2 Special Measures for Pest Management.....	40
5.3 Construction-Related Mitigation Measures	45
5.4 Additional Measures for Special, Complex or Sensitive Cases	48
5.5 Involuntary Resettlement	49
6.0 SCREENING PROCEDURES	49
6.1 Screening Processes	50
6.2 Screening Criteria and Checklists	51
6.2.1 Relatively Complex Sub-projects	51
6.2.2 Relatively Simple Sub-projects.....	51
6.3 Local Permitting	54
7.0 ENVIRONMENTAL MANAGEMENT PLAN	55
7.1 Standard/Generic Mitigation Measures	55

7.2	Additional Mitigation Measures.....	55
7.3	Supervision, Monitoring, and Reporting	55

8.0 DISCLOSURE & PUBLIC CONSULTATION 58

APPENDICES

Appendix 1 – National Law in OECS Countries	59
1.1 Saint Vincent and the Grenadines	59
1.2 Grenada	62
Appendix 2 – List of Prohibited Pesticides.....	66
Appendix 3 – Guidelines for Preparing a Pest Management Plan	67
Appendix 4 – Disclosure / Public Consultation	70
Appendix 5 – Resettlement Policy Framework (RPF)	78

FIGURES

- Figure 1. Location map of OECS
- Figures 2a – 2b. Maps of Saint Vincent and the Grenadines, and Grenada
- Figure 3. Mean monthly rainfall in Saint Vincent
- Figures 4a – 4b. Protected Areas in Grenada and the Saint Vincent mainland.

TABLES

- Table 1. World Bank project categories
- Table 2. Endemism and Biodiversity in Grenada
- Table 3. Potential Negative Impacts of Activities
- Table 4a-4f. Sectoral Projects - Impact Areas and Mitigation Measures
- Table 4g. General Civil Works - Impact Areas and Mitigation Measures
- Table 5. Identification of Complex/Sensitive Sub-Projects or Activities

1.0 INTRODUCTION

1.1 Project Background

The countries of the Organization of Eastern Caribbean States (OECS)² continue to face serious development challenges. Following the expiration of preferential trade arrangements with the EU, the share of agriculture in OECS economies greatly diminished, including agricultural exports. OECS countries are highly dependent on imports for their food needs. Agriculture remains an important sector given its contribution to rural incomes, employment and food security. However, agriculture faces serious challenges that are constraining the sector from growing and from enabling a greater substitution of food imports. The agriculture sector and its linkage with tourism are among the highest priorities for OECS governments. The proposed operation is strongly aligned with the priorities of the ministries of agriculture in the member countries.

Agri-business is underdeveloped across OECS countries, and the involvement of young people in the agricultural sector is very limited. The lack of aggregation of smallholder supplies and poor communication between supply and demand compromise market performance, while complicating the planning of farm production based on demand.

The Governments of Saint Vincent and the Grenadines (GoSVG) and Grenada (GoG) are collaborating with the World Bank (WB) to implement the OECS Regional Agricultural Competitiveness Program through support for the preparation and implementation of Business Plans, and provision of general agricultural services. The Project Development Objective is to enhance access to markets and sales for competitively selected farmers and fishers, as well as their allied aggregators and agro-processors, in Grenada and St. Vincent and the Grenadines.

Under Component 2, the Project would provide matching grants (not to be repaid by beneficiaries) to co-finance the implementation of technically feasible, financially viable, economically profitable, socially responsible, and environmentally sustainable Business Plans, which when implemented will contribute to a consistent and timely supply of sufficient quantities of quality produce to buyers while providing a reliable income. These business plans will be formulated with support provided under Component 1 by potential aggregators and agroprocessors (AAs) with their allied producers (farmers and fishers, or FFs), buyers, technical service providers, and financial actors. Business plans will qualify for project support on a competitive basis and for prioritized value chains. Activities on the AA level as well as the farm

²Established in 1981, the OECS is an inter-governmental organization dedicated to economic harmonization and integration, protection of human and legal rights, and the encouragement of good governance between countries and dependencies in the Eastern Caribbean. The seven founding and full members of the OECS are Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadine. Anguilla and the British Virgin Islands (British overseas territories) are associate members of the OECS, while Martinique (France) joined in 2015 and is not represented by the OECS diplomatic mission.

level will be supported, and will include investments and operational expenditures, training and TA, and managerial skills development. These investments would include transport, storage, post-harvest, cold chain facilities, ICT tools and mobile applications, equipment, infrastructure, or energy-saving technologies for aggregators and agro-processors (AA). At the same time, the project would provide matching grants to allied producers, for cofinancing investments such as equipment for land preparation and harvesting, irrigation infrastructure including rain water harvesting, greenhouses, tunnels, hydroponics, and aquaculture. Technical assistance, training, and extension services would also be provided for storage, marketing, agronomy, accounting, financial literacy, food processing, machinery, packaging, labeling, traceability, quality control, or food safety and hygiene; and good agricultural practices, modern and improved technologies, climate smart agriculture, post-harvest handling or financial literacy.

The investments could take place anywhere in Grenada or Saint Vincent and the Grenadines, and eventually in other OECS countries. While the prime agricultural lands are in relatively flat lying areas, fairly steep areas are routinely cultivated and therefore erosion control is of concern and will be incorporated in the EMF and extension services training for best management practice. Mixed cropping or taungya system is commonly practiced to diversify crops and stabilize soils, and offers synergies with agroforestry initiatives in the region. Pest management is also being improved through other World Bank projects in the region.

Following Operational Policy (OP4.01) the Program would be Category B, because the investments under Component 2 could have negative impacts which can be readily mitigated with standard and appropriate measures in place. Impacts are expected to be minor and of short duration for the investments, which will be of relatively small scale, well-known typologies, and will not involve clearing of any new agricultural lands. The details of individual subprojects are not yet known, therefore this Environmental and Social Management Framework (ESMF) was prepared to guide screening and the subsequent preparation of an Environmental and Social Management Plan (ESMP) for each investment.

The designs of individual subprojects are not yet known, however, some investments for aggregators (for example: transport, storage, cold chain facilities, infrastructure) and allied producers under Component 2 may lead to involuntary resettlement/land acquisition, especially any that may take place outside the footprint of existing agricultural lands. Therefore, OP 4.12 is triggered and a Resettlement Policy framework (RPF) was developed to guide the application of the OP 4.12 policy requirements. The RPF clarifies resettlement objectives and principles, organizational arrangements and funding mechanisms to be followed if any safeguards tools (e.g. Resettlement Action Plans, Compensation Plans) become necessary during project implementation. The RPF was prepared and disclosed prior to project appraisal.



Figure 1. Location Map of the OECS countries. Grenada and Saint Vincent and the Grenadines are located in the south of the OECS region.

1.2 Project Description and List of Subprojects

The proposed Project Development Objective (PDO) is to enhance access to markets and sales for competitively selected farmers and fishers, as well as their allied aggregators and agro-processors, in Grenada and St. Vincent and the Grenadines.

The Project objectives will be achieved through the following four components:

Component 1: Support for Preparation of Business Plans (Costs: Grenada IDA: US\$ 0.38m; SVG IDA: US\$0.43m)

1. The objective of this component is to: (i) promote an understanding of the Project’s scope and objectives through outreach to potential stakeholders and beneficiaries (such as individual and organized FFs, AAs, buyers, and lenders); (ii) identify potential business opportunities for prioritized value chains and their translation into viable and profitable business proposals; and (iii) prepare full business plans for selected proposals.

2. This component will finance the provision of goods, consulting and non-consulting services, training and operating costs in support of implementing pre-investment activities, including:

- (a) development and implementation of a communication and information dissemination strategy to raise awareness of the Project and its activities;
- (b) organization of networking events, including business roundtables and local workshops for supporting the formation of strategic alliances between aggregators and agro-processors (“AAs”) and farmers and fishers (“FF”), buyers, and lenders;

- (c) provision of Training to AAs, FFs and buyers to identify business opportunities and to translate them into viable business proposals;
- (d) implementation of a country-wide call for interested parties to present business proposals;
- (e) evaluation of business proposals, and selection of those proposals to be developed into business plans;
- (f) provision of technical assistance for the preparation of sustainable and competitive business plans;
- (g) evaluation and selection of final business plans, and the preparation of Subproject Agreements for those selected plans; and
- (h) analysis of the qualifications of input suppliers eligible to participate in the voucher program under Part 2 of the Project.

3. A Technical Assistance Agreement between the borrowing countries and the Food and Agriculture Organization (FAO) of the United Nations, financed by contributions from the credit proceeds of both countries, will include TA support for the implementation of activities described under (c), and (f) above.

Component 2: Implementation of Business Plans (Grenada: IDA US\$0.62m; IBRD US\$ 1.80m; beneficiaries: US\$ 0.64m; SVG: IDA US\$2.73m; beneficiaries: US\$ 0.72m)

The objective of this component is to provide matching grants (not to be repaid by beneficiaries) to co-finance the implementation of technically feasible, financially viable, economically profitable, socially responsible, and environmentally sustainable business plans, which, when implemented, will contribute to a consistent and timely supply of sufficient quantities of quality produce to buyers while providing a reliable income to allied FFs. The implementation of these Business Plans will make possible an increase in productivity and quality of the products, as well as reducing dependency on rainfall, thus reducing the constraints for increasing supply during peak season and enhancing vulnerability to climatic factors. In addition, Component 2 is expected to provide climate change co-benefits derived from: (i) adaptation, by promoting innovative resource management practices to increase resilience, expanding the use of crops and crop mixes/rotations less vulnerable to climate variability, and expanding the use of protected agriculture and drought/heat resistant varieties; and (ii) mitigation, by promoting agricultural intensification using higher yielding varieties, carbon sequestration species and cropping patterns, improving irrigation measures and replacing traditional sources of energy (see Annex 5).

4. This component will finance:

- (a) The implementation of a matching grant and voucher program, including the provision of:
 - (i) training for capacity building to AAs receiving matching grants (such as in logistics, storage, marketing, agronomy, accounting, financial literacy, food processing, good manufacturing practices, packaging, labelling, traceability, quality control, food safety and hygiene, legal and environmental aspects) and FFs receiving vouchers (such as in good production practices, modern and improved technologies, climate-smart agriculture, post-harvest handling, and financial literacy); and

- (ii) support in supervising the implementation of the selected business plans (such as assisting the PIU to put in place a technical supervision and implementation support system, capable of following up the implementation of the Business Plans making sure it is following the approved Plan and detect real or potential issues that could compromise the expected results of the Plan or its effectiveness).
 - (b) Provision of matching grants to eligible AAs, and vouchers to eligible FFs, which are allied with the respective AAs, for the purpose of implementing the business plans selected under Part 1 (g) of the Project, and co-financing investments under said plans, including:
 - (i) for the selected AAs: (A) equipment (transport, office, ICT tools/mobile applications, cold storage, product processing, and so on), infrastructure (such as storage/warehouse and cold chain facilities) and other related inputs, and (B) technical assistance and specialized Training related to their respective business plans; and
 - (ii) for the selected FFs: (A) farming equipment, infrastructure and other related inputs (such as equipment for land preparation and harvesting, irrigation infrastructure (including rainwater harvesting structures and pressured irrigation, greenhouses, tunnels, hydroponics, aquaponics, and so on), and (B) fishing equipment, infrastructure and other related inputs (such as boats and fishing implements, logistics, temporary cold storage)
 - (c) Provision of (i) technical assistance and Training on procurement to AAs receiving Matching Grants, and (ii) specialized Training, in relation to the implementation of the relevant business plans, to FFs receiving Vouchers.
5. The Technical Assistance Agreement to be signed between both countries and FAO to be financed under the Project will include necessary technical support for the implementation of activities described under (a) above, unless such activities constitute a conflict of interest with the services provided under this assignment.
6. Each business plan will need co-financing from the AA (at least 20 percent of the AA investments for producer organizations and at least 50 percent for other private sector AAs). At least 10 percent of the AA costs of the subproject will have to be paid upfront in cash. The rest of the financing gap of the business plan will have to be filled by their own funds or through resources provided by other lenders (banks, credit unions, development banks, etc.). Proof of the availability of resources secured in advance from the financial sector will be a condition to start implementation of a subproject. To give producer organizations an opportunity to participate as AAs, they will not compete directly with other private sector AAs in the selection process. Producer organizations with potential will be encouraged to participate as AAs. Weaker producer groups will participate as FFs in alliance with an AA, and they will receive TA in organizational and institutional strengthening to help them become an AA in the future.
7. The mechanisms to finance subprojects will be different for AAs and FFs:
- (i) For AAs: The procurement of investment items included in the Subproject will be undertaken by the AAs for small works, goods, and individual consulting services and

non-consulting services under a threshold further defined in the POM. Above the specified threshold, and for all consulting services by firms regardless of value, all procurement for the benefit of the AAs will be undertaken by the PCU. The PCU will have a fiduciary control function of the procurement undertaken by the AAs and will provide TA and support to improve the procurement capacity of the AAs. Under this proposed mechanism, each beneficiary AA will receive funds in a specific bank account opened by the AA for its exclusive use while implementing the subproject. The counterpart funds from the AA are expected to be deposited in the same specific account as a precondition for disbursing credit funds, which will be sequenced in line with physical progress in accordance with the Subproject Agreement and the related schedule in the Subproject Procurement Plan. This matching-grants for the AAs would have a maximum of \$120,000 for productive investments and a maximum of \$20,000 for specific technical assistance.

- (ii) For FFs: The project will use a voucher mechanism to provide financial assistance to FFs. The investments to be supported by the sub-grants will be partially financed by vouchers issued by the PCU in the name of the benefitting FFs (in accordance with the terms of the respective business plans and the corresponding Subproject Agreement). The FFs will use these vouchers to complement their own funds in purchasing a specific item, confirmed and approved by the PCU, from a local supplier identified beforehand from a list of approved suppliers to be prepared by the PCU. The maximum allowed for each individual beneficiary FF will be \$8,000 and for a total of \$120,000 for all the FFs in a single Subproject. In addition, the FFs will receive free general training and extension services from FAO in collaboration with each Ministry of Agriculture and more specialized TA from other TA providers directly procured by the PCUs

Component 3: General Agricultural Services and Enabling Environment (Grenada IDA US\$0.54m; SVG IDA: US\$0.36m)

8. The objective of this component is to strengthen general agricultural public services directly linked to the subprojects described in Component 2 and needed to enhance the probability of success. It will also support the strengthening of the overall enabling environment needed for the sustained development of the business enterprises with potential competitive advantages, locally and internationally. The project will finance goods, works, consulting and non-consulting services, training and operating costs (travel, per diem, etc.) to help implement the key activities under the component. This component will contribute to generate climate change co-benefits in two main areas: (i) promotion and incorporation of techniques more resilient to climate variability into public extension services practices; and (ii) mitigation, by conducting basic research as well as introduce new technologies that reduce GHG emissions in crop production and fisheries, as well as promoting the adoption of new systems increasing carbon sequestration (see Annex 5). A TA Agreement to be signed with FAO will include technical support for the implementation of activities under (c), as described below.

9. The main activities are to:

- (a) improve the quality and availability of key inputs required for the adoption of more productive technology (such as quality seeds, seedlings, and planting materials) for products supported under Component 2 of the Project;

- (b) organize, and facilitate participation in, trade fairs and study tours;
- (c) strengthen agricultural public extension service providers' knowledge and skills to effectively (i) support the selected AAs and FFs to adopt technology, implement their business plans under Component 2 of the Project, and (ii) communicate and disseminate information broadly across the agricultural sector;
- (d) carrying out technical studies to competition improve competitiveness, including market studies, analysis of new potential value chains, enabling environment, reforms, agro-food logistics, and food safety requirements and quality standards (including legal framework) and related technical skills; and
- (e) carrying out improvements to public infrastructure that are required for the promotion of adequate internal distribution of produce, reduction of post-harvest losses, establishment of modern food safety mechanisms, as well as cold storage at key exit points for perishable agricultural exports.

Component 4: Project Management, Monitoring, and Evaluation (Grenada IDA: US\$0.66m; SVG IDA: US\$0.78m)

10. The objective of this component is to ensure effective project implementation, monitoring of activities and final project evaluation. The project will finance goods, consulting and non-consulting services, training and incremental operational costs to the PCU and the PIU for expenditures related to the project activities, including: (i) project coordination and management; (ii) monitoring, evaluation, and impact assessment; (iii) fiduciary administration, accounting and financial/technical audits; (iv) safeguards management; and (v) a citizens' engagement mechanism.

2.0 LEGAL AND REGULATORY FRAMEWORK

2.1 National Laws

All the islands within the study area have ratified several international environmental Agreements and Conventions and by their signature of the St. Georges Declaration (SDG) of 2001 have committed themselves to the Principles for Environmental Sustainability in the Organization of the Eastern Caribbean States (OECS). They all have in place several pieces of legislation and institutions to protect their environments; some of those legislations were originally enacted in the 1940's and amended in recent times.

The legal and institutional framework for environmental management in those islands have been influenced by Government's policies over the years and to a great extent, the policies of some donor agencies and regional and international agencies like the World Bank, Caribbean Development Bank (CDB) the Organization of East Caribbean States and the United Nations. Their main focus has been on the protection of sensitive and important natural resources, protection of public health and safety, and the encouragement of appropriate and feasible macroeconomic and sectoral policies, which promote sound environmental and natural resource management principles and practices. Such policies impact positively on a wide range of resources and issues that are of great importance to their economic development and the welfare of the society in general. Some of those resources and issues include the forest, mangrove swamps, marine ecosystems, historic buildings and sites, sustainable land use, wildlife protection, pollution abatement, solid waste management and waste disposal.

Another commonality among OECS national law systems is the EIA process, which is typically controlled by the Physical Planning Department (or Development Authority) in each country. Set categories of project types deemed of potentially high impact are required to prepare an EIA, for which the terms of reference are provided by the relevant Department or Authority. Once prepared the EIA is circulated to a number of referral agencies which are made up of some of the other agencies and statutory bodies with some responsibility for environmental management, to approve or make additional recommendations if necessary.

All development projects including commercial buildings, apartments, hotels, industrial building, residential or commercial subdivisions with civil works such as roads, drains, retaining walls, must submit their plans to the Physical Planning Department (or Development Authority) for approval before works can commence. This is to ensure integrity in the designs as well as orderliness of the development in keeping with the national vision. For all activities in the Project, the requirements of the relevant Physical Planning Department (or Development Authority) must be followed, as well as all laws and regulations pertaining to environmental protection in Saint Vincent and the Grenadines, Saint Lucia, or Grenada.

A more complete discussion of the regulatory frameworks of each OECS country is provided in Appendix 1.

2.2 World Bank Safeguard Policies

The World Bank projects and activities are governed by Operational Policies (OP), which are designed to ensure that the projects are economically, financially, socially and environmentally sound.³ The Bank has specific safeguard policies, which include Environmental and Social Assessments and policies designed to prevent unintended adverse effects on third parties, Project Affected Peoples (PAP) and the environment. These specific safeguard policies address natural habitats, pest management, cultural property, involuntary resettlement, indigenous peoples, safety of dams, projects on international waterways and projects in disputed areas⁴.

The World Bank's environmental and social assessment policy and recommended processing are used to identify, avoid, and mitigate the potential negative environmental and social impacts associated with Bank lending operations and are described in the Bank's **Operational Policy (OP)/Bank Procedure (BP) 4.01: Environmental Assessment**. This policy is considered to be the umbrella policy for the Bank's environmental 'safeguard policies' which among others include: Natural Habitats (OP 4.04), Forests (OP 4.36), Pest Management (OP4.09, Physical Cultural Resources (OP 4.11), Safety of Dams (OP 4.37), Indigenous Peoples (OP 4.10) and Involuntary Resettlement (OP 4.12).

Under OP4.01 the Bank will undertake **environmental and social screening** of each proposed project to determine the appropriate extent and type of environmental and social assessment required. Proposed projects are classified into one of four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts. The categories of potential environmental impacts are classified as A, B, C and FI, as described in Table 1 below.

After review of the project and its components, the OECS Regional Agricultural Competitiveness Program has not been deemed to have any major negative environmental impacts but because of the presence of the agricultural activities with minor to moderate impacts, the project has been classified as a **Category B project**. The implementation of appropriate mitigation and management measures will assist in reducing any potential negative impacts from the various project components.

³ Source:<http://www.worldbank.org/opmanual>

⁴

Source:<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTSAFEPOL/0,,contentMDK:20507440~pagePK:64168427~piPK:64168435~theSitePK:584435,00.html>

Table 1: World Bank project categories

Category	Description
Category A	Category A project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. The EA for Category A project examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" scenario), and recommends any measures needed to prevent, minimise, mitigate, or compensate for adverse impacts and improve environmental performance. For Category A project, a borrower is responsible for preparing an Environmental Impact Assessment (or a suitably comprehensive regional or sectorial EA).
Category B	Category B project has potential adverse environmental impacts on human populations or environmentally important areas, including wetlands, forests, grasslands, and other natural habitats - which are less adverse than those of Category A projects. These impacts are site specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects.
Category C	Category C project is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required.
Category FI	Category F or FI project involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.

The World Bank Safeguard Policy OP 4.01 for Environmental Assessment (EA) is triggered, and requires that an Environmental and Social Management Framework (ESMF) be prepared along with an Environmental Management Plan (EMP) to guide recommended measures. Four other World Bank Safeguard Policies dealing with natural habitats, physical cultural resources, pest management, and involuntary resettlement are also triggered by the Project, and are briefly described below⁵:

- Operational Policy 4.04 on Natural Habitats seeks to ensure that World Bank-supported infrastructure and other development projects take into account the conservation of biodiversity, as well as the numerous environmental services and products which natural habitats provide to human society. The policy strictly limits the circumstances under which any Bank-supported project can damage natural habitats (land and water areas where most of the native plant and animal species are still present). **This policy was triggered as a precaution to ensure that any affected natural habitats are adequately**

⁵Source: <http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTSAFEPOL/0,,contentMDK:20543943~menuPK:1286597~pagePK:64168445~piPK:64168309~theSitePK:584435,00.html>

protected, because some of the project sites may take place near parks or protected areas, or potentially affect lands which meet the definition of Natural Habitat.

- The objective of OP/BP 4.11 on Physical Cultural Resources is to avoid, or mitigate, adverse impacts on cultural resources from development projects that the World Bank finances. Cultural resources are important as sources of valuable historical and scientific information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. The loss of such resources is irreversible, but fortunately, it is often avoidable. Physical cultural resources are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community. **This policy was triggered as a precaution to ensure that any “chance finds” or other physical cultural resources are adequately protected.**
- Operational Policy 4.09 on Pest Management seeks to ensure that rural development and health sector projects avoid using harmful pesticides. It is possible that minor, incidental use of pesticides may also occur under the Program in the treatment of foundations for termites, or in extermination or fumigation of structures as part of rehabilitation or maintenance. The Bank requires that any pesticide it finances be manufactured, packaged, labelled, handled, stored, disposed of, and applied according to standards acceptable to the Bank. The Bank does not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II, if (a) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly. For activities with significant use or purchase of pesticides, a Pest Management Plan (PMP) will need to be prepared to ensure that these materials are well managed. **This policy has been triggered as a precaution, because pesticide use is a necessity in agricultural activities.**
- Operational Policy 4.12 on Involuntary Resettlement seeks to prevent severe long-term hardship, impoverishment, and environmental damage to the affected peoples during involuntary resettlement. The overall objectives of the Bank's policy on involuntary resettlement are the following:(a) Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs.(b) Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.(c) Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of

project implementation, whichever is higher. The purpose of the Resettlement Policy Framework (RPF) is to clarify resettlement principles, organizational arrangements, and design criteria to be applied to subprojects. For operations that may involve involuntary resettlement, the Bank requires that the Borrower screens subprojects to ensure their consistency with OP 4.12. The RPF is to be submitted by the Borrower, prior to appraisal, conforming to the policy.

There are other World Bank Safeguard Policies which will not apply to the Project, either because they are not relevant or because they will be specifically excluded from eligibility during the screening process described in this ESMF. These include:

- Safety of Dams (OP/BP 4.37). Improvements of canals or water conveyance systems are not envisioned and will be excluded in the ESMF screening criteria.
- Forests (OP/BP 4.36). The project will categorically screen out and exclude any clearing or effects on forest lands.
- Physical Cultural Resources (OP/BP 4.11). The project will screen out and exclude any effects on physical cultural resources. However, a chance-find procedure will be included as a standard precaution for all project activities.

2.3 Environmental and Social Management Capacities

The World Bank's primary contact point with OECS governments on environmental and social matters is the Project Coordination Unit (PCU) which is typically based in the Ministry of Finance. The PCU's responsibility is primarily of a fiduciary and safeguards nature, as the manager of funds for the Project. The PCUs release contracts for the various works that include the relevant mitigation measures, as specified in this ESMF. Supervision and oversight of the works to ensure compliance is ultimately the responsibility of the PCU, but in practice it is shared by the implementing agency (e.g. Ministry of Agriculture). To ensure that environmental requirements are tracked and managed, the PCUs have each designated a safeguards point of contact, typically an engineer with shared responsibilities to beneficiary or implementing agencies. This capacity is supported by the hiring of external Consultants as needed for specific project needs. Primary responsibility for the implementation of social safeguards policies also lies with the PCUs. Screening of sub-project sites for potential social risks and impacts, and subsequent development and implementation of related mitigation measures, is undertaken by the Social Development Specialist(s) within the Project Coordination Unit of each borrowing country.

A separate Environment Department is often charged with coordination of higher level initiatives, such as planning and policy efforts, or providing technical support in the review of EIAs. In Saint Vincent and the Grenadines, the PSIMPU lies within the organizational umbrella

of the Environment Department, which has facilitated coordination. This relationship will be continued under the Program.

The social safeguards issues related to this project are anticipated to be minimal. The capacity of the PSIPMU in Saint Vincent to address involuntary resettlement/land acquisition and other social safeguards issues is considered satisfactory. The Social Development Team is staffed with three individuals who have experience implementing the World Bank’s Social Safeguards policies in the context of the Regional Disaster Vulnerability Reduction Project (RDVRP) and have received safeguards capacity building training by the World Bank. In Grenada, a social development specialist will be hired by the PCU on a retainer basis to manage any social safeguards issues that arise during project implementation. The World Bank social development specialists are committed to capacity building and will work closely with the PCU or consultant to provide support and safeguards training as needed.

3.0 DESCRIPTION OF EXISTING ENVIRONMENT

The OECS countries share many common characteristics of topography, geology, ecology, water resources, history and demographics. This chapter of the ESMF provides a brief summary of physical and social conditions in the region.

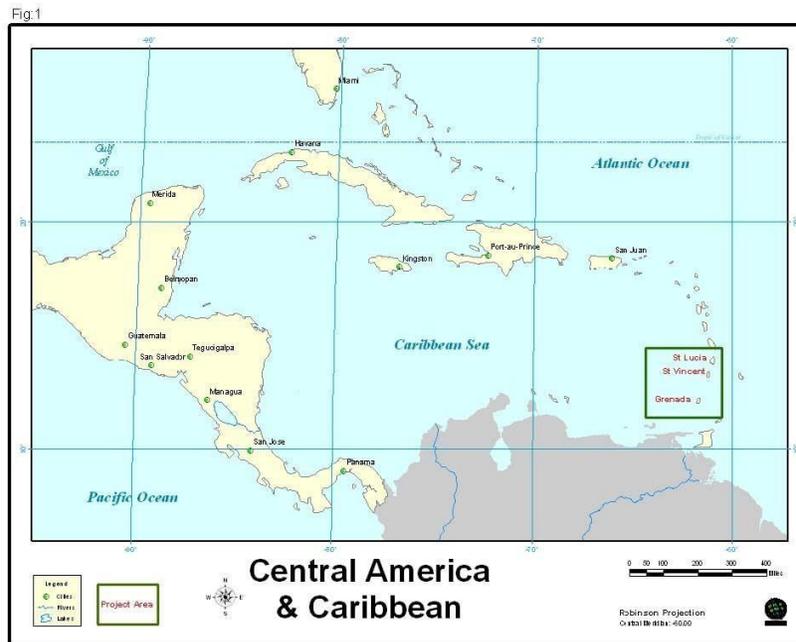


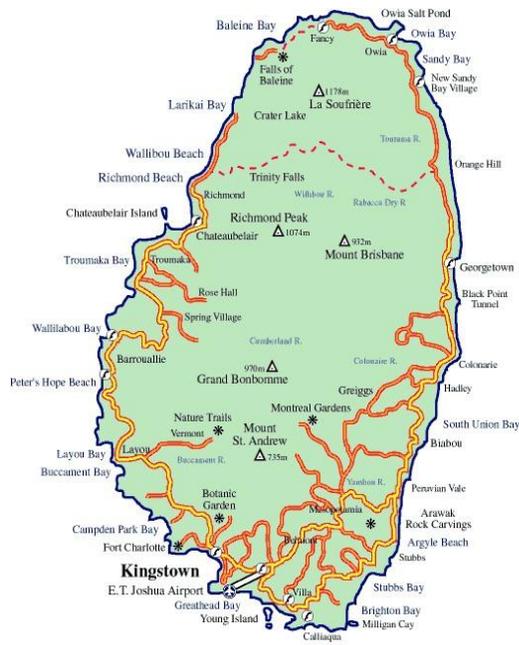
Figure 1. Location Map of Grenada, and Saint Vincent and the Grenadines, within Central America & Caribbean region

3.1 Physical Environment

Saint Vincent and the Grenadines consists of a main island and a chain of 32 islands and cays, approximately 389 km² (150 square miles) in area. Grenada, which includes the inhabited islands of Grenada, Carriacou, and Petite Martinique to the northeast, has an area of 344 sq km (131 sq mi) and a coastline of 121 km.

All are archipelagic states in the Eastern Caribbean (Figure 1) of volcanic origin, formed by the active tectonic process of crustal subduction, which creates deep ocean trenches and steep coastal mountain ranges. Volcanic ash has created rich and fertile soils which support lush vegetation. Apart from recent alluvial deposits such as river and beach sands, and a few outcrops of sedimentary and marine deposits such as limestone and coral, only igneous rocks are found on most parts of the islands.





Figures 2a-2b. Maps of Saint Vincent and the Grenadines, and Grenada

The islands each have a central axial range of mountains running north-south, with steep topography and a narrow coastal belt and limited flat land area. Relief is pronounced with the highest peaks exceeding elevations of 4,000 feet in Saint Vincent, and 2,700 feet in Grenada (Figures 2a-2b). The volcanic mountains divide the islands between an eastern or windward side and a western or leeward side. Rainshadow effects distribute the rainfall across the islands with drier conditions in the southern and western parts of the islands, while the orographic effect creates a steep precipitation gradient from the coast to the highlands. On the Saint Vincent mainland, annual rainfall ranges from over 250 inches in the wet central mountainous interior to below 60 inches in the dry coastal locations; Grenada is somewhat drier with maximum rainfall exceeding 160 inches in the highlands. Watersheds tend to be steep, narrow, and prone to flash flooding from extreme rainfall events that include hurricanes and tropical depressions or troughs. Rainfall is bimodal with a wet season from June to November, with most precipitation occurring in the tropical storm season (Figure 3).

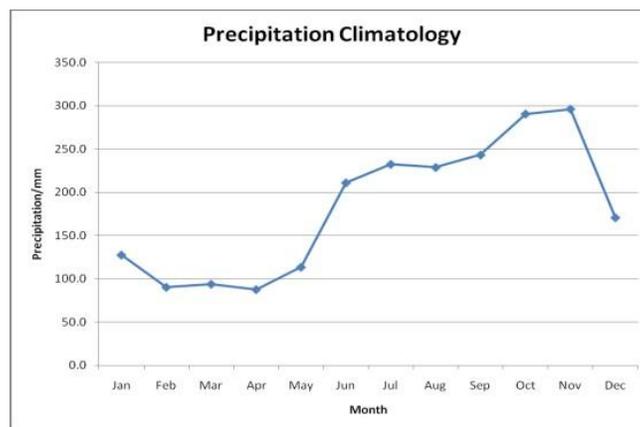


Figure 3. Mean annual monthly rainfall for Saint Vincent (ET Joshua Airport 1987 -2008). Units are mm/month.

The OECS countries are vulnerable to a number of natural hazards such as hurricanes, earthquakes, volcanic activity, drought, tsunamis, flooding, and landslides. The effects of these phenomena can be exacerbated by the activities of population such as deforestation, indiscriminate garbage disposal, poor building practices, and unplanned settlements in environmentally sensitive areas. Periodic droughts also place tremendous strain on local and national water supplies, especially combined with high sedimentation rates often exacerbated by watershed erosion which clog water intakes and reservoirs. Periodic heavy rainfall events cause major disasters from landslides, debris flows, river floods, causing major damage to infrastructure, major roadways and settlements, resulting in loss of life and property. Seismic and volcanic hazards are appreciable and vary from island to island; the Soufriere in Saint Vincent is considered the region's most active volcano, erupting twice over the last century and causing fatalities and displacement of populations. Coastal zones are also vulnerable to storm surge during hurricanes typically ranging from 2 to 5 meters. The windward (eastern) sides of the islands are exposed to long-fetch waves across thousands of miles of open Atlantic Ocean,

and consequently there are numerous erosion “hot spots” vulnerable to wave energy. Tsunamis also pose a hazard in the Eastern Caribbean and can be caused by earthquakes, by avalanches off the side of La Soufriere or other volcanoes (Le Friant and others, 2009), and by eruptions of volcanoes particularly those lying on the seafloor such as Kick-‘em Jenny near Grenada, which could result in a 2-meter tsunami arriving at St. Vincent within 15 minutes of eruption (Gibbs, 2001).

3.2 Biological Resources and Land Use

The natural vegetation of the OECS countries exists in several stages of development and/or disturbance caused by human and natural (volcanic) interventions, and is therefore defined by a climax vegetation formation based on environmental gradients. The concentric variations of rainfall with elevation also give rise to concentric variations in vegetation. The physical and environmental conditions of rainfall, soils, elevation, terrain, and exposure to the trade winds, results in a remarkable diversity of eco-systems and forest types, including elfin woodland on high mountain summits, rain forest and palm brakes on slopes and along valleys, deciduous seasonal forests and cactus scrub on lowlands, and littoral woodlands, mangrove and swamps on the coasts.

Ecosystems in OECS countries are highly diverse, with more than 1,000 species of flowering plants, more than 150 species of ferns, and more than 100 species of birds. Table 2 provides a summary of endemism and biodiversity in Grenada. Forests are key to biodiversity, in some cases exhibiting more than 100 species of trees per hectare. Endemism is high, with a number of ground-dwelling amphibians and reptiles unique to each island; the parrots in Grenada and Saint Vincent are also endemic to each island and are cherished as representative of national identity.

Table 2. Endemism and Biodiversity in Grenada

Resource	No. of species	No. of endemics
Plants	Approx. 2000	3
Amphibians	4	0
Reptiles	5 8	1 0
Birds	Approximately 150	-18 threatened 1(+1 sub-species)
Marine and Brackish Water fauna	233 and 69 respectively	
Freshwater fauna	17	
Mammals(indigenous)	4	0

Source:ICPB, 1988

Grenada has a forest area of 15,000 hectares, about half of the three island's 33,669 hectare total land area. The mountainous forest lands have been set aside as Forest Reserve or National Park land to various degrees. Deforestation is a common challenge and caused serious damage to many watershed areas during the heyday of banana cultivation. Clandestine cultivation of ganja occurs in the roughest terrain in some mountainous areas, and is an emerging major cause of deforestation and land degradation. Protected areas in Grenada and Saint Vincent are shown in Figure 4a and 4b, respectively.

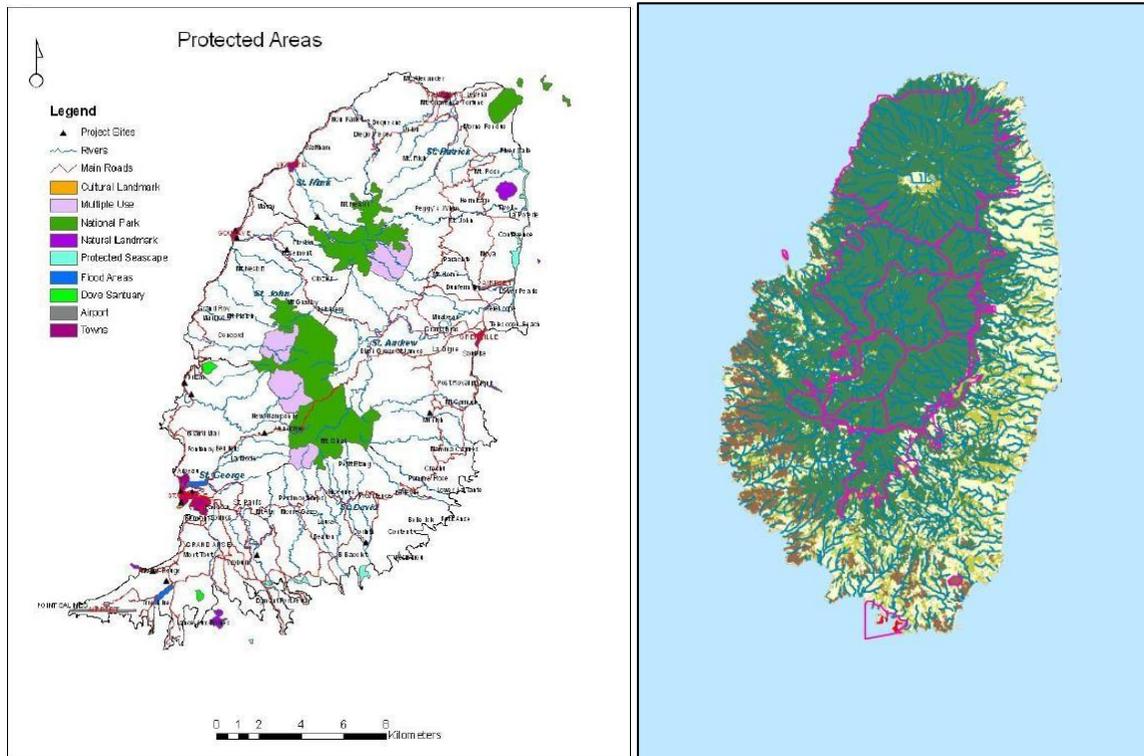


Figure 4a, 4b. Map of Protected Areas in Grenada (left) and Saint Vincent (right).

3.3 Socio-economy and Human Settlement

The Eastern Caribbean islands were originally populated by Amerindian peoples, known as Arawak Indians. The Spanish arrived in 1498 and built secure harbor locations which attracted traders and some French settlers during the 16th century. The British fought for control of the islands and by the late 18th century the area was under British rule.

As of 2012, Saint Vincent and the Grenadines had approximately 108,570 inhabitants, and Grenada had about 106,000. Historical settlement patterns have followed along flat coastal areas near major rivers or fishing banks. The population of Saint Vincent and the Grenadines is concentrated in the south of the main island (St. Vincent), particularly in Kingstown and Calliaqua and their suburbs. As the population has increased, the settlement pattern has slowly crept up from the low lying urban areas into the surrounding hillsides creating expanding

suburban settlements. Many of these settlements are unplanned. This urban sprawl is largely the result of rural urban migration. Lower income households generally reside in some of these areas on the hillsides, and coupled with inadequate drainage and unplanned sewage systems and services, find themselves vulnerable to landslides and exposures to hurricanes.

In the Eastern Caribbean, much of the population (90% or more) is of African descent, while the remainder is a combination of East Indian, European and indigenous people. St. Vincent and the Grenadines is internationally classified as a lower-middle-income country. The economic development is structured around the agriculture, tourism and international business services sectors. The Gross Domestic Product (GDP) per capita (2008) is US\$5,515; the literacy rate is 96% and the life expectancy at birth is 74 years. In 2009, the overall Human Development Index (HDI) Value is 0.772 and the country is ranked 91st in terms of HDI.

In recent decades the economy of the Eastern Caribbean is increasingly dominated by tourism. In Saint Vincent in 2004 the number of stop over tourists reached 86,700 with tourism receipts totaling US\$95.6 million. Due to the contraction of the agricultural sector, the tourism sector is now making a greater contribution to national development with direct investment and ancillary development in support service sectors. This trend is anticipated to increase as national development policy seeks to place the hospitality sector within the main engines of economic growth.

3.4 Physical Cultural Resources

The rich culture and history of the Eastern Caribbean have created physical cultural resources, which are features or objects of interest and value to the nation's people because of their archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. These may include artefacts, objects, sites, structures, groups of structures, and natural features and landscapes, and may be located in urban or rural settings, above or below ground, or under water. Cultural resources are important as sources of valuable historical and scientific information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. Recognition of physical cultural resources may be at the local, national level, or within the international community.

National treasures in the Eastern Caribbean typically include the Botanic Gardens, which have a rich heritage and longevity, being some of the largest and oldest in the western hemisphere. Petroglyphs are found in numerous locations (e.g. Layou in Saint Vincent). Historical buildings and forts, antiquated churches, and old cemeteries are typically features of community importance or international renown, often featuring excellent stonemasonry work and architectural style. Relicts of forts or plantations, shipwrecks may have great local or international value, thus meriting attention and preservation.

4.0 POTENTIAL PROJECT IMPACTS

The following discussion of impacts is generalized to include the broad spectrum of activities that could take place under the Project. The investments could take place anywhere in Grenada or Saint Vincent and the Grenadines, and eventually in other OECS countries.

As mentioned in Section 2.2 of this ESMF, the project will include a suite of agriculture related activities which could entail negative impacts that would fall under *Category B* in accordance with WBG Policy OP/BP 4.01 (small scale agro-industries; small scale rehabilitation, maintenance, and upgrading of various facilities such as cold storage or drydocks; animal production, aquaculture, or mariculture; establishment of greenhouses, plantation of new field crops or orchards, etc.). For such activities the Bank requires a simple and/or a partial environmental assessment, or an Environmental and Social Management Framework (ESMF) because the details of potential projects are not yet known. It is also expected that many of supported subprojects will not have environmental impacts and will fall under the *Category C* in accordance with OP/BP 4.01 (for example, purchase of equipment or machinery). The ESMF provides a framework for the screening, evaluation, and management of potential negative impacts.

4.1 Summary of Project Activities

Under Component 2, the Project would co-finance aggregators' investments such as transport, storage, post-harvest, cold chain facilities, ICT tools and mobile applications, equipment, infrastructure, or energy-saving technologies; and for allied producers, investments such as equipment for land preparation and harvesting, irrigation infrastructure including rain water harvesting, greenhouses, tunnels, hydroponics, and aquaculture. Technical assistance, training, and extension services would also be provided for storage, marketing, agronomy, accounting, financial literacy, food processing, machinery, packaging, labeling, traceability, quality control, or food safety and hygiene; and good agricultural practices, modern and improved technologies, climate smart agriculture, post-harvest handling or financial literacy.

During project development, field visits were made for preliminary assessment of the most common types of projects with potential environmental and social impacts, including the following:

- Farming of annual and perennial crops
- Greenhouses and nurseries
- Agroprocessing facilities (produce for export)
- Agroprocessing facilities (bottling and packaging plants)

Other types of agriculture-related projects that may be considered could be:

- Aquaculture, mariculture or hydroponics

- Animal husbandry or livestock rearing
- Orchards or other perennial crops
- Improvements or construction of drydocks, cold storage facilities, etc.

In many cases the project activities may also be associated with small civil works, such as construction or improvement of buildings, facilities for washing, sorting, cold storage, transportation, or processing. These are considered “construction works” and are discussed separately from the typical agriculture related impacts.

4.2 Potential Positive Impacts

There are both positive and negative impacts attendant to the project and its components. This section of the ESMF provides a detailed discussion of the impacts so that the mitigation measures can be designed to optimize the positive impacts and reduce the negative impacts. The impacts indicated above will be reduced and mitigated as described in Section 5 of this ESMF.

There are several potential positive impacts of the project and associated works. The positive impacts are expected to be significant and associated with the reduction in imports and the potential economic growth and development likely to occur as a result of the improvement in agricultural services such as increased income and employment opportunities, improvement in the quality and standard of living. The respective local communities should also benefit from employment and income-generating opportunities created during the implementation of the project. This is a significant and major impact.

The activities to be implemented under the project will generate a great number of both direct and indirect positive impacts. *Direct positive impacts* will be generated by increased production, products and goods which would result in creation of new jobs and respectively, more employment and increased income. *Indirect positive impacts* will relate to overall improving of business environment, increased exports and secured enterprises domestic market position, introduction of advanced technologies and techniques, creating new opportunities for access to foreign markets, enhancement competitiveness of domestic production and products, contribution to poverty reduction and food safety, and improvement of country’s socio-economic conditions.

Another major positive impact is the increased visibility of OECS agricultural products and enhancement of the region’s reputation for gastronomic tourism, eco-tourism, historical tourism, and other activities that highlight and showcase the bounty and resources of the OECS region. With such exposure may come appreciation and desire for protection and conservation.

Efforts to maximize the positive benefits of the works should be sought during design and implementation. For example, mixed cropping or taungya system is commonly practiced to diversify crops and stabilize soils, and offers synergies with agroforestry initiatives in the region. Pest management is also being improved through other World Bank projects in the region (e.g. P127226, P129992, P117871, P146965) and lessons learned will be applied to the OECS

Agricultural Competitiveness Project. Processing or storage facilities could be located in nonagricultural lands, and will apply lessons learned in other projects in the region (e.g. P105122).

4.3. Potential Negative Impacts

The potential adverse environmental impacts of proposed types of subprojects are summarized in the Table 3 below, based on the relevant WBG EHS Guidelines.

Table 3. Potential negative impacts and issues generated by sectoral and construction activities

Project Type	Areas of Concern	Significance
Agricultural Production	<ul style="list-style-type: none"> ☐ soil degradation (soil erosion, loss of organic content, compaction, etc.) ☐ soil and water pollution ☐ loss of agricultural biodiversity (e.g., due to cattle grazing, GM crops, etc.) ☐ human health and safety 	High High High Moderate
Fisheries	<ul style="list-style-type: none"> ☐ water degradation through water pollution by releasing pollutants; loss of marine biodiversity (e.g., due to over fishing, wrong techniques, etc.) ☐ human health and safety 	Moderate High High
Processing	<ul style="list-style-type: none"> ☐ water and energy consumption ☐ water pollution ☐ waste disposal ☐ air quality ☐ human health and safety 	High High High Moderate Moderate
Animal Rearing and Aquaculture	<ul style="list-style-type: none"> ☐ water and energy consumption ☐ water pollution ☐ waste disposal ☐ air quality ☐ human health and safety 	High High High Moderate Moderate
Construction Works	<ul style="list-style-type: none"> ☐ soil erosion ☐ soil pollution ☐ land degradation/ aesthetics ☐ air pollution ☐ noise water pollution 	Moderate High High Moderate High Moderate

Each of the impacts is described in more detail below. Measures to avoid, minimize, and mitigate the negative effects, are described in Section 5 of this ESMF.

4.3.1 Crop Production

Annual and perennial crop production issues primarily include the following:

- Soil Conservation and Management
- Nutrient Management

- Crop Residue and Solid Waste Management
- Water Management
- Pest Management
- Use and Management of Pesticides
- Fertilizers
- Biodiversity and Ecosystems
- Genetically Modified Crops (GM Crops)
- Energy Use
- Air Quality
- Greenhouse Gas (GHG) Emissions

A thorough discussion of these impacts and recommended mitigation measures is provided in the WBG Environmental, Health and Safety Guidelines for Annual Crop Production and Perennial Crop Production. Aspects particularly relevant to the OECS are expanded upon below.

- **Soil Erosion.** In the Eastern Caribbean, the prime agricultural lands are in relatively flat lying areas; however, fairly steep areas are routinely cultivated and therefore soil conservation and erosion control are of concern. In many OECS countries, landslides have occurred due to clearing of steep areas and planting of shallow rooted banana. Poor drainage control is often implicated in these situations.
- **Water supply** is an important factor in crop productivity. Diversion of rivers and streams is typically done without the benefit of a permitting system, which can affect downstream users especially in times of drought or scarcity. Low-efficiency sprinkler irrigation systems are commonly used.
- **Pesticides, herbicide and fungicides** are critical to the success of annual and perennial crops; however, they are often applied without regard to manufacturer's recommendations, proper training or personal protective equipment, adequate handling and storage, or other precautions in the field. Integrated Pest Management (IPM) is not commonly practiced in the OECS.
- **Occupational health and safety practices** are commonly marginal for agricultural workers in the OECS, usually with smallholders. Independent small farmers may not prioritize their own safety and security.

4.3.2 Greenhouses and Nurseries

The potential impacts and issues associated with greenhouses and nurseries are similar to those enumerated above for annual and perennial crop production. In addition, the following factors affect environmental and social conditions in the OECS:

- Use of pesticides and fertilizers tends to be more intensive in greenhouses, as soil volumes are limited and vulnerable to nutrient depletion or pest invasion.

- Nurseries may be supplied with a greater variety of plants, which could include types with invasive potential, or GMO characteristics.
- Rainwater harvesting is more easily practiced at nurseries and greenhouses, depending on the type of roof material.
- Traffic safety and access issues may also be of concern in some high-density areas.

4.3.3 Agroprocessing

The environmental and social impacts of agroprocessing operations are generally described in the EHS Guidelines for food and beverage processing and include:

- Solid Waste
- Wastewater
- Energy Consumption
- Air Emissions

Agroprocessing operations can range from simple facilities for washing, sorting, boxing and shipping produce, to more complex operations such as fermenting, extraction and separation, bottling or canning, and other processes. Relevant to the OECS are the following aspects:

- Bottling and packaging facilities may have occupational health and safety concerns, from noise, dust, and equipment.
- Water supply and discharge of wastewater from facilities located inside industrial parks will be less problematic than establishing new systems at greenfield sites.
- Food safety (hygiene) issues enter into all agroprocessing facilities but are more acute in those involving higher degrees of processing, bottling, and canning.
- Supply chain concerns were noted to be potential issues in sourcing of some commodities (e.g. soursop) as regards praedial larceny and child labor issues.

4.3.4 Animal Rearing and Processing

Raising of pigs, goats, and poultry are all possible project activities, as are slaughtering and processing facilities. The main environmental issues, as described the EHS Guidelines for these activities, are the following:

- Solid organic wastes and by-products
- Wastewater

- Air Emissions
- Energy Consumption
- Hazardous Materials Management
- Ecological Impacts
- Animal Diseases

For facilities in the OECS the siting criteria and local permitting issues for animal rearing facilities may assume greater importance due to high population density and large topographic relief in some areas.

4.3.5 Aquaculture and Mariculture

EHS Guidelines for aquaculture identify the following main potential issues:

- Threats to biodiversity
- Contamination of aquatic systems
- Hazardous materials

Coastal zones and reefs may be affected by mariculture activities, and aquaculture can degrade coastal and riparian ecosystems. Conversion of natural habitat, land salinization, introduction of alien or invasive species, and impacts of harvesting on ecosystem functions or sustainability, are all threats to biodiversity. Contamination of aquatic systems can occur by soil erosion and sedimentation, and by wastewater discharges with high organic and nutrient load, suspended solids, and chemical residues including feed supplements and antibiotics. Oils, fertilizers, and other chemicals may also be released. Turbidity from construction in water may also deleteriously affect marine life by siltation and sedimentation, with potential damage to sea-grass meadows, coral reefs, or other sensitive natural habitat. Increased boat and ship traffic also has negative implications for marine safety, as well as increased risk of improper waste management, fuel spills, and other impacts.

In the Eastern Caribbean island states there are abundant opportunities for mariculture and aquaculture; there are also many sensitive shorelines, coastal zones, seagrass meadows, and patch reefs, many of which are protected by law. If project activities are to take place in areas where coral reefs, sensitive coastal ecosystems, or marine protected areas occur, then additional evaluation would be needed.

The potential environmental effects of fish processing facilities are similar to those for processing of other animals, as previously described.

4.3.6 Construction works

All the works may also carry negative impacts to environment, health and safety during the execution of typical construction works such as buildings, warehouses, access roads, and other

associated facilities. These types of small civil works generally carry associated impacts which are minor and of short duration. The effects of the impacts above can be described individually as follows:

- Loss of or Damage to Physical Cultural Resources
- Destruction or Damage to Terrestrial Natural Habitat
- Impacts on the Marine and Coastal Environments
- Road safety, traffic and community risk
- Increased Vibration and Noise levels
- Poor Solid and Liquid Waste Management
- Poor Hazardous Material Management
- Air pollution
- Soil Erosion and Land Slippage
- Occupational Health and safety issues
- Involuntary Resettlement (which could refer to permanent or temporary acquisition of private land; physical or economic displacement)

Each of the impacts is described in more detail below. Measures to avoid, minimize, and mitigate the negative effects, are described in Section 5 of this ESMF.

Loss of or Damage to Physical Cultural Resources. During construction activities there is the possibility of coming across or “chance finding” what may appear to be an historical or cultural artifact which may need to be studied and preserved by the relevant authorities.

Destruction or Damage to Terrestrial Natural Habitat. Projects may be undertaken close to designated parks, protected areas, or reserves. Sediment, runoff or discharge from farms or processing facilities could affect downstream areas of natural habitat such as riverine or riparian ecosystems. If vegetation is to be cleared in areas considered natural habitat, then the screening mechanism for Natural Habitats is triggered and additional assessment is required to properly develop mitigation measures. Likewise if project activities are to take place in areas where coral reefs, sensitive coastal ecosystems, or marine protected areas occur, then additional evaluation would be needed.

Impacts on the Marine and Coastal Environments. Coastal zones and reefs may be affected by project works and activities. If project activities are to take place in areas where coral reefs, sensitive coastal ecosystems, or marine protected areas occur, then additional evaluation would be needed. The design of jetties, docks, or other structures in the marine or coastal environments may affect wave energy, currents, or sediment transport, resulting in unintended changes to beach and nearshore ecosystems. Installation of jetties and docks may also cause damage to the marine environment due to physical disturbance of the seafloor and benthic organisms (if poorly routed), generation of silt during dredging, and degradation of poorly selected materials over time. Dock sites may be located in sensitive coastal areas, where beaches important to tourism occur, or where they could interfere with fishing or boat traffic. Turbidity from construction in water may also deleteriously affect marine life by siltation and sedimentation, with potential damage to sea-grass meadows, coral reefs, or other sensitive natural habitat. Increased boat and

ship traffic also has negative implications for marine safety, as well as increased risk of improper waste management, fuel spills, and other impacts.

Increased Traffic and Potential for Traffic Conflict. Access to facilities for trucks can create the possibility of road hazards, and community conflict can occur if traffic management procedures are not well managed.

Increased Noise and Vibration levels. Increased noise and vibration levels resulting from construction activities such as the movement of heavy supply trucks into and out of the site, the use of various forms of heavy equipment such as demolition equipment, can have negative impacts on nearby residents or structures. The use of the vibration and / or noise producing equipment can be a potential nuisance to the local community depending on location. It may also create an unacceptable disturbance to marine species.

Poor Solid and Liquid Waste Management. The improper management and disposal of both solid and liquid wastes can be detrimental to both the terrestrial and to the nearby marine environment. The mishandling of construction wastes such as chemicals, detergents, greases, oils, building materials, can lead to the poisoning of the terrestrial environment. The entry into the marine environment of any waste or chemical, either through runoff, in drains, or are blown by the wind can also poison the marine environment or damage the fragile marine ecosystem. The management of human wastes on site is very critical to ensuring a healthy working environment and reduce the risk of faecal contamination. The management of food wastes is also critical to reducing the incidence of vector entry into an area causing infestation. Improper disposal of human wastes can lead to similar effects.

Poor hazardous material management. Fuel, oils and solvents from machinery and vehicles can be spilled on site or improperly disposed of, causing soil or water contamination. During construction, and with heavy traffic, there are likely to be increased risks of accidental spills of oils and fuels. Poor practice in the storage, use and disposal of fertilizers, pesticides, fungicides and herbicides also leads to a risk of soil or water contamination from these chemicals, as well as effects to human health, aquatic organisms, birds and other wildlife. This also applies to pesticides used in termite treatment for building foundations.

Air Pollution. Air quality can be affected by vehicles and machinery with noxious fumes such as carbon monoxide, diesel fumes, as well as burnt oil fumes. Dust also arises from cleared land that has been exposed to the sun, is dried, and the wind carries this material to nearby residences or communities. Similarly, uncovered fines such as sands or even cement can be light enough to be blown by the wind, creating a nuisance to nearby facilities or communities. The mishandling of particularly noxious chemicals such as solvents or chemical washes, greases, as well as the burning of solid wastes on the construction site, especially chemical containers, can lead to air pollution resulting in negative health impacts.

Soil Erosion and Land Slippage. The practice of land clearing and especially mass and sometimes indiscriminate land clearing, excavation practices, as well as poor site drainage can lead to exposed soil. This, the nature of the exposed soil, in combination with the precipitation

and/or poor drainage, can lead to land slippage especially on steep slopes. This can result in loss of life and property. Eventually this material can wash down into rivers and then to the sea causing siltation and sedimentation.

Occupational Health and Safety Issues. The International Labour Organization (ILO) defines decent work as safe and having appropriate compensation. Worker safety is critical to any operation, therefore, mishandling of equipment, the improper storage and usage of various chemicals and construction materials on site, poor and unsafe working conditions, high levels of continuous noise and fumes, as well as inadequate safety equipment can cause serious injury and down time to the workers and project and should therefore be avoided. Best management practices should always be implemented as labour laws hold the employer responsible for the workers safety. Proper facilities will need to be provided for workers in the interest of the workers and the environment. There is also potential hazards during any offshore or work (ie, over-water) such as fishing, boating, dock or jetty construction.

Involuntary Resettlement. While private land acquisition is not anticipated, construction or rehabilitation works may lead to permanent or temporary land acquisition, resettlement, and/or economic displacement. These social impacts may cause severe long-term hardship, impoverishment, and social unrest unless appropriate measures are carefully planned and carried out. Physical relocation of squatters, removal of crops planted on crown lands, and inadequate or poorly timed compensation payments can all lead to these types of negative effects and are considered under the umbrella of “involuntary resettlement”.

5.0 MITIGATION MEASURES

As described in Section 2 of this ESMF, proposed activities may involve crop production of annual and perennial crops; construction and operation of greenhouses and nurseries; agroprocessing facilities such as washing, sorting, packaging, cold storage and drydocks; food processing facilities such as bottling or canning plants, meat processing or storage facilities; aquaculture, mariculture or hydroponics; facilities for animal husbandry or livestock rearing; or other agriculture or agroprocessing activities. Impacts specific to these types of projects are described in Section 4 of this ESMF, along with the impacts typically associated with small civil works such as construction or improvement of buildings, facilities for washing, sorting, cold storage, transportation, or processing.

Mitigation measures seek to address and manage the potential impacts of the projects, so as to reduce or avoid negative social and environmental impacts. This section of the ESMF describes the mitigation measures specific to the various types of agriculture and agroprocessing projects envisioned; the special mitigation measures relevant to pesticide, herbicide, and fungicide; and, those relevant to general construction projects. These mitigation measures form the core for an Environmental Management Plan (EMP) for given project activities, and would serve to encompass all the possible negative effects for the small scale activities envisioned for most situations; however, larger projects or those with particularly complex, sensitive or special conditions would likely require additional assessment, permitting, and analysis. Finally, additional information is given with respect to management of the social impacts for projects or activities that involve involuntary resettlement, compensation payments, land acquisition or leasing, and related aspects.

5.1 Mitigation Measures for Typical Projects

The WBG EHS Guidelines for the agricultural sector include detailed treatment of mitigation measures for various agribusiness and food production activities, including:

- Annual Crop Production
- Aquaculture
- Breweries
- Dairy Processing
- Fish Processing
- Food and Beverage Processing
- Mammalian Livestock Production
- Meat Processing
- Perennial Crop Production
- Poultry Processing
- Poultry Production
- Sugar Manufacturing

Vegetable Oil Production and Processing

These EHS Guidelines are the primary source of EHS mitigation measures for the Program, and should be adhered to where applicable for specific project activities. Additional considerations specific to the OECS are suggested in the following paragraphs.

□ **Annual and Perennial Crop Production.** Good agricultural practices will address most negative EHS issues, and are spelled out in the EHS Guidelines for Annual Crop Production and Perennial Crop Production.

Table 4a. Sectoral Impacts & Mitigation Measures (Crop Production)

Potential Impact	Mitigation Measure
Soil Erosion	Minimize plantings on steep slopes. Ensure that drainage and runoff are properly channelled to reduce erosion. Use contour and strip planting, terracing, discontinuous trenching, intercropping with trees, and grass barriers where appropriate to reduce erosion. Plan and control the size, location and flow of water from access roads. Consider crop rotation, “mixed cropping” and taungya system cropping.
Nutrient Management	Consider the use of green manures, cover crops, or mulching techniques. Time the application of nutrients to maximize uptake and minimize runoff.
Crop Residue and Solid Waste Management	Recycle residues and other organic materials through composting and spreading. Consider using crop residues for beneficial purposes (feed, bedding, thatching).
Water Management	Upgrade sprinkler systems where feasible to minimize water loss. Install drip systems and rainwater harvesting where feasible. Use plastic mulch or other crop covers to reduce water use. Ensure that river diversions follow local permit and/or user association rules. Store fuels for pumps and generators away from streams and rivers.
Pest Management	Follow IMP protocols as described in section 5.2 of this ESMF. Ensure adequate storage, handling, and disposal, as per section 5.2 of this ESMF.
Fertilizers	Store fertilizers in their original packaging in a dedicated location with limited access. Keep fertilizers separate from pesticides and fuels. Upgrade mixing and delivery systems where feasible.
Biodiversity and Ecosystems	Control runoff, dust drift, or other effects on riparian or riverine zones or other areas where natural habitat occurs. Avoid GMO (genetically modified organisms) crops. Avoid the introduction of invasive species.
Air Quality	Avoid open burning for land preparation, weed control, and post-harvest treatments. Prohibit burning of pesticide-treated agricultural wastes and by-products. Establish natural wind barriers (vegetative field borders, hedgerows)

Health and Safety	Ensure workers follow Occupational Health and Safety Guidelines in the WBG reference document, particularly for physical hazards, organic dust exposure, chemical hazards, and biological hazards. Prioritize the control of Community Health and Safety concerns, including traffic, access, odors, and chemical exposure, as per the EHS Guidelines.
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□**Greenhouses and Nurseries.** In addition to the items described above, greenhouse and nursery projects in the OECS may also benefit from the following measures.

Table 4b. Sectoral Impacts & Mitigation Measures (Greenhouses)

Potential Impact	Mitigation Measure
Pest Management	Ensure adequate ventilation in greenhouses and nurseries when applying pesticides, herbicides, and fungicides. If bed soils are removed and replaced, determine residual pesticide or chemical content and store and dispose of the residual soils appropriately. Follow all other stipulations in section 5.2 of this ESMF as regards IMP, storage, handling, and disposal.
Water Management	Utilize rainwater harvesting and drip systems where possible.
Fertilizers	Store fertilizers in their original packaging in a dedicated location with limited access, separately from pesticides and fuels. Use fertigation and upgraded mixing and delivery systems.
Health and Safety	Follow Occupational Health and Safety Guidelines in the WBG reference document, particularly for physical hazards, organic dust exposure, chemical hazards, and biological hazards. Prioritize the control of Community Health and Safety concerns, including traffic, access, odors, and chemical exposure, as per the EHS Guidelines.
Siting and Construction	Ensure proper location, drainage, access. Ensure that necessary permits from local or national authorities are in place. Follow construction mitigation measures in section 5.4 of this ESMF.

□**Agroprocessing: washing, sorting and packing.** Facilities with relatively simple processing activities.

Table 4c. Sectoral Impacts & Mitigation Measures (Agroprocessing)

Potential Impact	Mitigation Measure
Water Management	Utilize rainwater harvesting or low-flow fixtures where possible. Ensure that water runoff is properly controlled or disposed of.
Health and Safety	Follow Occupational Health and Safety Guidelines in the WBG reference document, particularly for physical hazards, organic dust exposure, chemical

	hazards, and biological hazards.
Siting, Design & Construction	Ensure proper location, drainage, access. Ensure that necessary permits from local or national authorities are in place. Follow construction mitigation measures in section 5.4 of this ESMF.
Supply Chain	Ensure that produce is required from reputable and known sources to avoid praedial larceny. Ensure that suppliers do not condone child labor or questionable labor practices.

□ **Agroprocessing: Food and Beverage Processing.** In addition to the items mentioned above, more complex processing of food and beverage products will result in greater potential impacts. The EHS Guidelines for food and beverage processing should be followed, as well as the following considerations in the OECS.

Table 4d. Sectoral Impacts & Mitigation Measures (Food & Beverage Processing)

Potential Impact	Mitigation Measure
Solid Waste	Follow good practice per EHS Guidelines for inventory storage, monitoring, sludge management, recycling and reuse.
Water Management	Consider reuse and recycle of water supply as per EHS Guidelines. Control waste streams, and separate stormwater from process wastewater per EHS Guidelines. If wastewater is directed to a central system, ensure that volumes are adequate and that quality is within permit limits and acceptable standards. New or ancillary wastewater systems should follow all permit and design requirements.
Health and Safety	Follow Occupational Health and Safety Guidelines in the WBG reference document, particularly for physical hazards, noise, heat and cold, organic dust exposure, chemical hazards, and biological hazards. Prioritize community safety for traffic access, odors, and dust control. Follow process, equipment and staff hygiene recommendations in EHS Guidelines. Control food safety impacts using current official standards (Codex Alimentarius) per EHS Guidelines.
Siting, Design & Construction	Ensure proper location, drainage, access. Ensure adequate insulation of cold storage areas, doors, and airlocks. Ensure that necessary permits from local or national authorities are in place. Follow construction mitigation measures in section 5.4 of this ESMF.
Air Quality	Use recommended techniques (stack height, scrubbers, and other in EHS Guidelines) to minimize odor including fugitive emissions. Control dust and particulate matter (PM) by covering skips and stockpiles, closing conveyors, using cyclones or fabric filters as necessary. Ensure that point source emissions meet EHS Guidelines and national standards.

□ **Animal Rearing and Processing.** EHS mitigation measures for these types of facilities include the items above for food processing, but also include additional measures described in the relevant EHS Guidelines for mammalian livestock and poultry. Additional considerations specific to OECS countries are also mentioned below.

Table 4e. Sectoral Impacts & Mitigation Measures (Animal Rearing)

Potential Impact	Mitigation Measure
Waste Management	Consider the use of anaerobic biodigesters for manure decomposition. Consider sludge drying and reuse. Apply special measures for carcass disposal per EHS Guidelines.
Water Management	Reduce water requirement by various means per EHS Guidelines. Use double valves in critical locations (lagoons, sludge pits) to prevent release. Cover lagoons and pits if necessary to prevent flood release. Control waste streams, and separate stormwater from process wastewater. New or ancillary wastewater systems should follow all permit and design requirements.
Health and Safety	Follow Occupational Health and Safety Guidelines in the WBG reference document, particularly for exposure to dust, biological agents, confined spaces, and chemicals. Prioritize community safety for traffic access, odors, and dust control. Control food safety impacts using current official standards (Codex Alimentarius) per EHS Guidelines.
Hazardous Materials	Follow all pesticide stipulations in section 5.2 of this ESMF. Exclude pests by maintaining structures, housekeeping and mechanical controls. Use predators to control pests where possible. Store medicines and antibiotics in their original containers in dedicated restricted areas.
Siting, Design & Construction	Ensure that necessary permits from local or national authorities are in place. Follow construction mitigation measures in section 5.4 of this ESMF. Ensure proper location, drainage, access.
Air Quality	Site facilities taking into account wind, topography, and neighbours' locations. Control dust and particulate matter (PM) by covering skips and stockpiles, closing conveyors, using cyclones or fabric filters as necessary. Consider composting of manure or anaerobic digesters to reduce odor emissions.

□ **Aquaculture and Mariculture.** In addition to many of the potential impacts mentioned in the various project types discussed above, environmental issues with raising and harvesting fish, mollusks, seaweed and other resources can have effects on biodiversity, contamination of aquatic systems, and release of hazardous materials. EHS Guidelines for aquaculture discuss the mitigation measures and associated standards for use in the OECS Agricultural Competitiveness Project. Issues to highlight in the OECS also include:

Table 4f. Sectoral Impacts & Mitigation Measures (Aquaculture & Mariculture)

Potential Impact	Mitigation Measure
Threats to Biodiversity	<p>Seagrass meadows, coral reefs, mangroves, wetlands, beaches and shorelines are sensitive ecological areas and likely represent zones of natural habitat where additional assessment, permitting, and other measures apply.</p> <p>Natural habitat must not be converted to other use without satisfying requirements in OP4.11.</p> <p>Assess the possibility of any changes to currents, tides, or wave energy, which can destroy habitat indirectly by sedimentation, erosion, or eutrophication. Avoid salinization of lands converted from agriculture, or soil effects from acidification or oxidation from excavation and exposure of waterlogged soils.</p> <p>Avoid introduction of alien, selectively bred, or genetically engineered species.</p> <p>Evaluate the effects of harvesting on ecosystem functions.</p>
Water Management	<p>Evaluate source water quality, temperature, and current regimes.</p> <p>Ensure subsoils in ponds or lagoons are sufficiently impermeable to reduce water supply needs and minimize infiltration to groundwater.</p> <p>Prevent siltation and sedimentation during any dredging activities.</p> <p>Control nutrient load, suspended solids, and other chemicals in discharge waters by the methods in the relevant WEB EHS Guidelines.</p> <p>Treat industrial process wastewater as required to meet emission standards.</p>
Hazardous Materials	<p>Follow all pest management stipulations in section 5.2 of this ESMF.</p> <p>Avoid the use of antifoulants to treat cages and pens.</p> <p>Evaluate effluents for feed supplements, drugs, antibiotics, and other chemicals, and treat to reduce or eliminate hazardous constituents in receiving waters.</p>
Health and Safety	<p>Follow Occupational Health and Safety Guidelines in the WBG reference document, particularly for exposure to physical hazards, electrical shock, drowning, exposure to chemicals, and exposure to waterborne disease.</p> <p>Prioritize community safety for boat traffic, fisherman access, and other aspects.</p> <p>Control food safety impacts per EHS Guidelines.</p>

□**Other.** Various categories of agribusiness and food production activities are addressed in the WBG EHS Guidelines. If an activity or project does not fit into any category, is particularly complex, requires special permits, or could affect sensitive ecosystems or natural habitat areas, then a separate EHS assessment would be required to design adequate EHS mitigation measures, as discussed in section 6 of this ESMF.

5.2 Special Measures for Pest Management

One objective of this ESMF is to encourage adoption of Integrated Pest Management (IPM) approach and increase beneficiaries' awareness of pesticide-related hazards and good practices

for safe pesticides use and handling as well as to provide relevant training and information dissemination activities.

All projects that procure pesticides must conform to the standard measures listed in sections 5.2.1 through 5.2.4 below as part of the Environmental Management Plan (EMP) for the Program. In addition, the OECS Agricultural Competitiveness Program will implement the outreach and training activities in section 5.2.5.

5.2.1 Principles of Integrated Pest Management

The primary aim of pest management is to manage pests and diseases that may negatively affect production of crops so that they remain at a level that is under an economically damaging threshold. Pesticides should be managed to reduce human exposure and health hazards, to avoid their migration into off-site land or water environments and to avoid ecological impacts such as destruction of beneficial species and the development of pesticide resistance. One important strategy is to promote and facilitate the use of Integrated Pest Management (IPM). Integrated pest management consists of the judicious use of both chemical and nonchemical control techniques to achieve effective and economically efficient pest management with minimal environmental contamination. IPM therefore may include the use of:

- a) Mechanical and Physical Control;
- b) Cultural Control;
- c) Biological Control, and
- d) Rational Chemical Control.

Integrated Pest Management is the use of multiple techniques to prevent or suppress pests in a given situation. Although IPM emphasizes the use of nonchemical strategies, chemical control may be an option used in conjunction with other methods. Integrated pest management strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts. World Bank Group in the Environmental, Health, and Safety Guidelines prepared in 2007 provides the following stages should be considered when designing and implementing an Integrated Pest Management Strategy, giving preference to alternative pest management strategies, with the use of synthetic chemical pesticides as a last option. As a first essential step, those who make pest management decisions should be provided with training in identification of pests and beneficial (e.g. natural enemy) species, identification of weeds, and field scouting methods to evaluate which pests are present and whether they have reached an economic control threshold (the density at which they begin to cause economically significant losses).

5.2.2 Alternatives to Pesticide Application

Where feasible, the following alternatives to pesticides should be considered:

- Rotate crops to reduce the presence of pests and weeds in the soil ecosystem;
Use pest-resistant crop varieties;
Use mechanical weed control and / or thermal weeding;

Support and use beneficial organisms, such as insects, birds, mites, and microbial agents, to perform biological control of pests;

- Protect natural enemies of pests by providing a favorable habitat, such as bushes for nesting sites and other original vegetation that can house pest predators and by avoiding the use of broad-spectrum pesticides;
- Use animals to graze areas and manage plant coverage;
- Use mechanical controls such as manual removal, traps, barriers, light, and sound to kill, relocate, or repel pests.

5.2.3 Pesticide Application

If pesticide application is warranted, users are recommended take the following actions:

- Train personnel to apply pesticides and ensure that personnel have received applicable certifications or equivalent training where such certifications are not required;
- Review and follow the manufacturer's directions on maximum recommended dosage or treatment as well as published reports on using the reduced rate of pesticide application without loss of effect, and apply the minimum effective dose;
- Avoid routine "calendar-based" application, and apply pesticides only when needed and useful based on criteria such as field observations, weather data (e.g. appropriate temperature, low wind, etc.),
- Avoid the use of highly hazardous pesticides, particularly by uncertified, untrained or inadequately equipped users. This includes:
- Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Classes 1a and 1b should be avoided in almost all cases, to be used only when no practical alternatives are available and where the handling and use of the products will be done in accordance with national laws by certified personnel in conjunction with health and environmental exposure monitoring;
- Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Class II should be avoided if the project host country lacks restrictions on distribution and use of these chemicals, or if they are likely to be accessible to personnel without proper training, equipment, and facilities to handle, store, apply, and dispose of these products properly;
- Avoid the use of pesticides listed in Annexes A and B of the Stockholm Convention, except under the conditions noted in the convention and those subject to international bans or phaseouts;
- Use only pesticides that are manufactured under license and registered and approved by the appropriate authority and in accordance with the Food and Agriculture Organization's (FAO's) International Code of Conduct on the Distribution and Use of Pesticides;
- Use only pesticides that are labeled in accordance with international standards and norms, such as the FAO's Revised Guidelines for Good Labeling Practice for Pesticides;
- Select application technologies and practices designed to reduce unintentional drift or runoff only as indicated in an IPM program, and under controlled conditions;

- Maintain and calibrate pesticide application equipment in accordance with manufacturer's recommendations. Use application equipment that is registered in the country of use;
- Establish untreated buffer zones or strips along water sources, rivers, streams, ponds, lakes, and ditches to help protect water resources;
- Avoid use of pesticides that have been linked to localized environmental problems and threats.

5.2.4 Pesticide Handling and Storage

- Contamination of soils, groundwater, or surface water resources, due to accidental spills during transfer, mixing, and storage of pesticides should be prevented by following the hazardous materials storage and handling recommendations. These are the following:
- Store pesticides in their original packaging, in a dedicated, dry, cool, frost-free, and well aerated location that can be locked and properly identified with signs, with access limited to authorized people. No human or animal food may be stored in this location. The store room should also be designed with spill containment measures and sited in consideration of potential for contamination of soil and water resources;
- Mixing and transfer of pesticides should be undertaken by trained personnel in ventilated and well-lit areas, using containers designed and dedicated for this purpose.
- Containers should not be used for any other purpose (e.g. drinking water). Contaminated containers should be handled as hazardous waste, and should be disposed in specially designated for hazardous wastes sites. Ideally, disposal of containers contaminated with pesticides should be done in a manner consistent with FAO guidelines and with manufacturer's directions;
- Purchase and store no more pesticide than needed and rotate stock using a "first-in, first out" principle so that pesticides do not become obsolete. Additionally, the use of obsolete pesticides should be avoided under all circumstances; A management plan that includes measures for the containment, storage and ultimate destruction of all obsolete stocks should be prepared in accordance to guidelines by FAO and consistent with country commitments under the Stockholm, Rotterdam and Basel Conventions.
- Collect rinse water from equipment cleaning for reuse (such as for the dilution of identical pesticides to concentrations used for application); ensure that protective clothing worn during pesticide application is either cleaned or disposed of in an environmentally responsible manner; maintain records of pesticide use and effectiveness.

5.2.5 Awareness, Outreach and Training

In order to educate potential beneficiaries regarding safe pesticide handling and use of IPM, measures should be taken to provide a framework for educating farmers regarding pesticides handling and promoting IPM and thus, understanding and managing pest problems in the horticultural sector, reducing human and environmental health risks associated with pesticide use, and protecting ecosystem by conserving beneficial agents such as natural enemies of pests and pollinators to increase productivity.

The project will hire a national or international aid and research institution and/or an NGO with necessary expertise in horticultural crop and IPM capabilities as well as with capacity to deliver training for farmers. Based on the research and technical support, needs of the project beneficiaries, the selected company will develop IPM packages for horticultural systems, develop and deliver a training program with the aid of demonstrations, adaptive research trials and experiential learning in the farmer fields. This institution will train the trainers and project specialists, as well as subproject beneficiaries and assist the PMU in designing a monitoring and evaluation program. The proposed activities would also cover field demonstrations with improved pesticides usage as well as IPM technologies. The PCU will be the coordinator for the implementation of these activities.

The proposed information dissemination and training activities will be developed by the selected institution and will include the following topics:

- Pest characteristics (for horticultural sector)
- Control measures, including IPM approaches in horticultural sector, involving agricultural, physical, biological, and chemical control methods
- Safety issues (for pest handling, transportation, usage and storage)
- Field demonstrations on Pest problems diagnosed and related IPM opportunities identified in horticultural sector, pest management practices, including agricultural, physical, biological and chemical control methods
- Preparing and publishing a special publication on Pest Management in horticultural sector
- Organizing a series of media events on Pest Management in horticultural Sector

Target groups will include representatives of national agricultural departments, participating farmers, suppliers, NGOs, and other stakeholders.

5.2.6 Pest Management Plan (PMP)

When as a result there are significant pest management issues identified, a Pest Management Plan (PMP) will need to be prepared. Significant pest management issues are described as: (a) new land-use development or changed cultivation practices in an area; (b) significant expansion into new areas, (c) diversification into new crops in agriculture, (d) intensification of existing low-technology systems, (e) proposed procurement of relatively hazardous pest control products or methods, or (f) specific environmental or health concerns (e.g. proximity of protected areas or important aquatic resources, or worker safety issues). A PMP is also prepared when pest control products represent a large component of the project. The WBG Pest Management Policy refers to “pesticides” to include all chemicals used for the control of target pests (i.e. herbicides, fungicides, insecticides, etc.).

The PMP is a comprehensive framework through which pest management is defined and accomplished. The Plan should identify elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. Management Plan is to be used as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest

management techniques. The PMP should apply to all the activities and individuals working on the project or activity. The PMP should be consistent with IPM and emphasize that non-chemical control efforts will be used to the maximum extent possible before pesticides are used.

The PMP must contain pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety and environmental requirements. The Plan should provide guidance for operating and maintaining an effective pest management program/ activities. Pests considering in the Plan may be weeds and other unwanted vegetation, crawling insects and other vertebrate pests. Without control, these pests provoke plants' deceases. Adherence to the Plan will ensure effective, economical and environmentally acceptable pest management and will maintain compliance with pertinent laws and regulations. The recommended structure of a *Pest Management Plan* is presented in the Annex 4.

5.3 Construction-Related Mitigation Measures

There are always minor impacts associated with the construction phase of any civil works. Most of the negative impacts associated with the sub-projects are expected to occur during the construction phase. While these impacts are not expected to be major, the careful implementation of mitigation measures will allow for the reduction or avoidance of any adverse effects. These general impacts have been identified above and the following in Table 5 is a list of the potential mitigation measures. The measures are presented in a manner that makes them easily incorporated into an EMP and, with appropriate adjusting, can become contract clauses for the contractor who will undertake the civil works. This also allows for ease of monitoring as well. Minor use of pesticides (e.g. for termite treatments of building foundations, or for extermination) is also included in the standard EMP below (note that the use or purchase of significant amounts of pesticides is not eligible under the Project).

Table 4g. Sectoral Impacts & Mitigation Measures (General Construction)

	IMPACT AREA	MITIGATIVE MEASURES
1	Accidental destruction of artifacts during earth moving or excavation	(a) The contractor must ensure that provisions are put in place so that artifacts or other possible "chance finds" encountered in excavation or construction are noted and registered, responsible Authorities contacted, and works activities delayed or modified to account for such finds. (b) No item believed to be an artifact must be removed or disturbed by any of the workers.

2	Destruction or Damage to Terrestrial Natural Habitat	<ul style="list-style-type: none"> (a) There must be no unnecessary clearing of natural vegetation. (b) Avoid the use of herbicides or other chemicals. (c) Any works to be undertaken in a protected forest area must be done under the supervision of a representative of the Forestry Department. (d) The contractor must ensure that any work undertaken in the forest reserve be done by manual means. (e) There must be minimal impact to flora and fauna in the forest area. (f) All recognized natural habitats; wetlands and protected areas in the immediate vicinity of the activity must be protected from damage or exploitation. (g) The contractor must ensure that all staff be strictly prohibited from hunting, foraging, logging or other damaging activities. (h) A survey and an inventory shall be made of large trees and rare medicinal plants in the vicinity of the construction activity, these shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided. (i) There will be no unlicensed borrow pits, quarries or waste dumps in protected areas. (j) Upon completion, all wastes must be immediately removed from any forested or protected area.
3	Impacts on the Marine and coastal environments	<ul style="list-style-type: none"> (a) The contractor must implement all necessary waste management plans and measures. (b) All construction materials, including chemicals, must be properly stored. (c) The contractor will establish appropriate erosion and sediment control measures such as hay bales, sedimentation basins, and / or silt fences and traps to prevent sediment from moving off site and causing excessive turbidity in nearby streams, rivers, wetlands, and coastal waters. (d) If works are to be done along coastal marine areas or near major streams and rivers, water quality monitoring must be done before construction, and at regular intervals during construction to determine turbidity levels and other quality parameters. (e) See soil erosion and slippage mitigation measures below. (f) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies. (g) Removal of sea grass or damage to coral reefs is prohibited.
4	Traffic impacts	<ul style="list-style-type: none"> (a) A traffic management plan to be developed and implemented by contractor in consultation with the Traffic authority. (b) Alternative routes to be identified in the instance of extended road works or road blockages. (c) The public to be notified of all disturbances to their normal routes. (d) Signposting, warning signs, barriers and traffic diversions must be clearly visible and the public warned of all potential hazards. (e) Provision must be made for the safe passages and crossings for all pedestrians where construction traffic interferes with their normal route. (f) There must be active traffic management by trained and visible staff at the site or along roadways as required to ensure safe and convenient passage for the vehicular and pedestrian public. (g) Adjustment of working hours to facilitate local traffic patterns, e.g. avoiding major work activities during rush hours and do temporary road closures at night.

5	Noise	<ul style="list-style-type: none"> (a) Construction / work activities will occur within specified daylight hours e.g. 8:00 am to 4:00pm. (b) Community / public to be informed in advance of any work activities to occur outside of normal working hours or on weekends. (c) Sites should be hoarded wherever possible. (d) During operations, the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible. (e) There will be no excessive idling of construction vehicles at sites. (f) Noise suppression equipment or systems supplied by manufacture will be utilized. (g) Ensure all vehicles and equipment are properly serviced. (h) The contractor must develop and implement a public notification and noise management plan.
6	Solid and Liquid Waste Management (general)	<ul style="list-style-type: none"> (a) Contractor to develop and implement waste management plan in consultation with the local solid waste authorities. (b) Contractor to abide by all pertinent waste management and public health laws. (c) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. (d) Construction and demolition wastes will be stored in appropriate bins. (e) Liquid and chemical wastes will be stored in appropriate containers separated from the general refuse. (f) All waste will be collected and disposed of properly in approved landfills by licensed collectors. (g) The records of waste disposal will be maintained as proof for proper management as designed. (h) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos or other hazardous material). (i) Construction related liquid wastes must not be allowed to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its contents.
7	Solid and Liquid Waste Management for hazardous substances	<ul style="list-style-type: none"> (a) Contractor must provide temporary storage on site for all hazardous or toxic substances in safe containers labeled with details of composition, properties and handling information. (b) The containers of hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching. (c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. (d) Paints with toxic ingredients or solvents or lead-based paints will not be used. (e) Banned chemicals will not be used on any project. (f) If termite treatment is to be utilized, appropriate chemical management measures will be implemented to prevent contamination of surrounding areas and use only licensed and registered pest control professionals with training and knowledge of proper application methods and techniques. (g) Any project which involves the purchase or use of pesticides, herbicides, fungicides, or other pest control agents, will be subject to special conditions described in section 5 of this ESMF.
8	Air Quality	<ul style="list-style-type: none"> (a) Construction materials such as sand, cement, or other fines should be kept properly covered. (b) Cement should be kept stored within a shed or container. (c) The sand and fines should be kept moistened with sprays of water. (d) Unpaved, dusty construction roads should be compacted and then wet

		<p>periodically.</p> <p>(e) During interior demolition debris-chutes shall be used above the first floor.</p> <p>(f) Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust.</p> <p>(g) During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site</p> <p>(h) The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust.</p> <p>(i) There will be no open burning of construction / waste material at the site.</p> <p>(j) There will be no excessive idling of construction vehicles at sites.</p> <p>(k) The bins of all haulage vehicles transporting aggregate or building materials must be covered on all public roads.</p>
9	Soil Erosion and Land Slippage	<p>(a) The contractor must ensure that appropriate erosion control measures such as silt fences are installed.</p> <p>(b) Proper site drainage must be implemented, including drainage at the tops of slopes, around slopes, and beneath roadways.</p> <p>(c) Any drain clogged by construction material or sediment must be unclogged as soon as possible to prevent overflow and flooding.</p> <p>(d) The use of retaining structures and planting with deep rooted grasses to retain soil during and after works must be considered.</p> <p>(e) The use of bio-engineering methods must be considered as a measure to reduce erosion and land slippage.</p> <p>(f) Keep angle of slopes within limits of soil type.</p> <p>(g) Balance cut and fill to limit steepness of slopes.</p> <p>(h) All slopes and excavated areas must be monitored for movement.</p>
10	Occupational Health and Safety Issues	<p>(a) The contractor must ensure that an Occupational Health and Safety Plan is in place to guide work activities, and provide a safe environment for workers.</p> <p>(b) The contractor must ensure that all workers operate within a safe environment.</p> <p>(c) All relevant Labour and Occupational Health and Safety regulations must be adhered to ensure worker safety.</p> <p>(d) Workers must be provided with necessary equipment as well as protective gear as per their specific tasks such as hard hats, overalls, gloves, goggles, boots, etc.</p> <p>(e) Sanitary facilities must be provided for all workers on site.</p> <p>(f) The contractor must ensure that there are basic medical facilities on site and that there are staff trained in basic first aid.</p> <p>(g) Appropriate posting of information within the site must be done to inform workers of key rules and regulations to follow.</p>
11	Involuntary Resettlement	<p>(a) Preliminary screening will be undertaken during the preparation phase of works at all sub-project sites in order to determine the existence of any potential involuntary resettlement impacts (including temporary/permanent land acquisition, physical or economic displacement);</p> <p>(b) Involuntary Resettlement will be avoided to the extent possible. Where it is not feasible to avoid involuntary resettlement impacts, the procedures to follow in order to screen for/assess, minimize, mitigate, and compensate for any negative impacts will be established in a single, regional Resettlement Policy Framework (RPF) that will be developed for the project and disclosed prior to project appraisal. The RPF will provide guidelines for the development of social safeguards instruments as needed (e.g. Resettlement Action Plans, Temporary Resettlement Plans, Compensation Plans) to mitigate land acquisition and/or other social issues that may arise from works undertaken during the course of project implementation. The RPF will include country specific chapters reflecting country-specific legal legislation and the organization of the respective implementation units.</p>

It is expected that the projects would receive adequate technical review by qualified technical professionals to ensure their technical and environmental soundness and social sustainability. Engineering review for all construction details and designs should be integral in this process.

5.4 Additional Measures for Special, Complex or Sensitive Cases

The general mitigation measures and good practices described in sections 5.1, 5.2 and 5.3 will serve to address the possible negative effects for the small scale activities envisioned for most situations; however, larger projects or those with particularly complex, sensitive or special conditions would likely require additional assessment, permitting, and analysis, as described below.

Additional mitigation measures would be derived from any conditions imposed by any statutory agency which reviewed the sub-projects and provided recommendations or conditionalities, for example in EIA permit requirements.

Projects that impinge upon or affect natural habitat, forests, protected areas, parks, or preserves, would also require additional analysis to make sure that protective measures are properly designed. Sensitive areas such as riverine or riparian ecosystems, coastal areas or beaches, wetlands or marshes, and forests, would meet this criteria, as well as other areas where ecosystems are relatively intact and free from human influence.

As well, it is noted that if a project would involve the significant pest management issues, or the purchase of substantial quantities of pesticides, fungicides, or herbicides, then a Pest Management Plan (PMP) would need to be prepared as part of an additional assessment and analysis. Screening to identify these types of projects is described in more detail in section 6 of this ESMF.

5.5 Involuntary Resettlement

The location of sub-project sites is unknown at this point, however some of the physical characteristics of relevance to safeguards analysis would include: population density, patterns of land ownership, proximity to vulnerable populations. Once specific sub-project sites are known, a screening of potential social risks and impacts will be conducted, as well as full blown social assessments where needed. Given that some investments under Component 2 may lead to involuntary resettlement impacts, an RPF will be developed to guide the application of the OP 4.12 policy requirements. The RPF will clarify resettlement objectives and principles, organizational arrangements and funding mechanisms to be followed if any safeguards tools (e.g. Resettlement Action Plans, Compensation Plans) become necessary during project implementation. The RPF will be prepared and disclosed prior to project appraisal.

6.0 SCREENING PROCEDURES

This section of the report provides the screening procedure for future work activities and subprojects. The purpose of the screening process is (i) to identify the potential environmental and social impacts of a particular subproject in the future as it becomes defined with clarity and detail, and (ii) to include the appropriate environmental and social mitigation measures in its scope of work to include in the Environmental Management Plan (EMP) for each project.

As described in section 2 of this ESMF, the preliminary project descriptions, impact evaluations, and generalized mitigation measures given previously in this report provide a good starting point, but as is often the case, details and particulars may change over time. In the future as detailed actions emerge and physical works ready to begin, the scope, scale, and design of particular activities become fully known. At that time it will be necessary to ascertain their potential environmental and social impacts through a screening process, and determine which mitigation measures must apply for environmental protection and mitigation of any social risks and impacts. In some cases with minimal impact (e.g. construction of a small greenhouse) the answer may be to use standardized or generic mitigation measures; in this case, a standard/generic EMP and associated contract clauses are provided in this ESMF. Perhaps more importantly it will be necessary to identify works which could have more significant impacts (e.g. projects affecting natural habitat, or projects with significant pest management issues) and which would therefore require additional evaluation, assessment, and possibly the preparation of a separate Environmental Assessment (EA) and/or Pest Management Plan (PMP).

The initial screening and scoping of the sub-project sites must also focus on social aspects. It should identify the extent and complexity of potential social impacts and the socio-economic characteristics of people in the project area. Special attention should be paid to vulnerable or disadvantaged groups who could experience adverse impacts from the proposed project more severely than other groups. If the initial screening indicates potential adverse social impacts and risks (including but not limited to involuntary resettlement, temporary/permanent land acquisition and/economic displacement), a more thorough social assessment will be undertaken to determine the nature and magnitude of impacts, the people affected, and identification of mitigation measures. The development of specific safeguards instruments may become necessary during the course of project implementation (i.e. Resettlement Action Plans, Compensation Plans, Relocation Plans, etc.) and will be guided by the principles laid out in the Resettlement Policy Framework (RPF) which is referenced in Annex 5.

6.1 Screening Processes

Each sub-project may have site specific issues that contribute to potential social and environmental impacts. A screening mechanism and a scoping exercise are key tools to assist assessing officers in red flagging potential environmental and social risks or issues as part of the assessment process at an early stage in the project identification cycle. This process would allow for the highlighting of potential impacts, mitigation measures to address the potential impacts,

and allowing for the incorporation of these mitigation measures as contract clauses for the proposed small works.

To facilitate the process it is necessary for the assessing individual or agency to use a screening or scoping tool, typically a checklist (Table 5), to determine the potential red flags or issues, and to trigger specific responses as appropriate. The checklist helps to identify and assess potential impacts and contribute to the wider decision making process involving the proposed project and project activities. The checklists and its response should be feed into the EMP and proposed mitigation measures to address potential issues that have been identified and as necessary, trigger additional measures such as impact analysis.

The PCU of each OECS country, as the coordinator of the safeguards and fiduciary aspects of the Project, will use the screening checklist during the scoping exercise so that an officer may be able to determine that a project has certain environmental and/or social ramifications that were not previously identified, or which bear additional assessment and planning to avoid environmental impacts.

6.2 Screening Criteria and Checklists

To begin, it is necessary to determine whether a proposed sub-project falls into one of two groups: those which involve more complex environmental and social conditions and/or potentially significant environmental or social effects (if unmitigated) and which therefore require more cautious planning efforts; or, those comprising relatively simple or uncomplicated works where the impacts are minimal (e.g., effects during construction of repairs and retrofitting) and which can be addressed through standardized or generic mitigation measures.

6.2.1 Relatively Complex Sub-projects

There are several criteria to determine if a sub-project or activity is environmentally or socially complex or may have potentially significant environmental and/or social impacts if unmitigated. These would include the following:

- Potential impact to natural habitats (OP/BP 4.04): whether or not a specific activity or subproject would potentially affect land or water areas where the biological communities are formed largely by native plant and animal species where human activity has not essentially or heavily modified the area's primary ecological functions. This would include reefs, coastal areas, mangroves, forests, and any declared or designated parks or protected areas.
- Potentially significant pest management issues (OP/BP 4.09). If a project or activity would involve the **significant pest management issues**, then a Pest Management Plan (PMP) will need to be prepared. Significant pest management issues are described as: (a) new land-use development or changed cultivation practices in an area; (b) significant expansion into new areas, (c) diversification into new crops in agriculture, (d)

intensification of existing low-technology systems, (e) proposed procurement of relatively hazardous pest control products or methods, or (f) specific environmental or health concerns (e.g. proximity of protected areas or important aquatic resources, or worker safety issues). A PMP is also prepared when pest control products represent a large component of the project.

- Potential involuntary resettlement (OP/BP 4.12): whether or not a specific activity or subproject requires the acquisition of private land, physical resettlement, economic displacement, and/or the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of displaced individuals.

The following checklist in Table 5 is intended to be used as a first tier screen or adapted with modifications to fit the specific suite of sub-projects being considered by the Project, to assist the PCU in determining if a project is likely to have significant environmental and/or social impacts or presents complex conditions for which an environmental or social assessment is required.

Table 5. Identification of Complex/Sensitive Sub-Projects or Activities

Characteristic of Sub-project or Activity:	Yes/No	Observations
Does the project involve clearing of new lands, as opposed to the improvement of previously cleared lands?		
Is the project within or nearby (within 1km) of a park, designated forest reserve, protected area, or other area?		
Are there areas of well-preserved vegetation (such as streamsides, forests, or wetlands) nearby (within 1km) of the project area?		
Is the project in a coastal zone where beach, reef, seagrass, mangrove, or other natural habitat could be potentially affected?		
Does the project involve aquaculture or mariculture with construction of new ponds, disposal areas, or other works?		
Will the project purchase a substantial quantity of pesticide, herbicide, fungicide, or other pest control agent?		
Will the project expand, diversify, intensify, or otherwise significantly alter the pest management practice?		
Will proposed pest management practice possibly result in effects to sensitive areas (streams, wetlands, coast, or sea) or affect the health and safety of workers or the public?		
Will the project involve changing the land use over large areas (more than 5 acres)?		
Will the project include significant emissions to air, discharges to wastewater, or disposal of large amounts of solid waste?		
Will the project divert or withdraw a new or larger water supply from a new source or a source with limited supply?		

Does the project require a dam, existing or new?		
Does the project have in hand all relevant and necessary local and/or federal Permits as required?		
Will the project be required to remove crops or structures from other parties, prevent access to areas currently relied upon by others, or acquire new lands or properties?		
Does the project have any public complaints, fines, fees, neighbour protests, zoning issues, or other social problem?		

During the scoping phase of the project assessment, the PCU officer uses his/her training and experience to make a determination based on the degree of impact likely to be caused by the project due to its size, proximity to a coastal area, marine or terrestrial reserve and the existing topography that may be disturbed. For projects where there is any question or unknown, the PCU officer shall make the appropriate enquiries and visit the site as necessary to correctly utilize the checklist in Table 5. Records of each such screening, as well as any other pertinent information relevant to the projects, shall be retained and kept in the files of the PCU.

Note that projects affecting primary forests, or those triggering other safeguards policies as described in this ESMF, are ineligible and excluded from the Program.

In cases where it is suspected that a specific sub-project or activity could meet these criteria, the screening procedure would result in a positive determination, as these activities would affect natural habitat and/or pest management issues, and/or imply social risks and impacts. These projects are likely to have other complex environmental or social conditions as identified in the checklist above and such subproject would require a separate stand-alone EA to be done specifically for that sub-project. For sub-projects requiring a stand-alone EA, the EA will be completed prior to initiation of the works and will establish environmental requirements for the design and construction phase of the activity in the form an EMP specific to that sub-project. For projects with significant pest management issues, the EA must include a Pest Management Plan (PMP). In these cases the PCU will ensure that an EA of appropriate scale and detail is indeed performed, whether by the applicant or through the PCU itself.

In cases where a specific activity or works at a subproject site imply potential social risks and impacts (including but not limited to involuntary resettlement, land acquisition, economic displacement), a standalone Social Assessment will be undertaken to ascertain the nature and extent of impacts and determine appropriate mitigation and compensation measures with the Project Affected Peoples (PAPs). Specific social safeguards instruments will be developed and implemented as needed.

6.2.2 Relatively Simple Sub-projects

If none of the criteria in Table 5 apply to a particular sub-project or activity, then it is considered to have only a limited and minor environmental and/or social impact. Based on the discussion and analysis in Section 4 of this report, these relatively simple sub-projects will involve only

limited or minor impact, and can be easily mitigated by using standardized generic environmental controls that represent best practice, as discussed in section 5. For the relatively uncomplicated environmental actions required of these activities, standardized generic construction contract clauses are sufficient, and can be applied as needed.

6.3 Local Permitting

For all activities in the Project, the requirements of the local Physical Planning Department (or Development Authority) must be followed, as well as all laws and regulations pertaining to environmental protection in the host country. Any permit condition, local requirement, or other authorization stipulation must be included in the EMP for these project activities.

7.0 ENVIRONMENTAL MANAGEMENT PLAN

This section of the report describes the link between the predicted environmental impacts, the needed mitigation measures identified during the screening and assessment process, provisions for budgeting the costs of such measures, and the roles of those responsible for ensuring that the mitigation measures are carried out.

7.1 Standard/Generic Mitigation Measures

The mitigation measures for relatively simple environmental management issues are based on best management practice and industry standards for agribusiness and food production activities. These are the mitigation measures which are expected of all, and represent the minimum standard of execution for environmental protection during the project. These measures are the result of a “negative” determination from the screening matrix in Table 6, and apply to all projects.

7.2 Additional Mitigation Measures

If there are local or national permit requirements (e.g. from the Development Authority or Planning Department), then the generic minimum mitigation measures and monitoring conditions in Table 6 above should be amended to include the conditions and recommendations of the authority’s permit, and included in the contracting documents.

If an EA has been conducted for a particular sub-project due to its environmentally sensitive or complex nature (see section 6), then the specific recommendations for mitigation measures in that EA should also be included as contract clauses, in addition to the standard minimum EMP in Table 6 above. This would include the PMP (Pest Management Plan) for projects with significant pest management issues, or special measures to protect natural habitat in such cases where it could potentially be affected.

7.3 Supervision, Monitoring, and Reporting

Supervision for compliance with environmental and social safeguards policies will be managed by the PCU in each country (Figure 5). Understanding that environmental management is a cross-sectorial task especially within a small island developing states like those in the OECS with limited financial and technical resources, the PCU may require support from beneficiary agencies such as the Ministry of Agriculture. The World Bank will provide periodic technical assistance during project implementation.

The PCU will serve as overall project coordinator for the Project undertaking the tasks of evaluation, supervision and implementation. The PCU will designate a field representative who shall conduct periodic inspections to assure environmental compliance; and a dedicated social development specialist to screen for potential social risks and impacts, and subsequently develop

and implement social safeguards instruments as needed. The frequency of monitoring will be determined by the requesting agencies, but will be sufficient to allow the PCU to determine site changes, the environmental conditions and social context, the adequacy of the mitigation measures, and the overall ability of the contractor to execute the works in the specified and sustainable manner. In addition to Bank requirements, the PCU will also be responsible for ensuring the proper application of any national environmental or social requirements. The PCU should staff or train an additional environmental specialist or engineer to support environmental supervision, especially as regards inspection in the field. The PCU should hire and train a social development specialist as needed to support the management of social risks and impacts, and implementation of social safeguards requirements.

Grenada, and Saint Vincent and the Grenadines have designated staff who have attended WBG training sessions and are currently involved with other Bank projects. Pre-appraisal missions by the Safeguards Specialists have engaged these local staff and discussed the need for their support in preparing the ESMF. Meetings and site visits with these staff as well as key regional experts has laid the groundwork for technical and administrative support to the Bank if any additional assessment visits or coordination meetings are needed prior to appraisal.

If deemed necessary, a separate environmental consultant (EC), social development specialist (SDS) may also be contracted by the PCU to support field or desktop assessments, screening, contracting, supervision, and reporting. The EC would support the PCU in ensuring the implementation of the mitigation measures and the coordination of environmental management activities (monitoring, enforcement, audits and inspection) of the Project. The EC will have various duties as assigned by the PCU. Prior to construction this may include screening of possible projects for impacts, development of management, or other tasks. Once construction activities are underway the EC may conduct frequent or continuous inspections in the field, provide reports to the PCU, or otherwise assist with environmental and social compliance work. The PCU may staff or contract the EC as desired according to level of need and logistics.

The Ministry of Agriculture or equivalent in each OECS country will be the Executing Agency for the project, and will take a lead technical role. There is a large overlap between the Best Management Practice (BMP) relevant to agriculture projects, and the EMP (Environmental Management Plan) to be implemented for many projects, especially as it relates to everyday practice in the field. The Ministry of Agriculture has extension agents who visit the beneficiaries on their farms, greenhouses, and agroprocessing facilities frequently and provide technical support; therefore, these extension agents must be integrally linked with the provision of BMPs and the use of EMPs. Accordingly, the PCU and Ministry of Agriculture will establish close links and coordinate to ensure that BMPs and EMPs are brought to the field, through the extension agents.

The project will hire a national or international aid and research institution and/or an NGO with necessary expertise in horticultural crop and IPM capabilities as well as with capacity to deliver training for farmers. Based on the research and technical support, needs of the project beneficiaries, the selected company will develop IPM packages for horticultural systems, develop

10th April, 2017

and deliver a training program with the aid of demonstrations, adaptive research trials and experiential learning in the farmer fields. This institution will train the trainers and project specialists, as well as subproject beneficiaries and assist the PCU in designing a monitoring and evaluation program. The proposed activities would also cover field demonstrations with improved pesticides usage as well as IPM technologies. The PCU will be the coordinator for the implementation of these activities and will work closely with the Ministry of Agriculture and their extension officers.

8.0 DISCLOSURE & PUBLIC CONSULTATION

During the project preparation process, discussions were held with the PCU and with regional experts in agricultural resources and local practices. The results of this initial consultation process have already been included in the ESMF.

Stakeholder consultations and workshops were then carried out as part of refining the ESMF to ensure that it is satisfactory and will serve to guide environmental aspects of the project. The comments received are summarized in Appendix 4 of this ESMF. In addition the ESMF was disclosed the government websites (see Appendix 4).

In the future as projects are implemented, additional public consultation may also occur through the EIA process and through the interaction with communities. Those consultations will be part of the ongoing implementation process and will not be documented in this ESMF.

Appendix 1 – National Law in OECS Countries

This appendix provides a detailed discussion of the legal and regulatory framework in each OECS country.

1.1 Saint Vincent and the Grenadines

In Saint Vincent and the Grenadines a number of Government and statutory agencies have responsibility for environmental management in one form or another under various pieces of legislation. Some agencies find themselves operating in grey areas or executing responsibilities that could better be managed under one agency with the relevant legal mandate.

The following matrix provides a general overview of the agencies, laws and regulations pertaining to environmental management and disaster mitigation. They cover such areas as the environment, land use, water management (including domestic, commercial, and hazardous waste management), historical and cultural patrimony, public health, and disaster response. The varied environmental management efforts have generally been fragmented and stymied in many cases by a lack of coordinated efforts, absence of empowering legislation or regulations, and financial and technical resources.

Table 1. Summary of pertinent agencies, the supporting legislations and scope of influence in Saint Vincent and the Grenadines.

Agency	Legislation	Scope
Central Water and Sewerage Authority [Ministry of Health Wellness and the Environment]	<ul style="list-style-type: none"> • <i>Central Water and Sewerage Act</i> (No.6, 1978), amended in 1992 • <i>Central Water and Sewerage Authority Act</i> (No.17, 1991) 	Make better provision for the conservation, control, apportionment, and use of water resources of SVG.

<p>Ministry of Health Wellness and the Environment</p> <p>[Solid Waste Management Unit]</p>	<ul style="list-style-type: none"> • <i>Environmental Health Services Act</i> (No.14, 1991) • <i>Environmental Impact Assessment Regulations</i> (Draft, 2009) • <i>Environmental Management Act</i> (Draft, 2009) • <i>Waste Management Act</i> (No.31, 2000) 	<p>Make provision for the conservation and maintenance of the environment in the interest of health generally and in particularly in relation to places frequented by the public</p> <p>The SWMU was established in November, 1999 to execute the activities under the “Organization of Eastern Caribbean States (OECS) Solid and Ship-generated Waste Management Project” and is also currently responsible for the collection and disposal of Solid waste on St. Vincent. In addition, the SWM Unit is responsible for the</p>
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		<p>development of waste management facilities on the Grenadine islands of Bequia, Union Island and Canouan.</p>
<p>Ministry of Agriculture, Rural Transformation Forestry and Fisheries</p>	<ul style="list-style-type: none"> • <i>Fisheries Act</i> (No.8, 1986), & later amendments (No.32, 1986, and No.25, 1989) • <i>Forest Resource Conservation Act</i> (No.47, 1992) 	<p>Promotion and management of fisheries and matters pertaining there to.</p> <p>To provide for the conservation, management and proper use of the forest and watersheds, declaration of forest reserves, cooperative forest and conservation areas.</p>
<p>Ministry of Agriculture, Rural Transformation Forestry and Fisheries</p> <p>[Forestry]</p>	<ul style="list-style-type: none"> • <i>Marine Parks Authority Act</i> 1997 (No.33, 2002) • <i>Natural Forest Resource Act</i> (1947) • <i>Wildlife Protection Act</i> (No.16, 1987) & later amendments (1988, 1991) • <i>Wildlife Conservation Act</i> (1991) 	<p>The establishment of Marine Parks and other related matters.</p> <p>Providing for the protection of wildlife and any connected issues.</p> <p>The conservation and sustainable management of the Nation’s forest, wildlife and national park resources</p>
<p>Ministry of Tourism and Culture</p>	<ul style="list-style-type: none"> • <i>National Parks Act</i> (No.33, 2002) • <i>National Parks (Amendment) Act</i> (No.13, 2010) 	<p>To preserve, manage, protect and develop the natural and cultural heritage of SVG, including the historical and cultural heritage of the Island</p>

Ministry of Housing, Informal Human Settlement, Physical Planning, Lands and Surveys [PPU]	<i>Town and Country Planning Act</i> (No.45, 1992)	<i>The Town and Country Planning Act</i> (No.45, 1992) guides planning in St. Vincent & the Grenadines. Under this act, the PPU has the legal authority for environmental management in general, including the evaluation of the need for and level of EIA requirements.
The Ministry of Health Wellness and the Environment houses the focal point for these conventions.	United Nations Conventions <ul style="list-style-type: none"> • UNCBD • UNCCD • UNFCCC • Cartagena Convention – LBS protocol 	Convention for the protection of biological diversity. Convention to combat desertification. Convention to reduce greenhouse gas emissions. Convent against land based sources of marine pollution.
The Ministry of Health Wellness and the Environment. [The SDG has reporting requirements for all Ministries of Government]	St. Georges Declaration of Principles for Sustainable Development (SD) in the Organization of the Eastern Caribbean States (OECS) of 2001.	This sub-regional agreement is designed to support sustainable development and covers a wide range of environmental issues including the Multilateral Environmental Agreements (MEAs)

St. Vincent & the Grenadines has legislation in place to address environmental and social development issues within respective jurisdictions. *The Town and Country Planning Act* (No.45, 1992) was initiated to guide planning in St. Vincent & the Grenadines and falls under the jurisdiction of Ministry of Housing, Informal Human Settlement, Physical Planning , Lands and Surveys. Under the Act, Article 29, an EIA for environmentally sensitive projects or activities is required.

The Physical Planning Unit (PPU) has the legal authority for environmental management in general under this Act, including the evaluation of, the need for and level of EIA required. In St. Vincent & the Grenadines there is no grading system for projects requiring EIA but the scope of the EIA is determined through discussion with the PPU.

The PPU functions as the technical/advisory arm of the Physical Planning and Development Board (PPDB), the body that oversees national development. The Act gives the Minister the ultimate and final decision on any planning matter. The Chair, Deputy Chair and Committee member of the PPDB are civil society member with the Town Planner as Secretary. Other members of the PPDB include representatives from the Police, National Properties, Transport and Works (Chief Engineer), Housing and Land Development Corporation, CWSA, VINLEC,

Lands and Surveys, Kingstown Town board, the Ministry of Health Wellness and the Environment, Ministry of Agriculture and the Permanent Secretary in the Ministry of Housing. The PPU is responsible for ensuring Project development occurs within the environmental and social requirements of St. Vincent & the Grenadines. As part of its regular responsibilities, the PPU will review the EIA and development applications as well as oversee all other development control related matters, from inspection, to monitoring and enforcement.

The Physical Planning and Development Board (PPDB) has the legal authority for carrying out the purpose and provisions of the *Town and Country Planning Act*. Within this piece of legislation lies the authority of the Planning Department to "... make provision for the orderly 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."

As a signatory to the MEAs and SGD, Saint Vincent and the Grenadines has obligations to reduce its greenhouse gas emissions, protect and sustainably manage its biological diversity, prevent land degradation and ensure that livelihood issues are not threatened or compromised. The National Environmental Management Strategy and the National Economic and Social Development Plan 2013-2025 speaks to environmental sustainability; as a consequence, all activities under the OECS Regional Agricultural Competitiveness Project must respect and respond to these declarations and pronouncements.

1.2 Grenada

There are several different agencies involved in activities that impact on the environment, however only eight (five Government Departments and three Statuary Bodies) are directly involved in environmental management activities on a daily basis, as shown in Table 1.

The current approach to Environmental management in Grenada is sectoral in nature. The Ministry of Health and the Environment has the primary responsibility for the environment along with some twenty agencies, inclusive of Government departments, nongovernmental organisations (NGOs) and statutory bodies (Physical Planning Unit – Draft Sectoral Report on the Environment, 2000).

The legislative framework for environmental management reflects the fragmentation of the institutional framework. A review of the environmental legislation in Grenada (Alexis, 2000) concluded that "... most of the laws ... are sectoral and decentralized ... while they have environmental application, they were not legislated to address those concerns and are mainly incidental to environmental management."

Table 1 - Agencies with responsibility for Project Approval and/or Implementation* and Environmental Management

DEPARTMENT/MINISTRY/ORGANISATION	MANDATE/RESPONSIBILITY
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Physical Planning Unit , Ministry of Communication, Works, Physical Development, Public Utilities, ICT and Community Development	To protect and enhance the Nation's investment in infrastructure. Physical development, public utilities, communications, works, and community development.
Fisheries Division -Ministry of Agriculture, Natural Resources, Physical Planning & Fisheries	Provide efficient, effective, quality services to the agricultural community (farming, fishing, forestry) to stimulate maximum production for local consumption, export and increased incomes through the sustainable use of natural resources.
Land Use Division -Ministry of Agriculture, Natural Resources, Physical Planning & Fisheries	Provide efficient, effective, quality services to the agricultural community (farming, fishing, forestry) to stimulate maximum production for local consumption, export and increased incomes through the sustainable use of natural resources.
Environmental Health Department - Ministry of Health and Social Security	To encourage the improvement, protection, maintenance and preservation, of our fragile ecosystems on a sustainable basis.

Grenada now has in place several pieces of legislation to protect its environment. The most relevant ones to the project are: the Physical Planning and Development Control Act No 25, of 2002; the Public Health Act of 1958 and the litter Abatement Act of 1973, which has been supplemented by the passage of the Waste Management Act 2001 addressing pollution control and the abatement of litter; the 1986 Fisheries Act; and the 1990 National Parks and Protected Areas Act. Every one of those legislations has been playing important resource management roles, which, to some extent, has contributed to the enhancement and conservation of the natural environment and the preservation of public health and safety in Grenada. Nevertheless, only two of those legislations (the Waste Management Act No 16 of 2001 and the Physical Planning and Development Control Act, No25, of 2002) include provisions for environmental impact assessment (EIA).

It is important to note here that according to both Acts, the legal responsibility for environmental impacts assessments and development control in general is shared between none other than the current Physical Planning and Development Control Authority (PPDA) and the Minister responsible for Planning (Act16:15-17 and Act25:25&28). That Minister is responsible for making regulations and appeals. The PPDA is responsible for everything else, with the support of the Physical Planning Unit functioning as its staff.

The Physical Planning and Development Control Act No25, of 2002 stands out for its overall responsibility for land use management in general. It makes fresh provision for the control of physical development, to continue the Land Development Authority, to require the preparation of physical plans for Grenada, to protect the natural and cultural heritage, and for related matters. The Physical Planning and Development Authority (PPDA) is set up under the Act with regulatory powers over any development taking place in, on, under or over the land.

Part 4 of the Act makes provision for the preparation of Environmental Impacts Assessment. The second schedule (section25 (2)), lists a total of 18 matters for which an Environment Impact Assessment is normally required, as follows:

1. Hotels of more than 50 rooms
2. Sub-divisions of more than 10 lots
3. Residential development of more than 25 units
4. Any industrial plant which in the opinion of the Authority is likely to cause significant adverse environmental impact
5. Quarrying and other mining activities
6. Marinas
7. Land reclamation, dredging and filling of ponds
8. Airports, ports and harbors
9. Dams and reservoirs
10. Hydro-electric projects and power plants
11. Desalination plants
12. Water purification plants
13. Sanitary landfill operations, solid waste disposal sites, toxic waste disposal sites and other similar sites
14. Gas pipeline installations
15. Any development generating or potentially generating emissions, aqueous effluent, solid waste, noise, vibration or radioactive discharges
16. Any development involving the storage and use of hazardous materials
17. Any coastal zone development
18. Any development in wetlands, marine parks conservation areas, environmental protection areas or other sensitive environmental areas.

According to the Act, the Authority (meaning the Physical Planning and Development Control Authority) can request an EIA in respect of any development application including application for approval in principle, if the proposed development could significantly affect the environment (Subsection1). The Physical Planning Department authorized under the Planning and Development Authority authorized by Act No. 25 of 2002 has the primary responsibility to issue environmental permits for development or construction. Activities or projects that require an EIA (Environmental Impact Assessment) are listed in Annex 2. In practice an EIA is created only in private sector developments, and the relevant Line Ministries are consulted to provide input into the evaluation of the EIA.

The PPDA functions as the national agency for the identification, protection, conservation and rehabilitation of the natural and cultural heritage in accordance with the United Nations Educational, Scientific and Cultural Organization. It is a convention for the protection of the World Cultural and Natural Heritage, to which Grenada is a party.

To ensure that environmental guidelines are adhered to, the proposed projects should be examined by the agency responsible for approval of development projects in Grenada, the Physical Planning Department, as well as the Ministry of Health, Ministry of Works, Ministry of Economic Development, prior to implementation to identify proposed environmental issues and put in place mitigation measures. Other responsible agencies should also be consulted as necessary.

Appendix 2 – List of Prohibited Pesticides

Prohibited pesticides are listed below and include the WHO “dirty dozen” which are prohibited as well:

2,4,5,-T
aldicarb
Aldrin
binapacryl
captafol
chlordane
chlordecone
Chlordimeform
chlorobenzilate
DDT
dieldrin
Dinoseb and dinoseb salts
1,2-dibromoethane (EDB)
Endrin
fluoracetamide
HCH (mixed isomers)
heptachlor
hexachlorobenzene
lindane
Mercury compounds
mirex
paraquat
pentachlorophenol
toxaphene
monocrotophos
methamidophos
phosphamidon
Methyl parathion
parathion
alpha hexachlorocyclohexane
Beta-HCH
Pentachlorobenzene

Appendix 3 – Guidelines for Preparing a Pest Management Plan

1. **Background** which would outline i) the *purpose* of the Plan, ii) indicate *pest management authorities*, and iii) *pest management program objective*;
2. **Responsibilities of individuals** (e.g., Program Director, Health Chair, Pest Management Coordinator, Pest Management Personnel, etc.)
3. **General Information** which should provide data on land use and soil, in the area where the pesticides are applied; climate, geo-morphology, settlements in the area of concern, population, surface water, etc. as well as inventory of land use and layout of facilities
4. **Priority of Pest Management** (e.g., undesirable vegetation, vertebrate pests, etc.)
5. **Integrated Pest Management**

5.1 *Principles of the Integrated Pest Management* are: a) *Mechanical and Physical Control*. This type of control alters the environment in which a pest lives, traps and removes pests where they are not wanted, or excludes pests. Examples of this type control include: harborage elimination through caulking or filling voids, screening, etc. b) *Cultural Control*. Strategies in this method involve manipulating environmental conditions to suppress or eliminate pests. For example, spreading manure from stables onto fields to dry prevents fly breeding. Elimination of food and water for pests through good sanitary practices may prevent pest populations from becoming established or from increasing beyond a certain size. c) *Biological Control*. In this control strategy, predators, parasites or disease organisms are used to control pest populations. Sterile flies may be released to lower reproductivity. Viruses and bacteria may be used which control growth or otherwise kill insects. Parasitic wasps may be introduced to kill eggs, larvae or other life stages. Biological control may be effective in and of itself, but is often used in conjunction with other types of control. d) *Chemical Control*. Pesticides kill living organisms, whether they will be plants or animals. At one time, chemicals were considered to be the most effective control available, but pest resistance rendered many pesticides ineffective. The trend is to use pesticides which have limited residual action. While this has reduced human exposure and lessened environmental impact, the cost of chemical control has risen due to requirements for more frequent application. Since personal protection and special handling and storage requirements are necessary with the use of chemicals, the overall cost of using chemicals as a sole means of control can be quite costly when compared with nonchemical control methods.

5.2 *Integrated Pest Management Outlines*. This sub-chapter addresses each major pest or category of similar pests is addressed, by site, in separate outlines.

5.3 *Annual Workload for Surveillance, Prevention, and Control*. In this sub-chapter has to be indicated the number of man-hours expended for surveillance, prevention, and control of pests.

6. **Health and Safety.** This chapter should contain health and safety requirements as follows:

6.1 *Medical Surveillance of Pest Management Personnel.* All personnel who apply pesticides have to be included in a medical surveillance program.

6.2 *Hazard Communication.* Pest management personnel are given hazard communication training, to include hazardous materials in his workplace. Additional training is to be given to new employees or when new hazardous materials are introduced into the workplace.

6.3 *Personal Protective Equipment.* In this chapter has to be described approved masks, respirators, chemical resistant gloves and boots, and protective clothing (as specified by applicable laws, regulations and/or the pesticide label) are provided to pesticide applicators. These items are used as required during the mixing and application of pesticides. Pesticide contaminated protective clothing is not be laundered at home but commercially. Severely contaminated clothing is not laundered, but is considered a pesticide-related waste and disposed, as applicable for hazardous waste.

6.4 *Fire Protection.* The fire safety protection requirements have to be established; the pest management coordinator has to control implementation of measures to prevent fire.

7. **Environmental Considerations.**

7.1 *Protection of the Public.* Precautions are taken during pesticide application to protect the public, on and off the installation. Pesticides should not be applied outdoors when the wind speed exceeds 155 m/min. Whenever pesticides are applied outdoors, care is taken to make sure that any spray drift is kept away from individuals, including the applicator. Pesticide application indoors is accomplished by individuals wearing the proper personal protective clothing and equipment. At no time are personnel permitted in a treatment area during pesticide application unless they have met the medical monitoring standards and are appropriately protected.

7.2 *Sensitive Areas.* No pesticides are applied directly to wetlands or water areas (lakes, rivers, etc.) unless use in such sites is specifically approved.

7.2. *Endangered/Protected Species and Critical Habitats.* Protected migratory birds which periodically occur on the installation cannot be controlled without a permit. The Pest Management Coordinator periodically evaluates ongoing pest control operations and evaluates all new pest control operations to ensure compliance with the list of endangered species. No pest management operations are conducted that are likely to have a negative impact on endangered or protected species or their habitats without prior approval from environmental authorities.

7.3. *Environmental Documentation.* An environmental assessment which specifically addresses the pesticide use program on the installation has been prepared. This plan is referenced in the assessment as documentation of pesticide use.

Appendix4 – Disclosure / Public Consultation

Consultations, Workshops Oct 28th/ November30th: Key inputs, concerns and observations.

Environmental aspects – Grenada

1. **Summary.** The ESMF consultation workshop was held Oct. 28th and was attended by key stakeholders from key line ministry representatives. Main comments dealt with water supply issues and control of runoff from farms.

2. The PCU's point-of-contact will publish the ESMF Oct. 31st on the GoG website and public comments will be solicited until November 30th; the final ESMF will incorporate comments received and be ready in mid-December.

3. Environmental safeguards support in-country will require an estimated ¼-time (10 hours per week) level of staffing by mid-2017. The PCU may staff another individual or share staff time with other projects, provided that the necessary skill set is available.

4. **Main points raised and agreements reached.** The workshop was well attended by Ministry of Agriculture, with specialists in policy, crop production, beekeeping and animal rearing, as well as by the Fisheries Department. Many comments dealt with water supply issues, especially considering the low rainfall and drought conditions so far, this year. Many streams and rivers are at a verly low stage of flow, and shortages are leading to conflicts over water withdrawals for irrigation. Although NAWASA has issued permits for some withdrawals, there is no enforcement and there are frequent issues of damming, drying up of streams, and failure to plant because of water shortages. One idea put forth was to strengthen local water users' associations and stream-sharing agreements, perhaps in concert with the PCU's Social Specialist, and acquiring NAWASA permits to strengthen the claims on water withdrawals. Wells may also have to be considered and in all cases water supply and its associated costs and permits should figure prominently in the Business Plans.

5. Another concern was raised about agricultural runoff or wastewater discharges in sensitive watersheds, especially those that lead to protected areas or waterfalls, or directly to the shoreline and to reefs or marine protected areas. It was suggested to modify the screening procedure to consider "watersheds that may directly affect sensitive areas or watersheds" as a criterion for requiring more stringent runoff control practices (e.g. hay bales, vegetation wattles, terracing) to prevent erosion, turbidity, fertilizers and pesticides from polluting sensitive watercourses.

6. The Chairman of the Pesticides Control Board, Mr. George Phillip, described the existing regulatory framework. WHO pesticides Class IA, IB and II are excluded in accordance with World Bank guidelines, and new products must be approved by the Board before they are licensed for import. Gaps include the enactment of more detailed and specific regulations, therefore the World Bank OECS Agricultural Competitiveness Program will provide training

through capacity building with the Agricultural Ministry and Extension Officers, supported by an international consultant or NGO (i.e. technical support specialist). The ESMF and Annex 2 (list of prohibited pesticides) will be modified to reflect this.

7. The workshop group was invited to comment on the “best practices” that are proposed in the ESMF for several different project types. These mitigation measures are summarized from relevant EHS Guidelines, and will form a part of the Business Plan for each enterprise, and will be considered the EMP (Environmental Management Plan) and the compliance criteria that will be verified and enforced as a requirement for receiving program support. It was also understood that more complex enterprises (as identified in the screening matrix) would need to address all the items in the “best practices”, and that these would form the EMP which again would be verified and enforced as a required condition. Participants were asked to carefully review the conditions and best practices, and identify any that seem unreasonable or unnecessary given their knowledge of conditions in Grenada.

8. Finally, the monitoring and supervision aspects were discussed. Workshop participants were requested to provide input about the roles and functions of their various agencies. Best practice will need to be introduced and strengthened among all actors, so the Agricultural Ministry must be involved with day-to-day inspection and enforcement of requirements, since their extension officers will be in the field and on the ground interacting with beneficiaries. However, the PCU must retain ultimate responsibility for safeguards, and therefore staffing for the PCU should include at least ¼-time environmental focus by mid-2017. Duties will include ensuring that screening of subprojects is properly done, working with Ministry of Agriculture to ensure compliance, assisting with training from the Technical Assistance NGO/Consultant, spot checks of beneficiaries for best practice and EMP compliance, and providing input for the quarterly reports to World Bank. The PCU may staff another individual or share staff time with other projects, if the necessary skill set is available.

Environmental Aspects -- St. Vincent and the Grenadines.

9. **Summary.** The ESMF consultation workshop was held Nov. 1st and was attended by stakeholders from line ministries, potential beneficiaries, and the PCU. Main comments dealt with the need to advertise the public comment period in appropriate media, and to ensure that invasive species are controlled.

10. The PCU's point-of-contact will publish the ESMF on Nov. 2nd on the SVG government website and public comments will be solicited until November 30th; the final ESMF will incorporate comments received and be ready in mid-December.

11. Environmental safeguards support in-country will require an estimated ¼-time (10 hours per week) level of staffing by mid-2017. The PCU may staff another individual or share staff time with other projects, if the necessary skill set is available; alternatively, the idea was raised that the PCU could serve solely as point-of-contact, and the environmental specialist functions could be undertaken by a designated individual in the Ministry of Agriculture.

12. **Main points discussed and agreements.** Comments and discussion at the workshop dealt with the need to control invasive species, as these have been intentionally or inadvertently introduced in Saint Vincent and the Grenadines, with undesired results. Water supply was discussed and although drought has begun to impact the windward and northern sides of the mainland, it has not reached a critical level. Saint Vincent does have more abundant water source than many other OECS countries, although, considering the of potential shortages, it is recommended that the program seek to strengthen local water users' associations and stream-sharing agreements, perhaps in concert with the PCU's Social Specialist, and acquiring permits to strengthen the claims on water withdrawals. Wells may also have to be considered and in all cases water supply and its associated costs and permits should figure prominently in the Business Plans, as with Grenada.

13. Another concern was raised about invasive species, which have been introduced with undesired effects. There is no EIA required by the Physical Planning Department for the importation of invasive species or GMOs. The screening matrix in the ESMF should likely also account for this potential impact.

14. Representatives from the Ministry of Agriculture informed that the Pesticides Control Board does screen and approve new products and license them for import. Gaps include inspection and enforcement of new formula that may be introduced by suppliers. Additional information was solicited from the Ministry, including a list of prohibited pesticides, to include in the ESMF.

As in Grenada, the workshop group was invited to comment on the "best practices" that are proposed in the ESMF for several different project types. These mitigation measures are summarized from relevant EHS Guidelines, and will form a part of the Business Plan for each enterprise, and will be considered the EMP (Environmental Management Plan) and the compliance criteria that will be verified and enforced as a requirement for receiving program support. It was also understood that more complex enterprises (as identified in the screening matrix) would need to address all the items in the "best practices", and that these would form the EMP which again would be verified and enforced as a required condition. Participants were asked to carefully review the conditions and best practices, and identify any that seem unreasonable or unnecessary given their knowledge of conditions in Saint Vincent and the Grenadine.

15. Finally, the monitoring and supervision aspects were discussed. Workshop participants were requested to provide input about the roles and functions of their various agencies. Best practice will need to be introduced and strengthened among all actors, so the Agricultural Ministry must be involved with day-to-day inspection and enforcement of requirements, since their extension officers will be in the field and on the ground interacting with beneficiaries. However, the PCU must retain ultimate responsibility for safeguards, and therefore staffing for the PCU should include at least ¼-time environmental focus by mid-2017. Duties will include ensuring that screening of subprojects is properly done, working with Ministry of Agriculture to ensure compliance, assisting with training from the Technical Assistance NGO/Consultant, spot checks of beneficiaries for best practice and EMP compliance, and providing input for the quarterly reports to World Bank. The PCU may staff another individual or share staff time with other projects, provided that the necessary skill set is available.

Social aspects

16. As part of the project's preparation, the PCUs in Grenada and in Saint Vincent and the Grenadines carried out workshops in October 28th and November 1st respectively, seeking to: (i) inform and consult about project's design, and request inputs and recommendations; (ii) present the Resettlement Policy Framework as part (and following) of the ESMF; (iii) address social topics not related to safeguards. With these objectives, the PCUs invited potential beneficiaries including aggregators, farmers and fisherman as well as pertinent technical staff of the government organizations (Ministry of Agriculture, Land, Fishing, and the staff and consultants assigned to the project's preparation). In the workshops participants were informed that the ESMF and RPF, will be posted in the official website this week and for a period of one month to allow further comments and recommendations be provided.

17. In Granada, the workshop was attended by 14 participants (12 men and 2 women), and in Saint Vincent and Grenadines by 18 (6 men and 12 women). Following the presentations of the project and the ESMF, the Bank's Social Specialist explained the RPF, and then opened the discussion and invited participants to provide comments.

18. In **Grenada**, the main inputs and recommendations were following:

(a) There is a need to confirm: (i) current status of irrigation water rights (regulation, norms). Participants recommended that some business plans would require to document/analyze customary agreements reached and practices among water users in cases where potential conflicts could emerge. It was pointed that as the country has been increasingly affected by severe droughts, irrigation water is becoming a source of social tension; (ii) whether there are any traditional fishery rights that would apply for the project and define actions accordingly; (iii) whether the Grievance Redress Mechanism (GRM) being implemented by the PCU in other projects, will be same applied/ used for this project.

(b) **Social inclusion.** As the project aims to improve the inclusion of women, poorest smallholders, and young farmers (under the age of 35) and share the project's benefits, it was agreed that the business plans will need to define and elaborate Plans accordingly with defined incentives and monitoring indicators. In Grenada, the Social Development Specialist of the PCU proposed that as part of the technical assistance for the business plans preparation, such guidelines for the said Plans, should be included.

19. For these recommendations, a needed follow up by Grenada Social Specialist of the PCU will include:

(i) Confirm with the correspondent and pertinent authorities in the Ministry of Agriculture (land and water and fishery) on current regulations implementation and report to the Bank to help define whether there are actions that might be required at the project preparation stage and/or for implementation;

- (ii) Send to the Bank a brief report on the current GRM mechanism in place and being implemented by PCU for other projects to confirm if any additional activity might need to be included for the project.

20. In **Saint Vincent and Grenadines**, the main inputs and recommendations were the following:

- (a) Participants pointed that the safeguards information provided was useful, but time will be required to fully understand the business plans requirements in this matter. Participants stressed the need to access project's appropriated and timely information.
- (b) Comments confirmed that for aggregators/processors of agricultural products, the social and environmental safeguards would be very important for quality improvement of their business.
- (c) Regarding land tenure, participants confirmed that although generally farmer's land is not titled, in most cases they hold a "lease agreement" endorsed by the local norm and authorities as the legal document. Per the information provided, water used for agriculture is not a source of disputes or social tensions.
- (d) According to the Goodwill Fishermen's Cooperative's leader, the fishing activities carried out by the associates is mainly for subsistence purposes and small scale supply for the local market. A similar case applies for other two fishing Cooperatives in the country. There are not any known fishing customary rights for defined communities, having all fisherman allowed to move freely without any restriction.

21. In Saint Vincent and the Grenadines, the next steps for the PCU's Social Specialist are the following:

- (i) Confirm the communication strategy that will implemented by the project during the remaining preparation period and implementation to be included in the PAD.
- (ii) Confirm the lease agreement used that legally confirms the land tenure, to be included in the RPF.
- (iii) Define the ways whereby the comments on the documents that will be posted in the website will be documented and included in the project documents, as required.

22. Concerning **the GRM**, the PCUs will monitor and present quarterly reports to the Bank, including: Number of complaints registered; categorization of complaints received; and percentage of complaints solved. The proposed GRM **indicator for the project is**: percentage of complaints solved.

23. **Social inclusion.** As the project aims to improve the inclusion of women, poorest smallholders, as and young farmers (under the age of 35) to participate in the project and share in project benefits, it was agreed that the business plans will need to define and elaborate a Plan (calendar and budget) with punctual activities and/or monitoring indicators. The Social Development of the PCU proposed that as part of the Technical Assistance for project to include the preparation of guidelines for the business plans elaboration in this matter.

OECE REGIONAL AGRICULTURAL COMPETITIVENESS PROJECT

STAKEHOLDERS MEETING

October 28th 2016

Attendance Register

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22				
23				

xx GDA Rural Women

OECS Agricultural Competitiveness Project stakeholder consultation workshop
List of attendees
Date: November 1, 2016
Location: Fisheries Division, Ministry of Agriculture, Forestry, Fisheries and Rural Transformation, Saint Vincent and the Grenadines

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WEBSites addresses for the ESMF and RPF published in Grenada:

http://www.gov.gd/egov/docs/publications/ESMF_AGRICOM_Jan20_2017.pdf

http://www.gov.gd/egov/docs/publications/RPF_AGRICOM_Jan20.pdf

and in Saint Vincent and the Grenadines:

http://planning.gov.vc/planning/index.php?option=com_content&view=article&id=217&Itemid=252

10th April, 2017

Appendix 5 – Resettlement Policy Framework (RPF)

Prepared for the two countries (a separate document)