1. **Key development issues and rationale for Bank involvement**

1. The small island states of the Eastern Caribbean (EC) regularly suffer disasters related to natural events such as earthquake, hurricane, landslide, rain and drought. These natural hazards have caused significant and recurrent damages to national infrastructure including housing, road networks, schools, hospitals and other facilities such as phone lines, water and electricity. The resulting impacts significantly affect public welfare, national economic activities, property and natural resources. The effects of climate change are already evident in many parts of the region with rising sea levels and storm activity continuing to affect exposed coastlines and development. The situation is only expected to worsen as these Islands will remain highly vulnerable to the impacts of global warming and associated climate change impacts.

2. Over the last decade, EC Governments have invested significantly in building response capacity and have made some progress towards documenting disaster vulnerabilities across sectors and geographical areas. Some governments have started to implement climate adaptation activities including investments to protect infrastructure and population through activities such as retrofitting public structures and the construction of protective structures such as sea defense to mitigate the impacts on the population and private property. Financing for these activities is variously obtained from national revenues and bilateral sources as well as from the World Bank and the Caribbean Development Bank.

3. Despite these efforts, Governments continue to face high levels of risk to their economic stability and national welfare. Post-disaster rehabilitation of damaged infrastructure is a major contributor to the national economic risk profile. Studies have documented that aging public infrastructure presents high levels of vulnerability, particularly in critical sectors such as health, education, water, and roads. The annual tropical storm/hurricane season, combined with the cumulative effects of climate change, will continue to threaten island economies. Absent intervention, current levels of vulnerability will result in increasing need to divert limited financial resources away from economic growth activities into repairs and reconstructions required as a result of disaster and climate change events.
4. Apart from the vulnerabilities associated with aging infrastructure, much of the infrastructure built in the EC islands was designed without consideration for future climate change. Historically, designs were based on a retrospective analysis of climate and hazard impacts. This approach did not consider the magnitude of change that was subsequently experienced and, in many cases, resulted in infrastructure vulnerabilities that were not anticipated. With improvements in climate modeling and predictive capabilities, national infrastructure investments will require improved analysis to accommodate anticipated climate change. Existing infrastructure should be reviewed in the context of future climate changes in order to assess vulnerability and required design improvements.

2. Proposed objective(s)

5. This sub-regional program intends to decrease the vulnerability of people and national economies in the Eastern Caribbean, to climate change and natural hazards. The development objectives are to:

(i) Improve the integration of disaster vulnerability reduction and climate resilience in national development strategies and management of public infrastructure;

(ii) Reduce the risk of loss of human life due to natural hazard induced structural failure of critical public infrastructure.

3. Preliminary description

6. This sub-regional project will support regional agencies and interested government agencies in 6 island states (Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent) to develop capacity and tools to assess and communicate disaster risk to the general public and to the decision makers in different sectors. Furthermore, for participating IDA/IBRD blend countries that solicit investment projects, the project will finance investments in disaster vulnerability reduction of public infrastructure and private housing. Climate change models and scenarios will be used to inform risk assessments and assist with the development of improved engineering designs and cost benefit analyses of development activities. The project will help strengthen existing project implementing units, enabling them to execute substantial investments in climate resilience. Funding from the Pilot Program for Climate Resilience (Part of the Climate Investment Fund made available for the Eastern Caribbean states), as well as grant funding from the European Commission could compliment the sub-regional project.

A two-tier Approach

7. The sub-regional project, in the form of a horizontal APL, is a two-tier engagement, which will build on ongoing sub-regional collaboration and result in national investments targeted at risk reduction.

   Tier 1: Sub-regional Collaboration:

   a. A sub-regional approach to disaster risk reduction takes advantage of the common hazard profile shared by the 6 participating island states which includes similar vulnerabilities to sea level rise, intensifying hurricanes and changes in rainfall variability and intensity. Socioeconomic communalities include similar financial challenges (little room for debt financing), ongoing political and financial collaboration through Organization of Eastern Caribbean States Secretariat and the Eastern Caribbean Central Bank, shared scientific community and research capacity through the University of the West Indies, and collaboration with CARICOM institutions on...
disaster risk management (Caribbean Disaster Emergency Management Agency) and climate change adaptation (Caribbean Community Climate Change Center).

b. At a sub-regional level, the proposed engagement will build on the ongoing collaboration among OECS countries (and in particular, the sub-regional states) with respect to climate monitoring, hazard identification and monitoring, institutional strengthening and capacity building. Activities will include (i) data collection and establishment of data sharing protocols, (ii) capacity building for generating and interpreting risk assessments, (iii) development and sharing of risk assessment application for policy purposes, and (iv) critical infrastructure risk identifications.

**Tier 2: National Investments:**

c. The second tier will, upon request¹, provide investments for national level infrastructure projects in IDA or IDA/IBRD blend countries (Dominica, Grenada, St. Lucia, and St. Vincent and the Grenadines), identified through risk assessments, which integrate climate change models and scenarios with existing hazard and vulnerability data.

### 4. Safeguard policies that might apply


8. This proposed project is classified Category B due to the fact that new lands may need to be purchased and that the new constructions proposed, particularly the new hospital and sea defense works, may result in significant impacts that will need to be addressed during project execution. One or more of the participating countries could chose to include safe community components in their Tier 2 projects. This could entail a resettlement process of people in high risk areas. During project preparation, a decision will be made as to whether to support the relocation of persons in high risk areas by assisting with the construction of relocation housing. Additionally, the project may support the relocation of road infrastructure requiring the purchase of private lands. During project preparation, a Resettlement Policy Framework will be prepared and will include the preparation of a social assessment and Resettlement Action Plans as required. Such a component would trigger OP4.12 and be managed in accordance with the Involuntary Resettlement policy. Communities under consideration by the Governments are generally in the size of 30-50 households. Other impacts are limited to the construction phase. No significant negative impacts have been identified which cannot be mitigated or result in the need for the implementation of long term management activities.

9. The proposed project will finance new constructions and/or improvements to critical public infrastructure primarily in the transport, health, services and potentially the housing sectors. Improvements will relate to rehabilitation and new construction activities designed to increase disaster risk reduction and resilience to climate change for vulnerable facilities and may include the purchase of lands to accommodate new constructions and realignment of roadway segments away from hazardous locations. The project may include the design and construction of a new hospital facility and rehabilitation of vulnerable clinics in the health system. Additionally, the project may finance smaller works such as the construction of strategic sea defense systems and bridges.

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¹ The Ministries of Finance from Grenada and St. Vincent and the Grenadines have requested, in writing, the World Bank’s support to design and finance their participation in a new sub-regional disaster vulnerability reduction project. St. Lucia has expressed interest as well.
10. Depending on the nature of a proposed work, a stand-alone EA may be required particularly where modifications to the coastal zone may be required. Additional studies will be required to establish engineering parameters to be incorporated in climate change resistant designs including flood and stream flow analysis to establish current bridge design requirements.

11. While no works have been proposed in known cultural historical sites, the history of the islands suggests the possibility of chance discovery and potential construction sites, particularly where new land is to be purchased, and should be evaluated prior to their incorporation within the project. The physical cultural resources safeguard (OP/BP 4.11) is triggered as there is the small likelihood for encountering sites of cultural historical significance, particularly in the case of new construction. Known sites will be identified in the Environment and Social Management Framework (ESMF) and assessment and policy implementation requirements will be provided. In the case of small works, procedures for chance find will be provided together with appropriate small works contract clauses.

12. No works will occur on protected lands including forest reserves, critical habitats, parks or lands of similar designation. Erosion control and sea defense works thus far proposed are focused on mitigating existing landslides to protect public infrastructure. Candidate sea defense works are located in areas of existing landslides and exposed to high energy environments. During project preparation, candidate worksites will be identified and reviewed for potential application of the World Bank’s Natural Habitats Policy (OP/BP 4.04). In the case of future undefined works, this policy along with all other Bank Safeguards Policies will be included in the screening procedures provided under the project ESMF.

13. The Project Coordinating Units under the Ministries of Finance will coordinate among the various participating ministries, and coordination of safeguards requirements will be managed through the PCUs. As candidate works are identified, specific screening, compliance requirements and procedures will be included in the operations manual to assure compliance with safeguards and national environmental law.

5. Tentative financing

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6. Contact point
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