Saint Vincent and the Grenadines
COASTAL AND MARINE ECOSYSTEMS MANAGEMENT STRENGTHENING PROJECT
TERMS OF REFERENCE
Technical study to analyze gaps, develop protocols and establish national environmental data and information platform (NEDIP)
SVGCMEMS-C-LCS-2

1.0 Background

The Government of St. Vincent and the Grenadines is implementing a World Bank supported Coastal and Marine Ecosystem Management Project with GEF funding. The project is being funded by a US$3.65 million GEF grant, over a five-year period from April 2022 - 2027. Responsibility for implementation of the project lies with the Sustainable Development Unit (SDU) within the Ministry of Tourism, Civil Aviation, Sustainable Development and Culture. The objective of the Project is to strengthen the management of coastal and marine ecosystems in Saint Vincent and the Grenadines. The Project supports the GEF–7 Programming Directions, by contributing to the long-term protection of the SVG's coastal and marine ecosystems. Specifically, the Project targets the Biodiversity Focal Area. In alignment with the GEF–7 Strategy, the Project follows the priority of mainstreaming biodiversity across sectors as well as landscapes and seascape. The Project contributes to the third pillar *resilience* of the OECS Regional Partnership Strategy (RPS) for FY15–19. The project is aligned with the GoSVG's goals and commitments, particularly related to coastal and marine management and resilience. Specifically, the project continues the goals of the National Biodiversity Strategy and Action Plan (2015–2020) prepared under the CBD for the conservation of locally and globally significant biodiversity. Furthermore, the project aligns with the country's National Economic and Social Development Plan 2013–25 Goal 4 of "Improving Physical Infrastructure, Preserving the Environment and Building Resilience to Climate Change," by improving the management of and ultimately the ecosystem services provided by coastal and marine resources.

The Government of SVG is seeking to hire a Firm to support a technical study to analyze gaps, develop protocols and establish national environmental data and information platform (NEDIP) The NEDIP will be managed by the SDU, with essential functions being provided by key agencies, including the Information Technology Services Division (ITSD). The Firm/NGO will support the development of a permanent and publicly accessible knowledge and data repository within a new NEDIP, beginning with existing coastal and marine data. Relevant and available biophysical and planning information will be maintained there, as well as information on pilot activities. This component will address the challenges of adaptive capacity by enhancing data, analysis, and monitoring of coastal and marine resources to inform data-driven approaches.

The Firm/NGO will designate a representative (consultant team manager) to work within the SDU, as well as with local communities while drawing on other expertise within the Firm/NGO to fulfill the task assigned under this contract.

2.0 Objective of the Consultancy

The objective of this component is to improve the quality and availability of coastal and marine data to inform policy and decision-making processes in St. Vincent and the Grenadines. This will be primarily accomplished through the development of the NEDIP, which will be a publicly available resource that consolidates existing data from relevant Government entities and eventually could include data from NGOs, the private sector, and communities. The NEDIP will initially focus on existing coastal and marine-related data, though the GoSVG has stated its ambition to evolve the NEDIP to act as a hub for all environmental information also including analytical, reporting, management, and facilitation roles to support the Government in its own programs and initiatives as well as its engagements regionally and internationally. This component will specifically support the analysis of existing data to be hosted in the NEDIP and the establishment of the system and protocols for its management and functions.

The NEDIP is also expected to support repository, analytical, and reporting functions. The repository functions may include:

(a) spatial information storage
(b) nonspatial information storage,
(c) active original information acquisition, and
(d) information access role.

The analytical functions may include (a) quality assurance role through validation, comparison, and potential correction of existing information; (b) information management and analysis through generating new information from existing or acquired data, maintaining tools and expertise to analyze data, validating and publishing new data, and so on; and (c) an enabling role through providing access and services to third parties and researchers for conducting analyses. The reporting functions possibly comprise (a) gateway role—international protocols through collecting/receiving and disseminating information consistent with national commitments to treaties and international protocols and (b) Government policy-driven functions such as collection and dissemination of information on Project or Government-relevant policies and strategies.   The NEDIP will be managed by the SDU, with essential functions being provided by key agencies, including the Information Technology Services Division (ITSD).

3.0   Project Description

The SVG Coastal and Marine Ecosystems Management Strengthening Project seeks to address the challenges for coastal and marine management in St. Vincent and the Grenadines, including anthropogenic pressures, institutional fragmentation, policy and regulatory inadequacies, and lack of adaptive capacity through data-driven solutions.

The project includes three key interacting components implemented in parallel. Component 1 supports institutional strengthening for coastal and marine management across all relevant

sectors and will address challenges of institutional fragmentation and policy and regulatory inadequacies primarily through support to better operationalize the National Ocean Coordination Committee (NOCC) and achieve actions under the National Oceans Policy and Strategic Action Plan (NOPSAP). These activities will indirectly affect anthropogenic pressures through more robust and consistent enforcement of policies and monitoring to ensure the sustainable use of coastal and marine resources.

Component 2 will support pilots to demonstrate spatial planning and innovative financing arrangements, environmental mitigation and management, participatory conservation and protection, improved livelihoods, nature-based tourism, and alternative natural resource use. The identified pilot sites include (a) St. Vincent Southeast Landscape/Seascape: Brighton; (b) Grenadines Landscape/Seascape: Union Island and Tobago Cays Marine Park (TCMP); (c) Leeward Coast: Richmond Beach, Chateaubelair Bay; and (d) Colonarie Beach. Pilot projects at these sites will test approaches for mitigating anthropogenic pressures on coastal and marine resources, and the lessons learned from the pilots will inform adaptive capacity through policy measures in Component 1 and data management in Component 3.

With regard to the latter, Component 3, will be achieved under this consultancy and will support the development of a permanent and publicly accessible knowledge and data repository within a new National Environmental Data and Information Platform (NEDIP), beginning with existing coastal and marine data. Relevant and available biophysical and planning information will be maintained there, as well as information on pilot activities. This component will address the challenges of adaptive capacity by enhancing data, analysis, and monitoring of coastal and marine resources to inform data-driven approaches. The NEDIP will help provide data to guide decision-making and reduce some uncertainties and institutional conflict. It will also serve as a primary mechanism for ensuring accountability for results by facilitating effective monitoring and evaluation of the project and sharing of timely, relevant, and unambiguous information about the Project's monitoring & evaluation findings with the project's beneficiaries and stakeholders.

In addition to the above 3 key components, component 4 'Project Coordination and Management' will support the direct equipment, and operational and incremental staff costs for project coordination and management. The Sustainable Development Unit (SDU) under the Ministry of Tourism, Civil Aviation, Sustainable Development & Culture is responsible for implementing the project. Please see the Project Appraisal Document for more details.

As the implementing agency of the project, the SDU will hire the services of a firm to establish the National Environmental Data Information Platform (NEDIP) for the project.

4.0 Tasks

Task 1: Conduct a needs assessment including the required system and administrative needs for the National Environmental Data and Information Platform

The Consultancy firm will produce an Inception report outlining the action plan and timeline for achieving the objectives under this consultancy. The firm will collaborate with the Sustainable Development Unit, the PIU and the Technical Advisory Working Group, to identify the end users of the system and determine the user accessibility to the platform, access to data and data sharing protocols. It is also important that the consultant identify the platform's functional requirements as determined by end users and defined in the objectives. The consultant will determine user interface requirements and identify outputs that meet the project's objectives. Any gaps in hardware, software, infrastructure or data are to be identified and reported by the consultancy Firm. Additionally, the firm will determine the institutional arrangements that exist or make recommendations for sharing of data and information. The Consultancy Firm would also produce a Needs Assessment and Platform Requirement Report outlining the system requirements, gap analysis, end-user requirements and a stakeholder consultation report. The platform functionality should include, but not be limited to:

I.   Storing and displaying documents relating to environmental conservation and management
II.   Displaying data quality based on metadata for spatial datasets.
III. Combine several spatial datasets and basemaps while utilizing map templates to create and export maps.
IV.   Provide the appropriate level of access to data via access credentials and industry standard security protocols.
V.   Suggest methods for the visualisation of indicator data submitted through the platform.
VI.   Integrate appropriate regulatory requirements for end-users (terms-of-use agreements across multiple agencies).
VII. Tools for simple manipulation of data such as search, selection, export, query and data discovery.
VIII. Storing data in a central repository to house national environmental data and
IX.   information
X.   Allows user access via the internet
XI.   Accommodate roles and permission to data/site (access controls)
XII. Facilitates reporting on a national level for multiuse purposes
XIII. Enable downloading of data from the platform via the internet
XIV. Works with all file formats relevant to the Environmental Sciences (Geospatial Data, Documents, non-spatial Data).

Task 2: Design, develop and implement the platform

The firm will make presentations to stakeholders as required and seek stakeholder feedback on the system architecture, user interface and platform functionality. They will develop and ensure the functionality of components as identified in the needs assessment in Task 1.

Develop and ensure the functionality of user-interface as identified in Task 1. Design and create diagrams to describe the information structures in the platform as well as communication with users. This can include but not limited to wireframes, interaction, behavioural and structural Unified Modelling Language (UML). Implement and supervise front end and back-end testing of the platform. White-box testing should ensure the overall functionality of the system is achieved based on the design. Black-box testing should ensure that the end user-needs are met as identified in Task 1. In collaboration with public and private sector and NGOs, the developer is expected to solicit and summarize feedback and integrate this feedback into the platform deployment.

The consultancy should develop and document system roles and responsibilities for use, maintenance, and long-term sustainability of the system. The system should be adaptable or anticipate developing trends in the technology such that future development to the platform is possible with minimal resources. The consultancy should also advise on the type of hardware and software requirements for the implementation of the system. This should especially consider the existing infrastructure available in the country, resource constraints, industry security standards and the protection of the site from cyberattack.

The consultancy should also design and refine the NEDIP platform architecture for security, access control, data management, visualisation and interoperability with existing data, systems and tools and develop a platform, interface, toolset and/or workflow to support the processing of data to develop environmental indicators.

The consultant will provide a warranty service for the operation of the system which covers design and non-design related issues up to a year after implementation. The design related issues will be fixed at the expense of the consultant while the non-design issues will be charged to the client.

Task 3: Capacity development in data quality, management GIS and learn-by-doing training on the use of the platform

The firm would collaborate with the stakeholders to develop a training plan, training materials, trainer or trainee sessions and system documentation including, but not limited to:

I. Development of training manual covering the back-end use of the platform for administrators and front-end use for users.
II. Training workshops for administrators and end-users.
III. A data submission protocol which details the process, formats, structure and quality of data submitted for inclusion on the platform.
IV. In consultation with stakeholders and the Sustainable Development Unit, outline the requirements for quality control and quality assurance for the platform.

Task 4: Data management and standardisation

Based on stakeholder consultation, the consultant will facilitate the integration of several formats and types of data to support the objectives of the project.   The consultancy is also expected to:

I. Collaborate with the Information Technology Services Division (ITSD) and other relevant stakeholders on the development of a repository for common data storage.
II. Collaborate with the Sustainable Development Unit and other relevant stakeholders to collate data to be initially uploaded to the system.
III. Create technical system documentation for sustainable management, updating and use of the platform. This should include, among other relevant elements, a data dictionary, metadata and a training manual.
IV. Identify any technical challenges relating to the sharing, mainstreaming, security, quality and transfer of data and recommend solutions in collaboration with the Information Technology Services Division.
V. Consult with existing platforms that integrate spatial and non-spatial datasets to develop a national system, that acts as an interface to the public and private sector sharing of data as well as being used in the monitoring of environmental indicators.
VI. Knowledge of the reporting requirements under the Rio Conventions and other Multilateral Environmental Agreements and recommend how the platform and its technologies can be used to support achieving the goals outlined.
VII. Hold in-country meetings with the Rio Conventions focal point and other key personnel to learn about existing issues.

The consultancy is expected to highlight or raise any problems relating to the integration of data into the platform which relate to its security, integrity, maintenance and use of the datasets in decision-making.

5.0: Duration of Services

The assignment is for a period of 9.5 months to complete the tasks outlined in Section 4.0 above for the design and development of the NEDIP. The Firm/NGO should have sufficient flexibility and well-coordinated so as to deliver the expected outputs in a timely manner.

6.0   Deliverables

The timeframe for deliverables by the firm and percentage distribution of payables are outlined below:

Tasks	Deliverables	Schedule	Percentage of contract amount

1	a) Submit an Inception report outlining the action plan for the firm and timeline for achieving the outlined objectives.	2 weeks post contract signing	10
	b) Needs Assessment and Platform Requirement Report outlining the system requirements, gap analysis, end-user requirements and a stakeholder consultation report.	2 months	15
2	Design, develop, implementation and testing of platform. Submit report on documentation on user interface system design and data handling processes as outlined in task 2.	3 months	25
3	Develop an NEDIP operational manual, system user manuals, training manuals covering the back-end use of the platform, data protocols and documents, and conduct capacity building workshops.	2 months	20
4	Create technical system documentation for sustainable management and a training manual, publish the platform online, conduct user surveys, and report on functionality and end-user acceptance testing. Submit a final report.	2 months	30
Total		9.5 months	100

Reporting Requirements: The firm is required to complete a final report detailing all aspects of the consultancy including final design plans, recommendations for up-keep and maintenance program, and overall sustainability of the platform.

Hierarchy: The firm should report directly to the 1) Director of Sustainable Development Unit and 2) Project Coordinator for all aspects of the consultancy.

7.0 Qualifications and Experience

The Firm/NGO must include key personnel with demonstrate relevant experience in the planning and management of coastal and marine resource experience. It is expected that the Firm/NGO

will include members (either as staff or sub-consultants) with experience in the following technical disciplines:

Consultant	Education	Experience
Project Manager	• A Post Graduate degree in Information Technology, Computer Science, Project Management or related field. • Project Management, Management of Information Systems or related field.	• The project manager must have training in the management of IT based projects and a successful track record of management of web-based projects. Knowledge of the Rio Conventions, familiarity with Multilateral Environment Agreements (MEA) and environmental information would be an asset. Additionally, the Project Manager and team members of the firm should have: • Experience with engaging relevant institutions and stakeholders at multiple levels • Experience in moderating consultations and meetings, and reporting on national stakeholder workshops • Ability to work with senior government officials, research institutes, non-governmental organizations (NGOs), local communities and a wide range of stakeholders • Fluency in written and spoken English and strong

		analytical and communication skills
Web Developer and UI/UX Designer	• A Bachelor's Degree in Computer Science, Information Technology or related field • At least 5 years' experience in web-based technologies, architectures and programming and scripting languages.	• The web, user experience and user interface designer will be responsible for communicating with the stakeholder group and end-users and understanding the objectives of the platform. In addition, they are responsible for implementing and testing for intuitive use of the platform and delivery of an outstanding user experience.
Systems Analyst/Developer	• A Bachelor's Degree in Computer Science, Information Technology or related field • At least 5 years' experience in geospatial server technologies such as Geo-server, ESRI Arc Server or similar technologies	• The Systems Analyst needs to have experience in detailing the requirements, implementation of and monitoring the use of web-based platforms. The Systems Analyst will be responsible for assessing the implementation environment and training of users and administrators.

The Consultancy/Firm may propose the most efficient team of individuals to respond to the various discipline requirements.

Consultant travel, meeting costs and other expenditures related to delivery of the proposed site activities will be included in the negotiated contract.