CARIBBEAN DEVELOPMENT BANK

TECHNICAL ASSISTANCE

CLIMATE SYSTEMS, TECHNIQUES AND RESOURCES FOR IMPROVED DECISION-MAKING, EDUCATION AND SUSTAINABILITY - REGIONAL

Approved via Round Robin No Objection Procedure by
the Board of Directors on September 16, 2024

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CARIBBEAN DEVELOPMENT BANK

BOARD OF DIRECTORS - APPROVAL OF A PAPER

WITHOUT A MEETING

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TECHNICAL ASSISTANCE - CLIMATE SYSTEMS, TECHNIQUES AND RESOURCES FOR IMPROVED DECISION-MAKING, EDUCATION AND SUSTAINABILITY - REGIONAL

1. REQUEST

1.01 By correspondence dated May 18, 2023, The University of the West Indies, Mona Campus, applied to the Caribbean Development Bank for a technical assistance (TA) Grant to support improving decision-making capacity, general awareness, and behavioural change in the face of a changing climate through enhanced decision-support tools, data and information, and knowledge products (the Project).

1.02 The estimated cost of the TA project is one million, four hundred and sixteen thousand United States dollars (USD1,416,000), of which nine hundred and eighty-three thousand, eight hundred and eighty-six United States dollars (USD983,886) is provided from CDB's Special Funds Resources (SFR) allocated from the Caribbean Action for Resilience Enhancement (CARE) Programme and four hundred and thirty-two thousand, one hundred and fourteen United States dollars (USD432,114) is provided from UWI as a counterpart contribution.

2. BACKGROUND

2.01 The heightened vulnerability of Caribbean countries to the impacts of climate variability and change (CVC) consistently places the Region amongst the most vulnerable in the world. Throughout the Region, shifts in duration, frequency and intensity of extreme weather and climatic events have already caused severe economic losses in climate-sensitive sectors (for example, in 2004, the impact of Hurricane Ivan on Grenada resulted in the nation's agriculture and spice industry gross domestic products earnings being set back by 7-10 years). More recently, the Region experienced three Category 5 Hurricanes, Irma and Maria in 2017 and Dorian in 2019, causing widespread devastation across multiple countries and various sectors. Continued and projected climatic changes threaten the Region's economy, growth and aspirations for sustainable development. Projected costs from damage and losses for the Caribbean due to more frequent and intense hurricanes and tropical storms could reach USD22 billion annually by 2050 in a scenario of global inaction to climate change (CC) (Bueno et al. 2008)[1].

2.02 At the start of the 21st century, elucidation of the past and impending threats of CVC to the Region was challenging due to a paucity of information on account of (a) the general lack of CC studies at scales matching the geographical size of territories within the Region; (b) minimal or no peer-reviewed sector-specific or related studies on the influence of CC; and (c) the absence of continuous in-situ meteorological data. Since then, Caribbean scientists and relevant stakeholders have embarked on a drive to improve data availability from both in-situ meteorological stations and climate model projections, as well as working

[1] (PDF) The Caribbean and CC: The costs of inaction (researchgate.net).

towards the provision of CC data and information at spatial and temporal scales more relevant to the Region for use in decision-making, risk reduction and improving overall resilience. This drive led to the production of the first set of relevant and semi-scale specific regional climate model outputs using the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Emission Scenarios (SRES) as well as the subsequent Representative Concentration Pathways (RCPs) scenarios. The results of these endeavours were used by the Caribbean and other Small Island Developing States (SIDS) in:

(a) their campaign to have the end-of-century global warming target be limited to 1.5°C above pre-industrial levels;
(b) the production of several of the Region's National Communications to the United Nations Framework Convention on Climate Change;
(c) a wide array of publications on the impact of CVC on sectors such as agriculture, water, transportation, and tourism;
(d) the development and implementation of numerous capacity building and training workshops geared at improving the climate knowledge and capacity in the Region; and
(e) the preparation of the State of the Caribbean Climate (SOCC) Report that analysed the current and future state of the Region's climate using the best available science and data at the time.

2.03 The SOCC Report was prepared under the SOCC Project, which commenced in 2017, when the CDB, through financing from the European Union (EU) within the framework of the African, Caribbean, Pacific (ACP) -EU, Natural Disaster Risk Management in CARIFORUM Countries, provided a grant of EUR445,056 to UWI, Mona to implement the Project, "SOCC Report 2016: Information for Resilience Building". The project's main objective was to prepare, produce and disseminate the SOCC Report and conduct three Climate Smart Series Workshops. To meet these objectives, the Project was designed with the following main components: (a) preparation of the SOCC Report; (b) conducting interactive "Climate SMART Series" workshops; and (c) development of an online platform and other visibility actions. Execution of the Project was led by UWI, primarily through the Climate Studies Group, Mona (CSGM), which had direct responsibility for the technical implementation of the Project, including preparation of the SOCC report as well as delivery of the "Climate SMART" workshops based on the report. Support for financial-related matters, including reporting, was provided by UWI's Bursary. Additionally, critical implementation support was provided by the Caribbean Institute of Meteorology and Hydrology (CIMH) in its role as a key partner under the Project Agreement.

2.04 The SOCC Report, which was well-received by stakeholders across the Region (Appendix 1), provided the most in-depth view of Caribbean States in terms of the impacts of CVC and is a go-to resource for anyone conducting climate-related endeavours within the Caribbean. Importantly, the report contributed to an increase in the basic knowledge and understanding of the CVC of Borrowing Member Countries (BMCs) of the CDB by providing decision-makers with the best available climate science information at the time in an easily digestible document. Notwithstanding this, the Caribbean is again lagging behind the globe in terms of the scenarios used to inform CC adaptation and mitigation efforts, as the globe has now moved away from using both SRES and RCP scenarios to Shared Socioeconomic Pathways (SSPs). Therefore, there is an urgent need for the Region to close this gap so that it strengthens its efforts to appropriately respond to the threat of CC.

2.05 Enhancing evidence-based decision-making to climate-related challenges in the Caribbean also requires robust data management systems. In 2015, UWI introduced a high-performance computing cluster

known as the Scientific Platform for Applied Research and Knowledge Sharing (SPARKS)[2]. In 2021, CDB contributed to expanding UWI's capacity for storing, retrieving, managing, and analysing large volumes of climate data and information. These efforts led to an improved resolution of 12 to 25 kilometres (km), a scale previously unavailable in the Caribbean. While progress has been made, this resolution remains coarse for most of the Eastern Caribbean, demanding higher resolution data to distinguish climatic variations between the Leeward and Windward Islands. Higher resolutions are essential to discretise sub-parish variations in the smallest BMCs of CDB. However, achieving this requires increased storage and computing capabilities, as the current SPARKS architecture cannot handle the necessary data. Additionally, there is currently no unified online platform for climate data studies and tools in the Region. This lack of a unified platform hinders easy access to these resources.

2.06 The creation of knowledge-based products and training materials tailored to the Caribbean's needs is also crucial for building resilience to CC. This involves developing up-to-date, digital, and easily understandable knowledge products on CC adaptation, mitigation, and resilience. Special attention must be given to persons with disabilities, women, boys and girls among the most vulnerable to climate impacts, necessitating specially tailored educational materials to instil climate-smart attitudes in these groups. A previous project (Global Environment Facility (GEF) Small Grants Programme, 2018–2022) focused on knowledge products for primary school students and teachers in Jamaica, emphasising the importance of CC education for students who will play a key role in future decision-making. Over 30 primary schools were directly introduced to the CC textbook developed under the GEF project which the Ministry of Education, Youth and Information has been endorsed. There have also been requests for textbooks from other countries, such as Barbados. UNESCO (2011) emphasises directing efforts towards children and youth to encourage attitudinal and behavioural change. Building on an earlier CC education resource for primary levels, the proposed Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES) project aims to develop an updated resource specifically tailored for secondary level students in Dominica, Grenada, Guyana, and Jamaica. The rationale for these countries and their letters of commitment are presented in Appendix 2A to 2E. E.

2.07 Overall, the Climate STRIDES project will help address issues related to accessing reliable and updated climate data, the absence of a unified data management platform, and a lack of awareness and educational materials on climate risks and impacts. Proposed solutions include scalable network attached storage, higher resolution data, an expanded web server, and training to enhance climate resilience. The project offers a unique opportunity to generate climate data and information matching the scales of the smallest BMCs. It also provides an interface to streamline access to publicly available regional climate data in a user-friendly geographic information system (GIS) format for policymakers and a broad audience to support planning needs, such as gender, disability, and social inclusion. Additionally, the project intends to initiate an educational campaign for the public and decision-makers, promoting climate-smart practices.

Institutional Capacity and Financial Sustainability of The University of The West Indies

2.08 The UWI Mona has a track record of successfully implementing research and developmental projects funded by local and international donors including foundations, development agencies and regional blocs. All projects are managed through a centrally operated system and conform to the clients', funders and the University's financial procedures and guidelines. The UWI Mona receives and manages an average of Jamaican $500,000,000.00 (approximately USD3.2 million) in new grants per year from several donor

[2] SPARKS is a high-performance computing system launched on November 30, 2016, at UWI, Mona Campus. SPARKS was intended to significantly enhance climate research capabilities within the Caribbean and aims to provide the data needed by Caribbean SIDS to accurately project and mitigate the effects of CC. At the time SPARKS represented a major advancement for the Region, offering increased computing capacity for more accurate and reliable climate projections, and facilitating interdisciplinary research across various fields.

agencies. The strength of the UWI brand and its recent ranking by Times Higher Education[3] in the elite band of the top 1.5% of universities worldwide,[4] based on an evaluation of over 25,000 recognised universities globally, makes UWI the ideal strategic partner to undertake the project.

2.09 The UWI Mona will provide backstopping support for this project. Additionally, expert staff from UWI's strong cadre of qualified scientists and academics who are known internationally and regionally for their expertise in the respective areas will provide support for project implementation. UWI's organisational structure is at Appendix 3.

3. ISSUES AND CONSTRAINTS

3.01 The Caribbean faces significant challenges in gaining a comprehensive understanding of climate risks and their implications for vital economic sectors like agriculture, tourism, water resources, energy, transportation, education, and health. This incomplete understanding is primarily due to the limited availability, reliability, and updated climate data and information, thus undermining the effectiveness of climate monitoring and modelling efforts. Additionally, inadequate access to high-computing systems constrains storing, retrieving, managing, and analysing large volumes of climate data. The absence of a unified data management platform and a user-friendly GIS interface further complicates efforts to streamline access to climate data and information. The scarcity of localised climate studies and sector-specific research compounds the issue, limiting the availability of in-depth, regionally relevant insights crucial for well-informed decision-making in vital economic sectors. Consequently, addressing constraints to enhance resilience and sustainability in response to regional climate challenges involves improving data accessibility and reliability and building a solid foundation of climate research for a more climate-resilient Caribbean.

4. PROPOSAL

4.01 It is proposed that CDB approve a grant to UWI, Mona of an amount not exceeding the equivalent of nine hundred and eighty-three thousand, eight hundred and eighty-six United States dollars (USD983,886), from CDB's SFR allocated from resources provided under the CARE Programme to finance the implementation of the Climate STRIDES (The Project). The Project financing will cover consultancy services, and the procurement of goods and services required for designing and publishing the updated SOCC Report, and develop educational materials, knowledge products, and decision-support tools on CC. These initiatives aim to improve climate resilience decision-making, increase awareness about CC risks and impacts, and promote climate-smart attitudes, actions, and practices. Specifically, the grant financing will be used to:

(a) Enhance decision-support tools, information, and data for evaluating and assessing CC resilience, including:

(i) Preparation and publication of the updated SOCC Report (inclusive of technical report, one-page fact sheets, summary for policymakers, and the creation of GIS-compatible maps). A draft outline of the technical report is presented at Appendix 4.

(ii) Generation of a new suite of high-resolution climate projections for the Region using the latest available global scenarios:

[3] https://www.timeshighereducation.com/world-university-rankings/university-west-indies.
[4] https://www.mona.uwi.edu/news/uwi-soars-top-latest-global-universities-rankings.

(aa) Procure, install, and commission a scalable network attached storage (NAS) to expand the current storage capabilities to house the newly generated scenarios (generation of new data, between 6-10km horizontal resolution, and analysis that will be used to produce the updated SOCC Report).
(bb) Acquire regional climate model boundary data.
(cc) Generate high-resolution climate projections for the BMCs of CDB.
(dd) Post-process generated climate projections for further analysis.

(iii) Development of statistical models to assist decision-making at national levels, sectoral and community levels based on data availability. In addition, CC data will be used to conduct a longitudinal statistical study in Jamaica as a pilot country[5], aiming to model associated impacts.

(iv) Expansion/update of a unified web server[6] to host both the updated and previous versions of the SOCC reports and the newly generated statistical model outputs, GIS interactive maps, and a suite of CC knowledge products.

(v) Training and capacity building related to the SOCC[7] and an official launch event of the SOCC will be conducted virtually.

(b) Develop CC education materials/knowledge products for improved awareness, capacity building, and climate resilience, including:
(i) CC textbook and audio version for lower secondary students (12-13 years old).
(ii) CC teacher's manual and training sessions for teachers.
(iii) CC manga book (paperback and e-book in English, French and Dutch, as well as an audiobook in English) (grades 11 and above).
(iv) CC short film.
(v) CC board game.
(vi) Stakeholder engagement, training sensitisation, and awareness sessions on the CC manga book, e-books, audiobooks, short film, theme songs and board games. The target groups include high school students, tertiary students, government agencies involved in CC and disaster risk reduction, expert groups, community groups, the media, and the creative arts sector, as well as the public.

5. OUTCOME

5.01 The expected outcomes of the project are:

(a) Improved capacities for well-informed decision-making in climate resilience; and
(b) Enhanced climate-smart attitudes, actions, and practices within specific Caribbean demographics, including youth and individuals with special needs.

5.02 A Results Monitoring Framework is presented at Appendix 5 and the Work Implementation Schedule at Appendix 6..

[5] Jamaica was chosen for this study because it possesses the Region's only Systematic Risk Assessment Tool (J-SRAT), which is used to improve climate risk analyses for infrastructure investment decisions. The intention is to expand J-SRAT's model for wider Caribbean application.
[6] The CSGM has recently launched a platform Caribbean Archive for Tools Engendering Resilience (CATER), which houses four tools. Accessible via www.cater.mona.uwi.edu.
[7] Training will be given to CC focal points and key personnel from relevant economic and livelihood sectors, non-governmental organisations and impacts and adaptation specialists from CDB BMCs.

6. JUSTIFICATION AND BENEFITS

6.01 In the Caribbean, the challenge of climate-related hazards is multifaceted, stemming from inadequate finance, planning, and decision-making tools and unreliable, outdated data. Additionally, there is limited awareness about climate risks and impacts. These challenges impede the effective identification, assessment, and response to climate threats.

6.02 A substantial barrier to climate action investments by the public and private sectors remains the limited availability of data and information tailored for a non-scientific audience and decision-making support. Updated and reliable data for the Caribbean is urgently needed to facilitate informed decision-making, heighten awareness of climate risks, and promote behavioural changes that enhance climate resilience.

6.03 The Climate STRIDES Project will help address the critical need for up-to-date, high-resolution climate data and information for the Region in line with the latest IPCC science. Despite substantial progress over the past decade through multiple initiatives like the SOCC, there is an ongoing need, especially in the eastern Caribbean, for resolutions superseding 12 km. Most BMCs of CDB, with an average size in the order of tens of kilometres, still lack resolution matching their key features. This hampers comprehensive analysis as a single value is often used to represent projections for an entire country, although it has distinct climate regimes in its southern, northern, eastern, and western areas. Recognising the existing gaps, the Climate STRIDES Project builds on the successes of the SOCC Project to provide CC projections at a resolution between 6 and 10 km, utilising the latest SSPs to match the small size and complex terrain of the region's territories. The project will deliver an updated SOCC Report, which will be made available to practitioners, decision-makers, and the public.

6.04 The project will further enhance key stakeholders' understanding of the correlation between CC and regional impacts, improving planning and decision-making for more resilient development. It will use CC data to conduct longitudinal statistical models, including a pilot country study, to model associated impacts effectively. By doing so, the project seeks to establish a robust statistical framework that aligns CC data with impacts for both isolated and multi-tiered climate events. The results of these statistical models will be stored in GIS-ready format, making them easily accessible for potential use and to inform policy and decision-making processes.

6.05 The Climate STRIDES Project will help address the demand for suitable, age-appropriate climate content, particularly for non-scientific audiences and vulnerable groups like children, boys, girls, women, and individuals with disabilities. Recognising the intergenerational impacts of CVC in SIDS, like those in the Caribbean, the project underscores the importance of generational strategies and practices for effective mitigation and adaptation. CCE is deemed essential for all, including individuals with disabilities. The project will finance initiatives to enhance awareness by developing textbooks for integration into the national curricula of BMCs of CDB, either by filling gaps or supporting existing content. The project will broaden its scope to students at all levels, primary, secondary, and tertiary, by creating educational materials to stimulate renewed climate action and potential advocacy. The project will also focus on knowledge dissemination to decision-makers, educators, and the public.

6.06 The project will adopt a holistic approach that will result in a range of direct and indirect benefits. It will contribute to strengthening the Region's resilience efforts in the face of CC and driving BMCs closer to achieving key sustainable development goals (SDGs), particularly SDG 13: "Take urgent action to combat CC and its impacts".

6.07 Based on CDB's Performance Rating System, the project has been assessed as highly satisfactory with an overall score of 3.5. Table 1 summarises the project performance score and the detailed Performance Rating System is included at Appendix 7.

TABLE 1: PROJECT PERFORMANCE SCORE SUMMARY

Criteria	Relevance	Effectiveness	Efficiency	Sustainability	Overall Score Highly Satisfactory
Score	4	3	3	4	**3.5**

7. GENDER MARKER AND PERFORMANCE ASSESSMENT

7.01 The Project is assessed as marginally mainstreamed (MM) based on CDB's Gender Marker, having scored a total of two points. The gender marker is summarised in Table 2 below. Please see Appendix 8 for further details on the gender marker and performance assessment.

TABLE 2: GENDER MARKER SUMMARY

	Analysis	Design	Score	Code
MM	1.0	1.0	2.0	MM

8. EXECUTION

8.01 The project will be executed by UWI, Mona, under the leadership of CSGM and with support from the School of Education, the Department of Mathematics, the Special Project Unit and the Mona Office for Research and Innovation, Faculty of Science and Technology Research Mobilisation Unit. External support will be provided by CIMH and expert consultants. The key roles in project execution of the mentioned entities are summarised below:

(a) CSGM will lead the technical aspects of the project execution and collaborate with the other UWI entities and CIMH to review and validate deliverables. A Project Coordinator (PC) will be hired and assigned to CSGM and will have overall responsibility for managing and coordinating the project execution. The UWI will assign a Technical Project Coordinator (TPC)to provide high-level technical direction to the project. The terms of reference (TOR) of the PC and the Role and Responsibilities of the TPC are presented at Appendix 9A and 9B respectively. The engagement of the PC shall be a condition precedent to the first disbursement of the grant.

(b) The School of Education will supervise the development of the CC textbooks tailored for students, develop a teachers' manual for secondary school teachers, and conduct capacity-building training sessions.

(c) The Department of Mathematics will spearhead the development of statistical models and their integration with new and existing systematic risk assessment tools.

(d) The Special Projects Unit will manage the financial resources of the Project, ensuring fiscal efficiency and transparency. Existing staff of this unit, including procurement and

accounting personnel will work closely with the PC to provide necessary support to the project execution.

(e) The Mona Office for Research and Innovation, Faculty of Science and Technology Research Mobilisation Unit will provide essential administrative support for project implementation.

(f) Caribbean Institute for Meteorology and Hydrology (CIMH): As the regional training and research organisation focusing on meteorology, climatology, hydrology, and agrometeorology in the Caribbean, CIMH will bring specialised expertise, contribute to regional climate data and lead in preparing two chapters of the updated SOCC report.

(g) External consultants: Consultants will be engaged to provide services as set out in the Terms of Reference (TOR) shown at Appendix 10A to 10M. They will report directly to the PC.

8.02 UWI is expected to submit the initial grant disbursement application to CDB no later than November 30, 2024. The disbursement of the grant funds is scheduled to be completed by October 15, 2026.

9. COST AND FINANCING

9.01 The total cost of the project is estimated to be one million, four hundred and sixteen thousand United States dollars (USD1,416,000), of which nine hundred and eighty-three thousand, eight hundred and eighty-six United States dollars (USD983,886) will be provided by a grant through CDB from the CARE Programme, and four hundred and thirty-two thousand, one hundred and fourteen United States dollars (USD432,114) will be provided as in-kind co-financing from UWI.

9.02 The Financing Plan is summarised in Table 3. The main activities and the detailed budget are presented at Appendix 11.

TABLE 3: SUMMARY OF FINANCIAL PLAN
(USD million)

Contributors	USD	%
CDB	983,886	69
UWI	432,114	31
Total	**1,416,000**	**100**

10. PROCUREMENT

10.01 Procurement shall be undertaken in accordance with the CDB Procurement Policy for Projects Financed by CDB (November 2019) and CDB's Procurement Procedures for Projects Financed by CDB (January 2021), except that, in conformity with the CARE Contribution Agreement (FED/2021/426-057), eligibility shall be extended to countries which are eligible for procurement under the EU funded Programme, which are not CDB member countries, in accordance with the EU Eligibility Rules. The Procurement Plan is shown at Appendix 12.

11. RISK ASSESSMENT AND MITIGATION

11.01 The identified risks have been classified according to their relevance to the implementation and operational phases of the Project. Table 4 summarises these risks and potential mitigation measures to address them. An environmental, social, climate and disaster risk assessment is presented later in this section.

TABLE 4: SUMMARY OF RISKS AND MITIGATION MEASURES

Risk Category	Risk Type	Level of Risk	Description of Risk	Mitigation Measures	Residual Risk
Operational (Project Deliver)	Procurement	Medium	Logistical and supply chain challenges affecting the manufacture and delivery of purpose-built NAS.	Early and wide advertisement of procurement opportunities.	

Environmental, Social, Climate and Disaster Risk Assessment Summary

11.02 The project is anticipated to have no adverse environmental or social impacts. Instead, it is set to deliver significant benefits by enhancing decision-making capabilities in climate resilience across various sectors (e.g. agriculture, tourism, water resources, energy, transportation, education, and health) in the Caribbean through improved access to reliable data and information and decision-support tools. Additionally, it is expected to deliver a suite of knowledge products and relevant capacity-building initiatives to foster climate-smart attitudes, actions, and practices tailored to specific demographics in the Caribbean, including youth and individuals with special needs. Consequently, the project will likely advance regional efforts to achieve sustainable development.

12. RECOMMENDATION

12.01 It is recommended that CDB's Board of Directors approve a grant to UWI of an amount not exceeding the equivalent of nine hundred and eighty-three thousand, eight hundred and eighty-six United States dollars (USD983,886), from CDB's SFR allocated from resources provided under the CARE Programme to finance the implementation of the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES) (The Project). The Project financing will cover consultancy services, the procurement of goods and services required for designing and publishing the updated SOCC Report, and the development of educational materials, knowledge products, and decision-support tools on climate change. These initiatives aim to improve climate resilience decision-making, increase awareness about climate change risks and impacts, and promote climate-smart attitudes, actions, and practices. The financing will comply with CDB's standard terms and conditions and on the following terms and conditions:

No.	Subject	Terms and Conditions of the Grant
1.	**Parties**	Bank: Caribbean Development Bank (CDB). Beneficiary: The University of the West Indies (UWI).
2.	**Amount of Grant**	The Bank agrees to make available to the Beneficiary by way of grant, an amount not exceeding the equivalent of nine hundred and eighty-three thousand, eight hundred and eighty-six United States dollars (USD983,886), from the Special Funds Resources (SFR) of the Bank allocated from the Caribbean Action for Resilience Enhancement (CARE) Programme (the Grant).
3.	**Purpose**	The purpose for which the Grant is being made is to assist the Beneficiary in financing consulting services and the procurement of goods and services for implementing the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES), more particularly described in paragraph 4.01 of the Paper (the Project).
4.	**Disbursement of Grant**	Except as the Bank may otherwise agree, disbursement of the Grant shall be made by the Bank to the Beneficiary as follows: (a) an amount not exceeding the equivalent of one hundred forty-seven thousand, five hundred and eighty-three United States dollars (USD147,583) shall be paid to the Beneficiary as an advance (the Advance) on account of expenditures in respect of the Project after receipt by the Bank of: (i) a request in writing from the Beneficiary for such funds; and (ii) evidence, acceptable to the Bank that the conditions precedent to first disbursement of the Grant have been satisfied; and (b) the balance of the Grant (the Balance) shall be paid to the Beneficiary periodically after receipt by the Bank of an account and documentation satisfactory to the Bank in support of expenditures incurred by the Beneficiary in respect of, and in connection with, the Project. The Bank shall not be under any obligation to make: (a) the first payment of an amount of the Balance until the Bank shall have received an account and documentation satisfactory to the Bank, in support of expenditures incurred by the Beneficiary with respect to the Advance; (b) any subsequent payment of an amount of the Balance until the Bank shall have received: (i) an account and documentation, satisfactory to the Bank, in support of

No.	Subject	Terms and Conditions of the Grant
		expenditures incurred by the Beneficiary in respect of or in connection with the Project; and (ii) the requisite number of copies of the reports or other deliverables, in form and substance acceptable to the Bank, required to be furnished by the Beneficiary to the Bank in accordance with the **Reporting Requirements** (as defined below); and (c) payments exceeding the equivalent of eight hundred and eighty-five thousand, four hundred and ninety-seven United States dollars (USD885,497) representing ninety percent (90%) of the amount of the Grant until the Bank shall have received: (i) the requisite number of copies of the reports or other deliverables, in form and substance acceptable to the Bank, required to be furnished by the Beneficiary to the Bank in accordance with the **Reporting Requirements**; and (ii) a certified statement of the expenditures incurred by the Beneficiary in respect of, and in connection with the Project. The Beneficiary shall comply with the Bank's "*Disbursement Guidelines for CDB-Financed Projects*" published in January 2019, which may be amended from time to time by the Bank.
5.	**Period of Disbursement**	The Bank shall have received an application for first disbursement of the Grant by November 30, 2024, or such later date as may be specified in writing by the Bank. The Grant shall be disbursed up to October 15, 2026, or such later date as may be specified in writing by the Bank.
6.	**Procurement**	Except as provided below, procurement of goods, works and/or services to be financed from the Grant resources shall be in accordance with the following policy and procedures or such other policy or procedures as the Bank may from time to time specify in writing: *Procurement Policy for Projects Financed by CDB (November 2019)* *Procurement Procedures for Projects Financed by CDB (January 2021)* Eligibility for procurement shall be extended to countries eligible for procurement under EU-funded projects, which are not Member Countries of the Bank.

No.	Subject	Terms and Conditions of the Grant
		The Beneficiary shall comply with the procurement requirements set out in the **Procurement Plan**. Any revisions to the **Procurement Plan** shall require the Bank's prior approval in writing.
7.	**Additional Condition(s) Precedent to First Disbursement**	The Bank shall not be obliged to make the first disbursement of the Grant until the Beneficiary has furnished or caused to be furnished to the Bank, evidence acceptable to the Bank, that the Project Coordinator (PC) has been engaged and assigned.
8.	**Project Implementation**	Except as the Bank may otherwise agree, the Beneficiary shall implement the Project.
9.	**Project Management**	The Beneficiary shall assign as PC, a person with qualifications and experience acceptable to the Bank, to carry **Draft Duties and Responsibilities of the Technical Project Coordinator**. The qualifications and experience of any person subsequently assigned to the position of PC shall be acceptable to the Bank.
10.	**Engagement of Consultant(s)**	The Beneficiary shall, in accordance with the procurement policy and procedures applicable to the Grant, select and engage consultant(s) to provide the following consulting services (the Consulting Services) identified for financing by the Bank set out in Section III of the Procurement Plan in accordance with the applicable **TORs for the Consulting Services**: (i) Consultancy Services for Climate Modelling Consultant (ii) Consultancy Services for Technical Assistant – University of the West Indies (iii) Consultancy Services for a Technical Assistant – Caribbean Institute for Meteorology and Hydrology (iv) Consultancy Services for Statistical Modelling Consultant (v) Consultancy Services for Statistical Modelling Technical/Research Assistant (vi) Consultancy Services for Geographic Information Systems Collaborator (vii) Consultancy Services for a Curriculum Review (viii) Consultancy Services for a Writer – Climate Change Textbook and Teachers' Manual (ix) Consultancy Services for a Reviewer – Climate Change Textbook and Teachers' Manual (x) Consultancy Services for a Manga Script Writer and Board Game Developer – Danny Climate Change Series (xi) Consultancy Services for a Song Writer (xii) Consultancy Services for a Game Programmer

No.	Subject	Terms and Conditions of the Grant
		The Beneficiary shall, within a timeframe acceptable to the Bank, implement such recommendations arising from the Consulting Services, as may be acceptable to the Bank.
11.	**Beneficiary's Contribution to the Project**	Except as the Bank may otherwise agree, the Beneficiary shall: (a) meet or cause to be met: (i) the cost of the items designated for financing by the Beneficiary in the **Detailed Budget**; (ii) any amount by which the cost of the Project exceeds the cost set out in the **Detailed Budget**; and (iii) the cost of any other items needed for the purpose of, or in connection with, the Project; and (b) provide all other inputs required for the punctual and efficient implementation of the Project, which are not being financed by the Bank.
12.	**Reports and Information**	Except as the Bank may otherwise agree, the Beneficiary shall furnish or cause to be furnished to the Bank the reports and information required to be furnished to the Bank in accordance with the **Draft Duties and Responsibilities of the Technical Project Coordinator Draft TOR – Consultancy Services for a Project Coordinator** and the **TOR(s) for the Consulting Services**, in the form specified therein, or in such form or forms as the Bank may require, not later than the times specified therein for so doing (**Reporting Requirements**).
13.	**Additional Event(s) of Suspension, Cancellation and Refund**	The Bank shall be entitled to suspend, cancel, or require a refund of the Grant, or any part thereof, if the whole or any part of the CARE Programme resources is suspended, cancelled, or required to be refunded.
14.	**CARE Programme Conditions**	Information and Visibility: Unless the European Commission requests or agrees otherwise, the Beneficiary shall take all appropriate measures to publicise the fact that the Project has received funding from the European Union (EU). Information given to the press, as well as all related publicity material, official notices, reports, and publications shall acknowledge that the Project was carried out "with funding by the European Union" and shall display the EU logo (twelve yellow stars on a blue background) in an appropriate way. Publications by the Beneficiary pertaining to the Project, in whatever form and whatever medium, including the Internet, shall carry the following disclaimer: "This document was produced with the financial assistance of the European Union. The views expressed

No.	Subject	Terms and Conditions of the Grant
		herein can in no way be taken to reflect the official opinion of the European Union." Such measures shall be carried out in accordance with the Communication and Visibility Requirements for EU External Action published by the European Commission, or with any other guidelines agreed between the European Commission and the Bank. Access and financial checks: The Beneficiary shall allow the European Commission, or any authorised representatives, to conduct desk reviews and on-the-spot checks on the use made of the CARE Programme resources on the basis of supporting accounting documents and any other document related to the financing of the Project. The Beneficiary agrees that the European Anti-Fraud Office (OLAF) may carry out investigations, including on-the-spot checks and inspections, in accordance with the provisions laid down by EU law for the protection of the financial interests of the EU against fraud, corruption and any other illegal activity. The Beneficiary undertakes to provide officials of the European Commission, OLAF and the European Court of Auditors and their authorised agents, upon request, information and access to any documents and computerised data concerning the technical and financial management of operations financed under the Agreement, as well as grant them access to sites and premises at which such operations are carried out. The Beneficiary shall take all necessary measures to facilitate these checks in accordance with its Regulations and Rules.

SUPPORTING DOCUMENTATION:

Appendix 1:	Impact of the SOCC Report
Appendix 2A:	Rationale for Selection of Countries
Appendix 2B:	Letter of Commitment Ministry of Education Dominica
Appendix 2C:	Letter of Commitment Ministry of Education Grenada
Appendix 2D:	Letter of Commitment Ministry of Education Guyana
Appendix 2E:	Letter of Commitment Ministry of Education Jamaica
Appendix 3:	The University of the West Indies Organisational Structure
Appendix 4	Outline of the SOCC Report
Appendix 5	Results Monitor Framework
Appendix 6	Work Implementation Schedule
Appendix 7	Performance Rating Schedule
Appendix 8	Gender Marker
Appendix 9A	Draft Terms of Reference - Project Coordinator
Appendix 9B	Draft Duties and Responsibilities of the Technical Project Coordinator
Appendix 10A	Draft TOR Consultancy Services - Climate Modelling Consultant
Appendix 10B	Draft TOR Consultancy Services – Technical Assistants -UWI
Appendix 10C	Draft TOR Consultancy Services – Technical Assistant – CIMH
Appendix 10D	Draft TOR Consultancy Services – Statistical Modelling Consultant
Appendix 10E	Draft TOR Consultancy Services – Statistical Modelling Research Assistant
Appendix 10F	Draft TOR Consultancy Services –Geographic Information System Collaborator
Appendix 10G	Draft TOR Consultancy Services – Junior Web Developer
Appendix 10H	Draft TOR Consultancy Services – Curriculum Review
Appendix 10I	Draft TOR Consultancy Services – Writer CC Textbook and Teachers' Manual
Appendix 10J	Draft TOR Consultancy Services – Reviewer CC Textbook and Teachers' Manual
Appendix 10K	Draft TOR Consultancy Services – Manga Script Writer and Game Board Developer for the Danny CC Series
Appendix 10L	Draft TOR Consultancy Services – Game Board Programmer
Appendix 10M	Draft TOR Consultancy Services – Song Writer
Appendix 11	Detailed Budget
Appendix 12	Procurement Plan

APPENDIX 1

IMPACT OF THE STATE OF THE CARIBBEAN CLIMATE REPORT

The State of the Caribbean Climate Report, published in 2020, stands as both a good practice and a success story. The existence of this report has many positive implications, including the following:

(a) Caribbean stakeholders and other interested groups now have access to a one-stop reference document for climate variability and change in the region in support of planning and decision-making efforts.

(b) The completion of the document means that the production of future updates will be more easily and quickly accomplished.

Throughout the project, stakeholder feedback on the report has been very positive. Some examples of this have been highlighted on the right. The feedback confirms that the SOCC document is a valuable resource for the region. The production of future updates to the report will be vital to its continued relevance.

Feedback on the SOCC Report (from the Validation Workshops held in Jamaica and St. Lucia)

"It will serve as an excellent reference document in policy development given the evidence that it provides."

"It is very applicable to making decisions in the agriculture sector."

"It will support/justify actions required to deal with issues related to climate variability and change."

"The information in the report can be used to guide management and policymakers on how to make sound decisions regarding the sector."

"It will provide a source of information and data that will be used for the planning of infrastructure projects in my organization. Also, for making decisions on long term planning."

"The document is specific to the Caribbean and provides a lot of up to date and region-specific information. For me it will be the "go to" source for climate information for the Caribbean and I do not have to spend hours googling for this information. It will also help me in my daily work where I often prepare papers, reviews and memos relevant to water, wastewater and environmental protection."

"It provides the basis for addressing specific sector planning, mitigation and adaptation actions."

APPENDIX 2A

RATIONALE FOR SELECTION OF COUNTRIES

1.01 Given the expected impacts of climate change (CC), the Caribbean continues to work on improving systems and establishing relevant structures to reduce vulnerability to CC. All four countries in this project: Dominica, Grenada, Guyana and Jamaica are CDB members, making them eligible for funding for programs that will raise awareness of the effects of CC and build local capacity to respond to the impacts both of which are crucial to the development and long-term viability of the Caribbean as a whole.

1.02 The project is conceptualised and will be based in Jamaica. We also wanted to focus on smaller islands in the Eastern Caribbean that might not receive as much attention in climate research. "…the Eastern Caribbean is particularly vulnerable…necessitating the need for more targeted and direct-action measures such as environmental, energy-related and risk reduction projects, among others to complement global economic mechanisms such as carbon trading to abate global warming." (The Organisation of Eastern Caribbean States, 2020)[8].

Dominica

1.03 Dominica suffered massive devastation from Tropical Storm Erika in 2015 and Hurricane Maria in 2017. The country's need to address the high vulnerability of its infrastructure to disasters is defined by the harsh terrain, which has been tested by some of the world's heaviest rainfall, persistent seismic activity, and the island's location within the hurricane belt (Bar & Bar, 2022)[9]. This means that climate resilience is integral and necessary for Dominica. Also, for the Eastern Caribbean, the resolution at which climate scenarios can be downscaled is very coarse. Component One of this project seeks to address this and Dominica is positioned to benefit from such. CC education, awareness and training are critical for schools and by extension the general populace. The creation of a suite of knowledge products will assist in this regard.

Grenada

1.04 Grenada is known for its rich biodiversity. Located at the southern end of the hurricane belt, it is less vulnerable to frequent climate events than some other Eastern Caribbean states. However, the risks of devastating disasters remain extremely high. Hurricanes Ivan (2005) and Emily (2006) caused extensive damage to large areas of forest resulting in soil erosion and biodiversity loss. Generally, rising sea levels pose a major problem to the population, the majority of whom live along the coast, and where most of the major economic infrastructure is located. UNEP (2010) [10] identified several gaps in Grenada's environmental programmes including insufficient scientific data and a lack of partnership and participation of civil society prompting a call for greater awareness at all levels and sectors of the society through the education system. The Government has been working at addressing the shortfalls, increasing the adaptive capacity of communities, strengthening awareness, and sharing best practices. CDB has in the past contributed to environmental initiatives in Grenada and the various components of the current project aim to contribute to closing the gap even further.

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[8] The Organisation of Eastern Caribbean States. (2020). https://www.oecs.org/en/component/sppagebuilder/page/576.

[9] Bar, M. & Bar, Y. (2022, November 30). Climate Change, Education and Sustainable Development in Dominica. https://glocal.huji.ac.il/blog/climate-change-education-and-sustainable-development-dominica.

[10] UNEP (2010). National Environmental Summary Grenada.

Guyana

1.05 Guyana is the only mainland country among the four. Approximately 90% of its population lives in its coastal plain area, which is below sea level. Important industries to the country's economy, such as agriculture, are also located in the coastal areas. Given these circumstances, CC education is important. Guyana has undertaken various initiatives to incorporate CC into formal (and non-formal) education at all levels. Thus, a CC text would complement these existing efforts.

Jamaica

1.06 Jamaica is included as the project will be executed by the UWI, Mona, based in Jamaica. Additionally, Jamaica's long-term sustainable development plan, Vision 2030, aims to promote "a culture of safety and resilience" by integrating content pertaining to CC and hazards into formal and non-formal education (PIOJ, 2009)[11]. This project initiative will thus contribute to these efforts.

[11] Planning Institute of Jamaica (PIOJ). (2009). *Vision 2030 Jamaica National Development Plan*. PIOJ.

APPENDIX 2B

LETTERS OF COMMITMENT

COMMONWEALTH OF DOMINICA
MINISTRY OF EDUCATION, HUMAN RESOURCE PLANNING, VOCATIONAL TRAINING AND NATIONAL EXCELLENCE

MANAGEMENT OF THE EDUCATION SYSTEM

Tel: (767) 266 5514
Fax: (767) 448 1701
E-mail: chiefeduoff@education.gov.dm
Website: www.dominica.gov.dm

Education, Science and Technology Building
Cornwall Street
Roseau

June 04, 2024

Professor Michael Taylor
Dean, Faculty of Science and Technology UWI
Mona Campus
Jamaica

Dear Professor Taylor,

Reference is made to email correspondence dated *June 03, 2024* ascertaining the interest of the Ministry of Education in Dominica on the use of a textbook for secondary school students on **Climate Change**, and related Comic Book series and Board Game on the identified theme.

The Ministry of Education is indeed thrilled that the School of Education, Mona Campus, is partnering with colleagues in the *Climate Studies Group, Mona* on this initiative. We also recognize the importance of anticipated funding partners such as the Caribbean Development Bank on this venture.

Bearing in mind the goal of establishing our country as the first Climate Resilient Independent Nation by 2030, we are certainly interesting in any activity related to advancement of knowledge on Climate Change. We are particularly interested in the teacher training activities which are intended to be an offshoot of the project.

We look forward to partnering on this exercise and to benefit from the deliverables of this, most timely initiative

.....
JEFFREY BLAIZE (PhD)
CHIEF EDUCATION OFFICER

cc: Honourable Minister/Ministry of Education Human Resource Planning, Vocational Training and National Excellence
Permanent Secretary/Ministry of Education Human Resource Planning, Vocational Training and National Excellence
Assistant Chief Education Officer
CXC Local Registrar
Senior Education Officer Curriculum
Mrs. Electa Myers, Resource Mobilisation Coordinator and Project Manager

APPENDIX 2C

Ref. No. .....
In replying the above
Number and date of this
Letter should be quoted.

MINISTRY OF EDUCATION
SIR ERIC GAIRY BOTANICAL GARDENS,
TANTEEN, ST. GEORGE'S,
GRENADA

March 14, 2024

Professor Michael Taylor
Dean
Faculty of Science and Technology
University of the West Indies
Mona Campus
Kingston 7,
Jamaica West Indies

Dear Professor Taylor,

The Ministry of Education is honored to partner with the University of the West Indies, through Dr. Sharon Bram Well-Lalor, in undertaking the project to develop a comprehensive climate change textbook resource tailored to secondary schools. This project will cater for both our abled students and those with disabilities and has significant benefit for those who are visually impaired through the use of audio books. It is also our hope that the training component which is an integral part the project will benefit a cohort of our Grenadian teachers.

Therefore, the Ministry of Education is endorsing the execution of this educational initiative as a result of its potential to benefit the Caribbean region. We are particularly interested in the ways in which the content of the OECS Harmonized Curriculum will be aligned to the project to avoid any unnecessary duplication or wastage of resources.

• Tel: +473 440-2737/38 +473 440-2166; 473 440-3162
• Facsimile: +473 440-6650/7701 E-mail: ps@moe.gov.gd

The Ministry looks forward to a preliminary conversation with the Curriculum Department of our Ministry to be briefed on the conceptualization of the project and to find out how we can work together to ensure that it brings strategic benefit to our Caribbean students.

This letter cancels and supersedes the letter dated January 24, 2024.

Sincerely

.....Djeremiah.....
Dominic Jeremiah (Mr.)
CHIEF EDUCATION OFFICER (AG.)

• Tel: +473 440-2737/38 +473 440-2166; 473 440-3162
• Facsimile: +473 440-6650/7701 E-mail: ps@moe.gov.gd

APPENDIX 2D

MINISTRY OF EDUCATION

NATIONAL CENTRE FOR EDUCATIONAL RESOURCE DEVELOPMENT

DIRECTOR

March 5, 2024.

Professor Michael Taylor

Dean

Faculty of Science and Technology

University of the West Indies.

Dear Professor Taylor,

A pleasant and peaceful afternoon.

I am pleased to formally inform you that the Ministry of Education, and by extension the Government of Guyana is extremely interested and in fact excited to support the crafting of this much needed text book on *Climate Change* for secondary schools as well as the comic book series and board game as I am sure these resources will serve as fun and engaging materials while at the same time aid in educating our society on this very important aspect of our environment.

Please feel free to reach out for any other form of support we may be able to provide.

Kind Regards,

Omwattie Ramdin

Director
NCERD, MOE
Tel. 658 3542

"We are all self-made, but only the successful will admit it." *Earl Nightingale*

APPENDIX 2E

Reply or subsequent reference to this communication should be made to the Permanent Secretary and the following reference quoted:

MINISTRY OF EDUCATION & YOUTH

2-4 National Heroes Circle
Kingston 4, Jamaica
Tel: 876-633-5700-1
Fax: 876-948-7755
www.moey.gov.jm

Date March 12, 2024

Professor Michael Taylor
Dean,
Faculty of Science and Technology,
The University of the West Indies,
Mona Campus,
Kingston 7,
Jamaica W.I.

Dear Professor Taylor

The Ministry of Education and Youth (MoEY), Core Curriculum Unit takes pride in providing quality resources in support of the various curricula in the education system. Against this background we found the publication ***"Let's make a Difference..." A Caribbean primer on climate change*** a fitting and more than adequate resource in support of the National Standards Curriculum (NSC) at the primary level. The publication provides accurate, current and relevant information for learners and the accompanying teachers' guide should provide the teachers with insights to aid their use of the book.

The Ministry supports efforts to pursue the development of similar NSC resources to address the curricular needs at the secondary level. Again, providing the relevant details on climate change as you have done in the context of Jamaica and the wider Caribbean, is important to effecting changes in values, attitudes and livelihoods as a result of climate change impacts. We firmly believe that you and your team possess the capability to provide targeted and impactful learning resources specifically tailored for the secondary level.

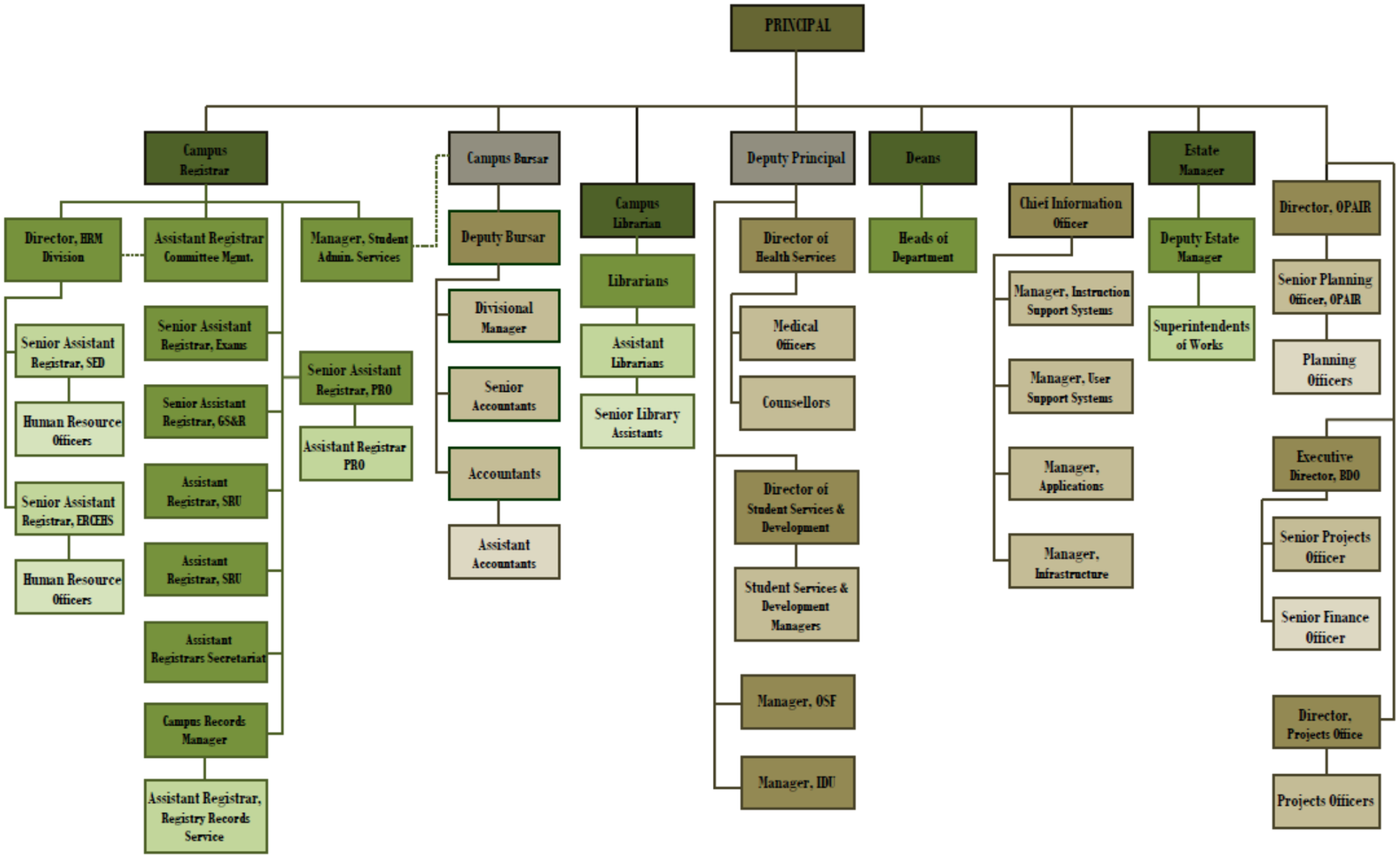
The Ministry endorses the efforts of you and your team in the development of these resources as we look forward to continued relationship in strengthening our resolve to both national development and sustainable existence.

Yours sincerely

Sadpha Bennett (Mr.)
Assistant Chief Education Officer, Curriculum Unit

APPENDIX 3

THE UWI'S ORGANISATIONAL STRUCTURE



APPENDIX 4

PROPOSED OUTLINE OF THE STATE OF THE CARIBBEAN CLIMATE REPORT - VOLUME 2 - to be published in 2026

Executive Summary

Chapter 1: Introduction and Methodology - Defining context and methods, sources of data collection.

Chapter 2: Review of Relevant Literature and Data Availability - A comprehensive review of credible reports and articles on Caribbean climate.

Chapter 3: Climatology - Defining the climate of the Caribbean as we know it using key meteorological parameters (temperature, rainfall etc.).

Chapter 4: Observed Climate Variability and Trends - Historical variability or long-term trends.

Chapter 5: Climate Projections: From SRES, RCP and SSPs when possible[12]- An expose of how projections are made, and the difference countenanced by the new RCP *vis a vis* SRES.

Chapter 6: Recent Extreme Climates – A description of recent climatic events of note and their impact in the region including reported historical impacts from Caribbean climate impacts database.

Chapter 7: Sector Tables - A compilation of potential impacts of climate change for relevant sectors in the Caribbean with references.

Chapter 8: The Value of Climate Information: A chapter on climate services including existing initiatives.

Chapter 9: Conclusions and Recommendations.

Terminology (either at the beginning or at the end)

[12] SSPs at the scale and resolution of the Caribbean Island nations is currently unavailable, to provide these downscaling would need to be employed. This would only provide a small subset when compared to what is available from RCPS.

APPENDIX 5

RESULTS MONITORING FRAMEWORK

	Results Chain	Indicator	Baseline (value and reference year)	Target (value and reference year)	Source and means of verification	Assumptions
Impact	**Enhanced evidence-based planning and decision-making, coupled with a behavioural shift in response to climate change.**					
Outcomes	1. Improved capacities for well-informed decision-making in climate resilience	Number of entities in CDB BMCs using the updated SOCC report or new high-resolution climate projections in GIS-compatible.	Year: 2023 0	By 2026 3	BMC Stakeholders who reference the report in key policies, strategies, plans or other relevant documents.	Timely publication of the updated SOCC report and new high-resolution climate projections in GIS-compatible.
		Number of individuals accessing the updated SOCC report.	Year: 2023 0	By 2026 300	Website usage statistics. Dissemination emails.	
	2. Enhanced climate-smart attitudes, actions, and practices within specific Caribbean demographics, including youth and individuals with special needs.	Number of secondary school teachers (disaggregated by sex) using CC materials/knowledge products made available by the project to deliver CCE in classrooms.	50 primary schoolteachers (trained under the Resilience Strengthening to Climate Change Impacts through Youth Education in Primary Schools project - GEF SGP) (2022).	By 2026 500 Secondary school teachers.	Report of follow-up school visits and focus group sessions (online and in-person) by The UWI .	CC materials produced.
		Number of secondary students disaggregated by sex and visual impairments) demonstrating enhanced CC understanding/knowledge.	2023 0	By 2026 400	Survey with targeted secondary school students.	Distribution of books to relevant schools. Availability of devices to facilitate access of secondary students with and without visual

	Results Chain	Indicator	Baseline (value and reference year)	Target (value and reference year)	Source and means of verification	Assumptions
						impairments to the published new climate change textbook and audio version.
Outputs	1.1. Updated SOCC report prepared and published.	Completion of the updated SOCC Final Technical Report. One-page factsheets available online. Summary for policy makers available online. Updated SOCC data and GIS maps uploaded.	2020 SOCC Report 2023 0 2023 0 2023 0	By 2026 Updated SOCC Report.	Project progress reports. SOCC resources are accessible on online portal, Caribbean Archive for Tools Engineering (CATER).	
	1.2. New suite of high-resolution climate projections for the region using the latest available global scenarios produced.	Procurement, installation, and commissioning of a scalable NAS to expand the current storage capabilities.	2023 No	By 2024 Yes	Project progress reports.	
		3-time sliced downscaled Shared Socioeconomic Pathways Scenarios projections for the Caribbean with a minimum resolution of 10km.	2023 0	By 2026 3	Project progress reports.	
		Downscaled reanalysis and historical data for the Caribbean with a minimum resolution of 10km.	2023 0	By 2026 4	Downscaled data shared with regional data clearing warehouse of the Caribbean Climate Change Centre (CCCCC) as well as CATER.	

	Results Chain	Indicator	Baseline (value and reference year)	Target (value and reference year)	Source and means of verification	Assumptions
	1.3. Statistical models to assist decision-making developed and tested.	Application of longitudinal and logistic regression models to available climate data and associated sector data.	2023 No	By 2026 Yes	Project progress report.	
	1.4. Webserver expanded/updated.	Electronic copies of Climate STRIDES resources available to users.	2023 No	2026 Yes	Project progress report. Electronic copies of Climate STRIDES resources are accessible on online.	
	1.5. Regional training, capacity building and sensitisation session(s) on the SOCC delivered.	Number of training/ capacity building workshops.	2023 0	By 2026 2	Training session reports.	
		Number of persons (disaggregated by sex) attending the training workshops.	2023 0	By 2026 60	Project progress report. Attendance records/registers.	
		Number of persons (disaggregated by sex) attending the launch of the updated SOCC Report.	2023 0	By 2026 100	Project Progress Report.	Updated SOCC officially launched.
	2.1. Climate Change textbook and audio version for secondary students published.	New CC textbook and audio version available for secondary schools.	2023 No	By 2025 Yes	Project Progress Report.	

	Results Chain	Indicator	Baseline (value and reference year)	Target (value and reference year)	Source and means of verification	Assumptions
					Publication of the new CC textbook and audio version.	
	2.2. CC manual for secondary level teachers prepared.	Number of copies of the manual.	2023 0	By 2026 300	Project progress report. Manual document.	
	2.3. CC Manga Book (paperback, audio and eBooks) in English, French and Dutch published. Theme song produced	Completion of the new CC Manga book.	2023 No	By 2026 Yes	Hard copies (540), audio version and e-book available.	
	2.4. CC Short Film and theme song produced.	Completion of CC Short film.	2023 No	By 2026 Yes	Short film accessible online.	
	2.5. CC Board Game (online and hard copy) published.	Completion of CC board game.	2023 No	By 2026 Yes	Printed copies (200) and online version available.	
	2.6. Training, capacity building and sensitisation sessions on 2.1 to 2.5 delivered.	Number of sessions.	2023 0	By 2026 6	Training session reports.	

APPENDIX 6

WORK IMPLEMENTATION SCHEDULE

Outputs/Activities	2024			2025				2026			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project Management, Monitoring and Reporting											
Agreement Signing											
Project Coordinator											
Progress Reports											
End of Project Report											
1.1 New suite of high-resolution climate projections for the region using the latest available global scenarios											
Procure scalable NAS											
Install and commission scalable NAS											
Hire Research/Technical Assistant											
Install latest regional climate models											
Acquire regional climate model (SSP and RCP) boundary data											
Generate high-resolution climate projections for CDB BMCs											
Post-process generated climate projections for further analysis											
1.2. Updated State of the Caribbean Climate Report, inclusive of; a) Technical Report; b) One-Page Fact Sheets and c) Summary for Policymakers											
Hire technical/research assistants and GIS Consultant											
Data collection and analysis of historical and data and future projections											
Prepare draft SOCC Report (technical report, one-page factsheets, summary for policymakers)											
Plan for and conduct 2 validation sessions											
Finalise SOCC Report											

Outputs/Activities	2024			2025				2026			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procure copyediting and graphic design services											
Copyedit and graphic design of final report											
Create GIS-compatible maps and upload to web server.											
Publish final report to online portal											
1.3. Statistical Models that will assist decision making using a) Longitudinal Models; b) Logistic Regression Models											
Hire Technical / Research Assistant											
Develop and test statistical models											
Apply statistical models to available climate data and associated sector data to generate outputs that can be used to produce GIS based results											
Incorporate statistical models and GIS based results into webserver											
1.4. Expanded and updated webserver to host and that makes regionally available.: a) GIS interactive maps with high resolution data for CDB BMCs; b) State of the Caribbean Climate Report and c) Outputs of Components 2 and 3											
Hire Research/Technical Assistant											
Archive and store previous SOCC report for legacy access											
Expand available storage for SOCC webserver											
Creation of subdomain specific to the new SOCC report and other relevant outputs from components 2 and 3											
1.5. Regional training, capacity building and sensitization session(s) comprising a) 2 training/capacity building sessions and b) 1 launch event											
Plan for training and capacity and sensitization sessions											

Outputs/Activities	2024			2025				2026			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Execute sessions											
Plan for and execute SOCC launch event											
2.1. Climate Change textbook and audio version for secondary School Students											
Review national curricula of selected Caribbean countries for climate change content.											
Consult with relevant education stakeholders from selected Caribbean countries.											
Identify writing team and produce draft textbook content.											
Obtain stakeholder/expert feedback on textbook content.											
Revise and finalise textbook for hard copy and e-copy production.											
Convert the textbook into an audio version.											
2.2. Climate Change teacher's manual (hard copy)											
Identify writing team and develop training manual for teachers as a companion resource to the secondary level textbook on climate change.											
Revise and finalise training manual for hard copy and e-copy production.											
2.3. Climate Change Manga Books											
Data collection/research and literature reviews											
Script writing											
Illustrations											
Formatting, editing and proofreading											
Translating											
Printing											

Outputs/Activities	2024			2025				2026			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Recording (audio book)											
Uploading (audio book and eBook)											
Song writing and production											
2.4. Climate Change Short Film											
Data collection / research and literature reviews											
Script writing											
Casting calls											
Scouting for site locations											
Acquiring filming equipment											
Filming and shooting											
Editing and post-production											
Song writing and production											
2.5. Climate Change Board Game											
Data collection / Research and literature reviews											
Concept development (online and hard copy)											
Concept design (hard copy)											
Programming (online version)											
Game testing and surveys											
Analyzing results from tests / surveys											
Printing (hard copy)											
Uploading game to website / platform (online version)											
2.6 Training, Capacity Building, Stakeholder Engagement, Sensitization and Awareness Building Sessions											
Identify facilitators for training sessions for teachers.											

Outputs/Activities	2024			2025				2026			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Sensitise and prepare teachers for effective use of the text and audio version of the text through a series of training workshops.											
Manga book and board game											

APPENDIX 7

PERFORMANCE RATING SYSTEM

Criteria	Score	Justification
Relevance	4	The proposed TA aligns with the Revised Regional Framework for Achieving Development Resilient to Climate Change (2019-2029). The project is consistent with CDB's "Climate Resilience Strategy 2019-2024" and the strategic objective of building environmental resilience as presented in CDB's Strategic Plan Update 2022- 2024. It aligns with the ACP EU-CDB CARE priorities of enhancing climate resilience building efforts in CDB BMCs, particularly CARE's expected outcome of strengthening evidence-based and gender sensitive decision-making. This involves improving the understanding of risks and impacts, as well as disseminating reliable climate data and information.
Effectiveness	3	The project is informed by previous similar initiatives, especially the publication of the SOCC Report in 2020 and related training and awareness sessions on the report. This has facilitated establishing ambitious but realistic and achievable project targets and timelines. Additionally, consistent work collaboration between CSGM/UWI and partners like CIMH and the Caribbean Community Climate Change Centre (CCCCC) will help harness expertise and will significantly contribute towards timely preparation and qualify of key deliverables and, consequently, the achievements of expected outcomes.
Efficiency	3	The UWI/CSGM has a successful track record in executing CDB-funded projects. This will facilitate compliance with CDB procedures for efficient project implementation. Potential risks to project implementation are identified along with feasible risk mitigation measures. Costs for implementing project activities have been thoroughly evaluated. The expected cost of this Project is considered reasonable, and the activities and deliverables are expected to be achieved within the established timeframe and budget.
Sustainability	4	The project is well-articulated to complement prior and on-going initiatives to enhance climate resilience in the region. It ensures the continuous availability of deliverables to national and regional stakeholders through a dedicated webserver. Additionally, key partners, including the Caribbean Institute for Meteorology and Hydrology (CIMH), will support the promotion and dissemination of the updated SOCC Report and project knowledge products. The project's scope aligns with the mandates of UWI/CSGM and other key partner institutions (e.g. CIMH, CCCCC), presenting an opportunity to further build on its achievements. The UWI/CSGM is committed to leveraging Climate STRIDES Project benefits and providing the best available climate change information for the region, consistent CSGM's mandate. Additionally, CSGM aims to expand the suite of tools and datasets available through http://cater.mona.uwi.edu, a platform hosted and permanently housed at UWI. The UWI is dedicated to providing CC data and information for the region beyond this project's scope.
Overall Score	**3.5**	**Highly Satisfactory**

APPENDIX 8

GENDER MARKER

Project Cycle Stage	Criteria	Score
Analysis: Background	Sex-disaggregated data included in the background analysis, and/or baselines and indicators, or collection of sex-disaggregated data required in TOR.	1
	Socioeconomic/Sector/Institutional analysis considers gender disparities, or TOR requiring the identification of socioeconomic, sectoral and institutional gender issues.	
Design: Project Proposal/Definition /Objective	TA interventions are designed, or will be identified as part of the project, that address gender disparities or enhance gender capacities.	1
	Project objective/outcome includes the enhancement of gender capacities, gender data collection, gender equality or the design of gender-responsive policies or guidelines.	
Score:		2.00
MM: marginally mainstreamed: the project has the potential to contribute significantly to gender equality.		

APPENDIX 9A

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR A PROJECT COORDINATOR

1. BACKGROUND

1.01 The Caribbean faces common vulnerabilities to climate variability and change despite its diversity in size, population, and economic drivers. The impact of extreme weather events and climate change (CC) has frequently led to significant economic losses across key economic sectors and loss of lives, particularly among the most vulnerable groups. Challenges in characterising and understanding these threats arise from many factors, including inter alia unreliable and updated climate data and information, and inadequate CC studies, sector-specific research, and affordable finance at scale for climate action. To address some of these gaps, Caribbean scientists and stakeholders collaborated to enhance data availability, producing regional climate model outputs. These outputs played a crucial role in global advocacy, national communications to the United Nations Framework Convention on Climate Change (UNFCCC), publications, capacity-building workshops, and the publication of the State of the Caribbean Climate (SOCC) Report in 2020. While the SOCC Report has been a valuable resource, the Caribbean now lags behind global advancements in climate scenarios. To address this, the Caribbean Development Bank (CDB) has provided financing to the University of the West Indies (UWI) to implement the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES). The project financing is supporting consultancy services and the procurement of goods and services for the design and publication of the updated SOCC Report, climate change education (CCE) materials, knowledge products, and others decision-support tools, to improve climate resilience decision-making, raise awareness about CC risks and impacts, and promote climate-smart attitudes, actions and practices in the Caribbean.

2. OBJECTIVE

2.01 The Project Coordinator (PC) is primarily responsible for managing and coordinating the Climate STRIDES Project's implementation to ensure a successful and timely completion of all activities and deliverables.

3. SCOPE OF WORK

3.01 To successfully and effectively manage and coordinate the Climate STRIDES project's implementation, the PC's specific duties and responsibilities will include, but are not limited to:

(a) Coordinating climate data gathering and analysis, and reporting.

(b) Managing the selection and engagement of consultants and contractors, and the procurement of materials, goods and services.

(c) Facilitating The University of the West Indies (UWI) and key external stakeholder consultations.

(d) Coordinating workshops and other Climate STRIDES events.

(e) Ensuring timely and quality deliverables.

(f) Liaising with Mona Office for Research and Innovation and the Special Project Unit at UWI on all administrative and financial aspects of the Project.

(g) Liaising with CDB Project Management Unit on all technical, administrative, and financial aspects of the Project.

(h) Preparing and submitting progress reports to CDB; and

(i) Executing any other tasks as assigned by UWI to facilitate the successful completion of the Climate STRIDES Project.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The PC must have recognised credentials (bachelor's degree) in the natural, applied or social sciences, and proven experience (at least five years) in:

(a) Managing climate and/or environmental projects.
(b) Climate-related analysis and assessments.

4.02 The Consultant shall also possess:

(a) Excellent management skills.

(b) Excellent research, analytical, organisational and communication skills.

(c) Excellent oral and verbal written communication skills.

(d) Knowledge of the cultural and socioeconomic context of the Caribbean and experience working in the region; and

(e) Familiarity with the procurement process of CDB or other multilateral development banks, international organisations, etc,

(f) Good understanding of the environmental challenges in small island developing states.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The PC will be required to provide the following reports and deliverables to CDB:

(a) Inception Report - within two weeks of the signing of the Grant Agreement and a revised implementation schedule, including a detailed work plan.

(b) Bi-monthly progress reports (technical and financial).

(c) Final Project Report.

6. DURATION

6.01 The duration of this assignment is expected to be 28 months.

APPENDIX 9B

DRAFT DUTIES AND RESPONSIBILITIES OF THE TECHNICAL PROJECT COORDINATOR

1. The primary responsibility of the Technical Project Coordinator (TPC) is to provide high-level technical direction to the Climate STRIDES Project, inclusive of climate change science expertise and other technical guidance to facilitate the successful development and completion of project outputs.

2. The duties and responsibilities of the TPC will also include, but are not limited to:
   (a) Review Climate STRIDES outputs (such as the SOCC Report) for technical quality, consistency and coherence.
   (b) Identify and explore, where possible, opportunities for exploiting synergies across Climate STRIDES project components and with other initiatives in an attempt to maximize the impacts and benefits of the Climate STRIDES Project.
   (c) Support the presentation, dissemination and tailoring of technical content for a range of stakeholders.

3. The TPC must have recognised credentials (PhD degree) in Climate Science, Meteorology, Climatology, Coastal and Marine Science or related field, and proven experience (at least seven years) in:
   (a) climate modelling;
   (b) environmental modelling;
   (c) statistical analysis
   (d) excellent research, analytical, organisational and communication skills;
   (e) specific experience in the Caribbean; and
   (f) good understanding of the environmental challenges in Small Island Developing States.

4. The TPC will be assigned for the duration of the project.

APPENDIX 10A

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR CLIMATE MODELLING CONSULTANT

1. BACKGROUND

1.01 The Caribbean comprises nations that are diverse in terms of geographical size, population, political stability as well as economic drivers. This diversity is however dwarfed by the common vulnerability to the impacts of climate variability and change (CVC) that each of the territories experience; and which places the Caribbean amongst the most vulnerable, across all socio-economic and livelihood sectors. Throughout the region, shifts in duration, frequency and intensity of extreme weather and climatic events have already caused serious economic losses in climate sensitive sectors (for example, in 2004, the impact of Hurricane Ivan on Grenada resulted in the nation's agriculture and spice industry gross domestic products earnings being set back by 7-10 years). Continued and projected climatic changes not only place the Caribbean amongst the most vulnerable to the impacts and CVC, but threatens the region's economy, growth and aspirations for sustainable development.

1.02 At the start of the 21st century, there were still challenges adequately characterising and understanding the past and impending threats of CVC to the region due to a paucity of information on account of (a) the general lack of climate change studies at scales matching the geographical size of territories within the region; (b) minimal or no peer-reviewed sector-specific or related studies on the influence of climate change; and (c) the absence of continuous in-situ meteorological data. This led Caribbean scientists and relevant stakeholders to embark on a drive to improve data availability from both in-situ meteorological stations and climate model projections as well as working towards the provision of climate change data and information at spatial and temporal scales more relevant to the region for use in decision-making, risk reduction and improving overall resilience. This drive resulted in the production of the set of first relevant and semi-scale specific regional climate model outputs using the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Emission Scenarios (SRES) as well as the subsequent Representative Concentration Pathways (RCPs) scenarios. The results of these endeavours were used by the Caribbean and other Small Island Developing States in:

(a) their campaign to have the end of century global warming target be limited to 1.5°C above pre-industrial levels;
(b) the production of several of the region's national communications to the United Nations Framework Convention on Climate Change;
(c) a wide array of publications on the impact of climate variability and climate change on varying sectors, such as agriculture;
(d) the development and implementation of numerous capacity building and training workshops geared at improving the climate knowledge and capacity in the region; and
(e) the preparation of the State of the Caribbean Climate (SOCC) Report, through support from the Caribbean Development Bank (CDB) [1] to The University of the West Indies (UWI), Mona. The report, which was published online in 2020, analysed the current and future state of the region's climate using the best available science and data at the time.

1.03 The SOCC Report has been viewed as a landmark activity for the region, as it provided the most in-depth view of Caribbean States in terms of the impacts of CVC and has been a go-to resource for anyone conducting climate-related endeavours within the Caribbean. Importantly, the report contributed to an increase in the basic knowledge and understanding of CVC of Borrowing Member Countries (BMCs) of

[1] This was made possible through financing from the European Union (EU) within the framework of the African, Caribbean, Pacific, EU, Natural Disaster Risk Management in CARIFORUM countries.

the CDB by providing decision-makers with the best available climate science information at the time in an easily digestible document. Notwithstanding this, the Caribbean is once again lagging the globe in terms of the scenarios used to inform climate change, adaptation and mitigation efforts as the globe has now moved away from the use of both SRES and RCP scenarios to Shared Socioeconomic Pathways (SSPs). There is therefore urgent need for the region to close this gap, so that it strengthens its efforts to appropriately respond to the threat of climate change.

1.04 Recognising the importance of addressing the aforementioned gaps, the CDB, under the European Union-funded Caribbean Action for Resilience Enhancement Programme, has provided grant resources to the UWI, Mona to implement the "Climate Systems, Techniques, and Resources, for Improved Decision-making, Education and Sustainability (STRIDES)" project. The Climate STRIDES project seeks to engender enhanced climate resilience in the region through the provision of systems, tools and resources that improve decision making capacity, general awareness and influence behaviour change in the face of a changing climate. Under the Climate STRIDES project, an updated volume of the SOCC Report will be prepared and made available for stakeholder validation, training, awareness and sensitisation.

2. OBJECTIVE

2.01 The objective of this consultancy is to provide accurate and localised high resolution climate projections to support climate-related decision-making in the BMCs of CDB and the wider Caribbean. The high-resolution dataset is expected to provide the Caribbean with updated SSP and RCP scenarios.

3. SCOPE OF WORK

3.01 The scope of this project encompasses the following tasks related to regional climate models and high-resolution climate projections for the BMCs of CDB and the wider Caribbean:

(a) Installation of Latest Regional Climate Models: The Consultant will conduct comprehensive research to identify the most appropriate and up-to-date regional climate models suitable for the specific requirements of the BMCs of CDB. Once identified, the selected climate models will be installed and configured on the designated computing infrastructure. Rigorous testing will be performed to verify the successful installation and functionality of the climate models.

(b) Acquisition of Regional Climate Model Boundary Data (SSP and RCP*):* The Consultant will identify the relevant datasets corresponding to SSP and RCP that are compatible with the installed regional climate models. Subsequently, the necessary boundary data for each scenario will be procured to cover the geographical area of interest in the BMCs of CDB. Validation processes will be conducted to ensure the accuracy and compatibility of the acquired boundary data with the selected climate models.

(c) Generation of High-Resolution Climate Projections: Using the installed regional climate models and the acquired boundary data for the SSP and RCP scenarios, the consultant will conduct model runs to generate high-resolution climate projections. These climate projections will encompass key climate variables, including but not limited to temperature, precipitation, wind patterns, and other relevant parameters for future time periods. To ensure the reliability and consistency of the generated climate projections, thorough quality control checks will be performed.

(d) Post-Processing of Climate Projections: The generated climate projections will be subject to post-processing to derive additional variables and indices that are specifically relevant to the needs and interests of the BMCs of CDB. Furthermore, the Consultant will develop user-friendly visualisation tools to effectively present the climate projections in a comprehensible format for various stakeholders and decision-makers. Additionally, the Consultant will employ statistical analyses to identify trends, patterns, and potential climate impacts within the BMCs of CDB.

3.02 The successful completion of these tasks will facilitate the provision of accurate and localised climate projections to support informed decision-making and climate-related planning in the BMCs of CDB.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The Consultant that will be responsible for this project should possess the following qualifications and experience:

(a) A bachelor's in science in Physics, Electronics, Renewable Energy, Computer Science or related discipline.
(b) Strong background in climate science, meteorology, atmospheric sciences, or related fields.
(c) Five years of professional experience.
(d) Demonstrated experience in installing, configuring, and running regional climate models.
(e) Proficiency in acquiring and processing large-scale climate datasets.
(f) Expertise in post-processing climate model output and performing statistical analyses.
(g) Familiarity with climate modeling software and programming languages commonly used in climate research.
(h) Previous experience in generating high-resolution climate projections for the Caribbean will be a distinct advantage.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The climate modelling consultant will be assigned to the Climate Studies Group Mona at the University of the West Indies. The Consultant will also report to the Project Coordinator of the Climate STRIDES project.

5.02 The Climate Modelling Consultant is expected to produce the following deliverables:

(a) Draft of the climate projections and scenarios of the State of the Caribbean Climate Report.
(b) A report detailing the new suite of high-resolution climate projections available for the Caribbean, this may take the form of a peer-reviewed publication.
(c) A set of user-friendly tools designed to present the climate projections in an easy to digest and understand format for various stakeholders and decision-makers. Output will also be integrated into web platform showcasing results for BMCs.
(d) A presentation tailored for stakeholders and decision-makers, summarising the findings for climate projections, and potential impacts.
(e) Report detailing the successful acquisition boundary data to be used to generate the suite of high-resolution climate projections.

(f) Report on climate model selection and installation that details the research conducted to identify the most suitable regional climate models for the BMCs and the detailed process involved in their installation and configuration.

(g) Post-processing and analysis report detailing the post-processing of climate projections to derive additional climate variables and indices, including statistical analyses conducted to identify trends, patterns, and potential climate impacts within the BMCs. This report will also describe the development of user-friendly visualisation tools.

6. DURATION

6.01 The estimated duration for completing the tasks outlined in this consultancy - including time for research, installation, data acquisition, model runs, post-processing, and reporting is approximately 15 months.

APPENDIX 10B

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR TECHNICAL ASSISTANT– UNIVERSITY OF THE WEST INDIES

1. BACKGROUND

1.01 The Caribbean comprises nations that are diverse in terms of geographical size, population, political stability as well as economic drivers. This diversity is however dwarfed by the common vulnerability to the impacts of climate variability and change (CVC) that each of the territories experience; and which places the Caribbean amongst the most vulnerable, across all socio-economic and livelihood sectors. Throughout the region, shifts in duration, frequency and intensity of extreme weather and climatic events have already caused serious economic losses in climate sensitive sectors (for example, in 2004, the impact of Hurricane Ivan on Grenada resulted in the nation's agriculture and spice industry gross domestic products earnings being set back by 7-10 years). Continued and projected climatic changes not only place the Caribbean amongst the most vulnerable to the impacts and CVC, but threatens the region's economy, growth and aspirations for sustainable development.

1.02 At the start of the 21st century, there were still challenges adequately characterising and understanding the past and impending threats of CVC to the region due to a paucity of information on account of (a) the general lack of climate change studies at scales matching the geographical size of territories within the region; (b) minimal or no peer-reviewed sector-specific or related studies on the influence of climate change; and (c) the absence of continuous in-situ meteorological data. This led Caribbean scientists and relevant stakeholders to embark on a drive to improve data availability from both in-situ meteorological stations and climate model projections as well as working towards the provision of climate change data and information at spatial and temporal scales more relevant to the region for use in decision-making, risk reduction and improving overall resilience. This drive resulted in the production of the set of first relevant and semi-scale specific regional climate model outputs using the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Emission Scenarios (SRES) as well as the subsequent Representative Concentration Pathways (RCPs) scenarios. The results of these endeavours were used by the Caribbean and other Small Island Developing States in:

(a) their campaign to have the end of century global warming target be limited to 1.5°C above pre-industrial levels;
(b) the production of several of the region's national communications to the United Nations Framework Convention on Climate Change;
(c) a wide array of publications on the impact of climate variability and climate change on varying sectors, such as agriculture;
(d) the development and implementation of numerous capacity building and training workshops geared at improving the climate knowledge and capacity in the region; and
(e) the preparation of the State of the Caribbean Climate (SOCC) Report, through support from the Caribbean Development Bank (CDB) [1] to The University of the West Indies (UWI), Mona. The report, which was published online in 2020, analysed the current and future state of the region's climate using the best available science and data at the time.

1.03 The SOCC Report has been viewed as a landmark activity for the region, as it provided the most in-depth view of Caribbean States in terms of the impacts of CVC and has been a go-to resource for anyone conducting climate-related endeavours within the Caribbean. Importantly, the report contributed to an

[1] This was made possible through financing from the European Union (EU) within the framework of the African, Caribbean, Pacific, EU, Natural Disaster Risk Management in CARIFORUM countries.

increase in the basic knowledge and understanding of CVC of Borrowing Member Countries (BMCs) of the CDB by providing decision-makers with the best available climate science information at the time in an easily digestible document. Notwithstanding this, the Caribbean is once again lagging the globe in terms of the scenarios used to inform climate change, adaptation and mitigation efforts as the globe has now moved away from the use of both SRES and RCP scenarios to Shared Socioeconomic Pathways (SSPs). There is therefore urgent need for the region to close this gap, so that it strengthens its efforts to appropriately respond to the threat of climate change.

1.04 Recognising the importance of addressing the aforementioned gaps, the CDB, under the European Union funded Caribbean Action for Resilience Enhancement Programme, has provided grant resources to the UWI, Mona to implement the "Climate Systems, Techniques, and Resources, for Improved Decision-making, Education and Sustainability (STRIDES)" project. The Climate STRIDES project seeks to engender enhanced climate resilience in the region through the provision of systems, tools and resources that improve decision making capacity, general awareness and influence behaviour change in the face of a changing climate. Under the Climate STRIDES project, an updated volume of the SOCC Report will be prepared and made available for stakeholder validation, training, awareness and sensitisation.

2. OBJECTIVE

2.01 The primary responsibility of the Technical Assistant will be to collect, analyse and report on climate data and information in support of the preparation and finalization of the "State of the Caribbean Climate Report: Information for Resilience Building (Volume II)".

3. SCOPE OF WORK

3.01 The TA will be assigned to the Climate Studies Group Mona at the University of the West Indies. Specific duties and responsibilities include:

(a) Conducting literature review of credible databases, reports and articles on Caribbean climate.
(b) Collecting, compiling/collating Caribbean climate data, ensuring quality control checks are performed.
(c) Conducting basic and advanced climate data analyses; (e.g., Empirical Orthogonal Functions, Singular Value Decomposition, Global Climate Model and Regional Climate Model analyses).
(d) Assisting with the preparation of draft and final sections of the updated SOCC Report.
(e) Supporting the organisation and delivery of Climate STRIDES events (e.g., workshops), as required.
(f) Conducting presentations linked to the Climate STRIDES project, as required.

3.02 The TA will also perform other project-related duties, as assigned by the Climate STRIDES Project Manager.

4. QUALIFICATIONS AND EXPERIENCE

The Technical Assistant should have the following minimum qualifications and experience:

(a) Bachelor of Science in Climate Science, Meteorology, Climatology, Environmental Science, Physics, or related disciplines.
(b) 12 months working experience in climate and/or environmental modelling.

(c) 12 months working experience in climate data analysis and visualization.
(d) 12 months working experience with programming/coding/scripting.
(e) 12 months working experience in statistical analysis.
(f) Good oral and written communication skills.

5. REPORTING REQUIREMENTS AND DELIVERABLES

The Technical Assistant will report to the Climate Strides Project Manager, through an assigned supervisor within the CGSM Group. The Technical Assistant will produce the following deliverables:

(a) Draft and final sections of the updated SOCC Report, based on analysis conducted, inclusive of all supporting data, spreadsheets, models etc.
(b) Presentations linked to the assignment, as required.
(c) Support for Climate STRIDES events (e.g., workshops) as required.

6. DURATION

The assignment will require a level of effort of 24 months (2 technical assistants for 12 month each).

APPENDIX 10C

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR A TECHNICAL ASSISTANT – CARIBBEAN INSTITUTE FOR METEOROLOGY AND HYDROLOGY

1. BACKGROUND

1.01 The Caribbean comprises nations that are diverse in terms of geographical size, population, political stability as well as economic drivers. This diversity is however dwarfed by the common vulnerability to the impacts of climate variability and change (CVC) that each of the territories experience; and which places the Caribbean amongst the most vulnerable, across all socio-economic and livelihood sectors. Throughout the region, shifts in duration, frequency and intensity of extreme weather and climatic events have already caused serious economic losses in climate sensitive sectors (for example, in 2004, the impact of Hurricane Ivan on Grenada resulted in the nation's agriculture and spice industry gross domestic products earnings being set back by 7-10 years). Continued and projected climatic changes not only place the Caribbean amongst the most vulnerable to the impacts and CVC, but threatens the region's economy, growth and aspirations for sustainable development.

1.02 At the start of the 21st century, there were still challenges adequately characterising and understanding the past and impending threats of CVC to the region due to a paucity of information on account of (a) the general lack of climate change studies at scales matching the geographical size of territories within the region; (b) minimal or no peer-reviewed sector-specific or related studies on the influence of climate change; and (c) the absence of continuous in-situ meteorological data. This led Caribbean scientists and relevant stakeholders to embark on a drive to improve data availability from both in-situ meteorological stations and climate model projections as well as working towards the provision of climate change data and information at spatial and temporal scales more relevant to the region for use in decision-making, risk reduction and improving overall resilience. This drive resulted in the production of the set of first relevant and semi-scale specific regional climate model outputs using the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Emission Scenarios (SRES) as well as the subsequent Representative Concentration Pathways (RCPs) scenarios. The results of these endeavours were used by the Caribbean and other Small Island Developing States in:

(a) their campaign to have the end of century global warming target be limited to 1.5°C above pre-industrial levels;
(b) the production of several of the region's national communications to the United Nations Framework Convention on Climate Change;
(c) a wide array of publications on the impact of climate variability and climate change on varying sectors, such as agriculture;
(d) the development and implementation of numerous capacity building and training workshops geared at improving the climate knowledge and capacity in the region; and
(e) the preparation of the State of the Caribbean Climate (SOCC) Report, through support from the Caribbean Development Bank (CDB) [1] to The University of the West Indies (UWI), Mona. The report, which was published online in 2020, analysed the current and future state of the region's climate using the best available science and data at the time.

1.03 The SOCC Report has been viewed as a landmark activity for the region, as it provided the most in-depth view of Caribbean States in terms of the impacts of CVC and has been a go-to resource for anyone conducting climate-related endeavours within the Caribbean. Importantly, the report contributed to an

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increase in the basic knowledge and understanding of CVC of Borrowing Member Countries (BMCs) of the CDB by providing decision-makers with the best available climate science information at the time in an easily digestible document. Notwithstanding this, the Caribbean is once again lagging the globe in terms of the scenarios used to inform climate change, adaptation and mitigation efforts as the globe has now moved away from the use of both SRES and RCP scenarios to Shared Socioeconomic Pathways (SSPs). There is therefore urgent need for the region to close this gap, so that it strengthens its efforts to appropriately respond to the threat of climate change.

1.04 Recognising the importance of addressing the aforementioned gaps, the CDB, under the European Union-funded Caribbean Action for Resilience Enhancement Programme, has provided grant resources to the UWI, Mona to implement the "Climate Systems, Techniques, and Resources, for Improved Decision-making, Education and Sustainability (STRIDES)" project. The Climate STRIDES project seeks to engender enhanced climate resilience in the region through the provision of systems, tools and resources that improve decision making capacity, general awareness and influence behaviour change in the face of a changing climate. Under the Climate STRIDES project, an updated volume of the SOCC Report will be prepared and made available for stakeholder validation, training, awareness and sensitisation.

2. OBJECTIVE

2.01 The primary responsibility of the Technical Assistant (TA) will be to collect, analyse and report on climate data and information in support of the preparation and finalisation of the "State of the Caribbean Climate Report: Information for Resilience Building (Volume II)".

3. SCOPE OF WORK

3.01 The TA will be assigned to the Caribbean Institute of Meteorology and Hydrology in Barbados and will be expected to be in Barbados for the duration of the assignment. Specific duties and responsibilities include:

(a) Conducting literature review of credible databases, reports and articles on Caribbean climate.
(b) Collecting, compiling/collating Caribbean climate data, ensuring quality control checks are performed.
(c) Conducting basic and advanced climate data analyses; (e.g., Empirical Orthogonal Functions, Singular Value Decomposition, Global Climate Model and Regional Climate Model analyses).
(d) Assisting with the preparation of draft and final sections of the updated SOCC Report.
(e) Supporting the organization and delivery of Climate STRIDES events (e.g. workshops), as required.
(f) Conducting presentations linked to the Climate STRIDES project, as required.

3.02 The TA will also perform other project-related duties, as assigned by the Climate STRIDES Project Coordinator.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The TA should have the following minimum qualifications and experience:

(a) Bachelor of Science) in Climate Science, Meteorology, Climatology, Environmental Science, Physics, or related disciplines.

(b) 12 months working experience in climate and/or environmental modelling.
(c) 12 months working experience in climate data analysis and visualisation.
(d) 12 months working experience with programming/coding/scripting.
(e) 12 months working experience in statistical analysis.
(f) Good oral and written communication skills.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The TA will report to the Climate STRIDES Project Coordinator, through an assigned supervisor within the CIMH. The TA will produce the following deliverables:

(a) Draft and final sections of the updated SOCC Report, based on analysis conducted, inclusive of all supporting data, spreadsheets, models etc.
(b) Presentations linked to the assignment, as required.
(c) Support for Climate STRIDES events (e.g., workshops) as required.

6. DURATION

6.01 The assignment will require a level of effort of 12 months.

APPENDIX 10D

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR STATISTICAL MODELLING CONSULTANT

1. BACKGROUND

1.01 The Caribbean comprises nations that are diverse in terms of geographical size, population, political stability as well as economic drivers. This diversity is however dwarfed by the common vulnerability to the impacts of climate variability and change (CVC) that each of the territories experience; and which places the Caribbean amongst the most vulnerable, across all socio-economic and livelihood sectors. Throughout the region, shifts in duration, frequency and intensity of extreme weather and climatic events have already caused serious economic losses in climate sensitive sectors (for example, in 2004, the impact of Hurricane Ivan on Grenada resulted in the nation's agriculture and spice industry gross domestic products earnings being set back by 7-10 years). Continued and projected climatic changes not only place the Caribbean amongst the most vulnerable to the impacts and CVC, but threatens the region's economy, growth and aspirations for sustainable development.

1.02 At the start of the 21st century, there were still challenges adequately characterising and understanding the past and impending threats of CVC to the region due to a paucity of information on account of (a) the general lack of climate change studies at scales matching the geographical size of territories within the region; (b) minimal or no peer-reviewed sector-specific or related studies on the influence of climate change; and (c) the absence of continuous in-situ meteorological data. This led Caribbean scientists and relevant stakeholders to embark on a drive to improve data availability from both in-situ meteorological stations and climate model projections as well as working towards the provision of climate change data and information at spatial and temporal scales more relevant to the region for use in decision-making, risk reduction and improving overall resilience. This drive resulted in the production of the set of first relevant and semi-scale specific regional climate model outputs using the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Emission Scenarios (SRES) as well as the subsequent Representative Concentration Pathways (RCPs) scenarios. The results of these endeavours were used by the Caribbean and other Small Island Developing States in:

(a) their campaign to have the end of century global warming target be limited to 1.5°C above pre-industrial levels;
(b) the production of several of the region's national communications to the United Nations Framework Convention on Climate Change;
(c) a wide array of publications on the impact of climate variability and climate change on varying sectors, such as agriculture;
(d) the development and implementation of numerous capacity building and training workshops geared at improving the climate knowledge and capacity in the region; and
(e) the preparation of the State of the Caribbean Climate (SOCC) Report, through support from the Caribbean Development Bank (CDB) [1] to The University of the West Indies (UWI), Mona. The report, which was published online in 2020, analysed the current and future state of the region's climate using the best available science and data at the time.

1.03 The SOCC Report has been viewed as a landmark activity for the region, as it provided the most in-depth view of Caribbean States in terms of the impacts of CVC and has been a go-to resource for anyone conducting climate-related endeavours within the Caribbean. Importantly, the report contributed to an increase in the basic knowledge and understanding of CVC of Borrowing Member Countries (BMCs) of the CDB by providing decision-makers with the best available climate science information at the time in an easily digestible document. Notwithstanding this, the Caribbean is once again lagging the globe in terms of the scenarios used to inform climate change, adaptation and

[1] This was made possible through financing from the European Union (EU) within the framework of the African, Caribbean, Pacific, EU, Natural Disaster Risk Management in CARIFORUM countries.

mitigation efforts as the globe has now moved away from the use of both SRES and RCP scenarios to Shared Socioeconomic Pathways (SSPs). There is therefore urgent need for the region to close this gap, so that it strengthens its efforts to appropriately respond to the threat of climate change.

1.04 Recognising the importance of addressing the aforementioned gaps, the CDB, under the European Union-funded Caribbean Action for Resilience Enhancement Programme, has provided grant resources to the UWI, Mona to implement the "Climate Systems, Techniques, and Resources, for Improved Decision-making, Education and Sustainability (STRIDES)" Project. The Climate STRIDES project seeks to engender enhanced climate resilience in the region through the provision of systems, tools and resources that improve decision making capacity, general awareness and influence behaviour change in the face of a changing climate.

2. OBJECTIVE

2.01 The objective of this consultancy is to develop, select and use statistical models for testing and analysis, and apply these models to available climate data and sector-specific data to provide valuable insights and data-driven results to support decision-making processes related to climate and associated sectors.

3. SCOPE OF WORK

3.01 The scope of work for this consultancy includes the development, selection and use of statistical models, specifically tailored to address the requirements of climate and sector data available and involves:

(a) Development and Selection of Statistical Models:

- (i) Conduct a thorough review of existing statistical models suitable for use in and support of decision-making processes related to climate and its intersections with key economic sectors.
- (ii) Develop customised statistical models tailored to address the specific requirements of the available climate and sector data.
- (iii) Rigorously test and validate the developed models to ensure accuracy and reliability.

(b) Application of Statistical Models to Climate and Sector Data:

- (i) Gather and preprocess relevant climate data and associated sector-specific data required for the statistical modelling process.
- (ii) Apply developed statistical models to the collected data.
- (iii) Evaluate the performance of the applied models and make necessary refinements.

(c) Interaction with GIS collaborator to produce GIS-Based Results:

- (i) Utilize the outputs from the statistical models to produce GIS-based results (these can be in latitude, longitude and value orientation).
- (ii) Ensure that the GIS-based results offer valuable insights for stakeholders and decision-makers.

(d) Collaboration with Junior Web Developer

- (i) Collaborate with Junior Web Developer specialist to seamlessly integrate the statistical models and GIS-based results into a web server environment.

(ii) Collaborate with Junior Web Developer to develop an efficient and user-friendly web interface allowing users to interact with the data and access relevant information easily.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The consultant that will be responsible for this project should possess the following qualifications and experience:

(a) A master's in mathematics, statistics, computer science, data science or related discipline and at least 5 five years of relevant experience.
(b) Strong background in statistics, data analysis, and modelling, with a focus on climate-related research.
(c) Demonstrated experience in developing and testing statistical models.
(d) Excellent collaboration and communication skills to work effectively with a Junior Web Developer to produce GIS ready and web interactive maps.
(e) Expertise in post-processing climate model output and performing statistical analyses.
(f) Previous experience in integrating statistical models and GIS outputs into web servers will be advantageous.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The statistical modelling consultant will be assigned to the Climate Studies Group Mona at the University of the West Indies and will report to the Project Coordinator of the Climate STRIDES project.

5.02 The Statistical modelling consultant is expected to produce the following deliverables:

(a) A report on the data analysis methods utilised in the project and the results which should entail summary statistics, the models and a discussion of the statistics results as applied to the project.
(b) Interim data analyses if needed and therefore should be given access to the data at key points during the project and report these interim data analyses.

6. DURATION

6.01 It is estimated that 163 person-days will be required to complete the tasks outlined in this consultancy.

APPENDIX 10E

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR STATISTICAL MODELLING TECHNICAL/RESEARCH ASSISTANT

1. BACKGROUND

1.01 The Caribbean comprises nations that are diverse in terms of geographical size, population, political stability as well as economic drivers. This diversity is however dwarfed by the common vulnerability to the impacts of climate variability and change that each of the territories experience; and which places the Caribbean amongst the most vulnerable, across all socio-economic and livelihood sectors. Throughout the region, shifts in duration, frequency and intensity of extreme weather and climatic events have already caused serious economic losses in climate sensitive sectors (for example, in 2004, the impact of Hurricane Ivan on Grenada resulted in the nation's Agriculture and Spice industry gross domestic products (GDP) earnings being set back by 7-10 years). Continued and projected climatic changes not only place the Caribbean amongst the most vulnerable to the impacts and climate variability and change, but threatens the region's economy, growth and aspirations for sustainable development.

1.02 At the start of the 21st century, there were still challenges adequately characterizing and understanding the past and impending threats of climate variability and change to the region due to a paucity of information on account of (i) the general lack of climate change studies at scales matching the geographical size of territories within the region; (ii) minimal or no peer-reviewed sector-specific or related studies on the influence of climate change; and (iii) the absence of continuous in-situ meteorological data. This led Caribbean scientists and relevant stakeholders to embark on a drive to improve data availability from both in-situ meteorological stations and climate model projections as well as working towards the provision of climate change data and information at spatial and temporal scales more relevant to the region for use in decision-making, risk reduction and improving overall resilience. This drive resulted in the production of the set of first relevant and semi-scale specific regional climate model outputs using the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Emission Scenarios (SRES) as well as the subsequent Representative Concentration Pathways (RCPs) scenarios. The results of these endeavours were used by the Caribbean and other Small Island Developing States in:

(a) their campaign to have the end of century global warming target be limited to 1.5°C above pre-industrial levels;
(b) the production of several of the region's National Communications to the UNFCCC;
(c) a wide array of publications on the impact of climate variability and climate change on varying sectors, such as agriculture;
(d) the development and implementation of numerous capacity building and training workshops geared at improving the climate knowledge and capacity in the region; and
(e) the preparation of the State of the Caribbean Climate (SOCC) Report, through support from the Caribbean Development Bank (CDB) [1] to The University of the West Indies (The UWI), Mona. The report, which was published online in 2020, analysed the current and future state of the region's climate using the best available science and data at the time.

1.03 The SOCC Report has been viewed as a landmark activity for the region, as it provided the most in-depth view of Caribbean States in terms of the impacts of climate variability and change and has been a go-to resource for anyone conducting climate-related endeavours within the Caribbean. Importantly, the report contributed to an increase in the basic knowledge and understanding of climate vulnerability and change of Borrowing Member Countries (BMCs) of the CDB by providing decision-makers with the best available climate science information at the time in an easily digestible document.

Notwithstanding this, the Caribbean is once again lagging the globe in terms of the scenarios used to inform climate change, adaptation and mitigation efforts as the globe has now moved away from the use of both SRES and RCP scenarios to Shared Socioeconomic Pathways (SSPs). There is therefore urgent need for the region to close this gap, so that it strengthens its efforts to appropriately respond to the threat of climate change.

1.04 Recognising the importance of addressing the aforementioned gaps, the CDB, under the European Union-funded Caribbean Action for Resilience Enhancement Programme, has provided grant resources to The UWI, Mona to implement the "Climate Systems, Techniques, and Resources, for Improved Decision-making, Education and Sustainability (STRIDES)" Project. The Climate STRIDES project seeks to engender enhanced climate resilience in the region through the provision of systems, tools and resources that improve decision making capacity, general awareness and influence behaviour change in the face of a changing climate.

2. OBJECTIVE

2.01 The objective of this consultancy is to assist the Statistical Modelling Consultant in developing, selecting and using statistical models for testing and analysis, and apply these models to available climate data and sector-specific data to provide valuable insights and data-driven results to support decision-making processes related to climate and associated sectors.

3. SCOPE OF WORK

3.01 The scope of work for this consultancy includes being a support to the Statistical Modelling Consultant in the development, selection and use of statistical models, specifically tailored to address the requirements of climate and sector data available and involves:

(a) *Support in the Development and Selection of Statistical Models:*
- (i) Conduct a thorough review of existing statistical models suitable for use in and support of decision-making processes related to climate and its intersections with key economic sectors.
- (ii) Develop customized statistical models tailored to address the specific requirements of the available climate and sector data.
- (iii) Rigorously test and validate the developed models to ensure accuracy and reliability.

(b) *Support in the Application of Statistical Models to Climate and Sector Data:*
- (i) Gather and preprocess relevant climate data and associated sector-specific data required for the statistical modelling process.
- (ii) Apply developed statistical models to the collected data.
- (iii) Evaluate the performance of the applied models and make necessary refinements.

(c) *Support in the Interaction with GIS collaborator to produce GIS-Based Results:*
- (i) Utilize the outputs from the statistical models to produce GIS-based results (these can be in latitude, longitude and value orientation).
- (ii) Ensure that the GIS-based results offer valuable insights for stakeholders and decision-makers.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The Technical/Research assistant will be responsible for this project should possess the following qualifications and experience:

(a) BSc in Mathematics, Statistics, Computer Science or related discipline.
(b) Strong background in statistics, data analysis, and modelling.
(c) Demonstrated experience in developing and selection of statistical models.
(d) Excellent collaboration and communication skills to work effectively with a GIS collaborator to produce GIS ready and web interactive maps.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The technical/research assistant will be assigned to the Statistical Modelling Consultant. The technical/ research assistant will also report to the Technical Project Coordinator of the Climate STRIDES project. Under the supervision of the Technical Project Coordinator, the technical / research assistant will gather data and assist in data analysis as advised by the Statistical Modelling Consultant. The Technical/ Research assistant is expected to produce the following deliverables:

(a) A report on the data gathering and data analyses utilized in the project that he / she assisted the Statistical Modelling consultant with.
(b) Interim data analyses if needed as advised by the Statistical Modelling consultant.

6. DURATION

6.01 It is estimated that 15 person-months is required to complete the tasks outlined in this consultancy.

APPENDIX 10F

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR GEOGRAPHIC INFORMATION SYSTEMS COLLABORATOR

1. BACKGROUND

1.01 The Caribbean comprises nations that are diverse in terms of geographical size, population, political stability as well as economic drivers. This diversity is however dwarfed by the common vulnerability to the impacts of climate variability and change (CVC) that each of the territories experience; and which places the Caribbean amongst the most vulnerable, across all socio-economic and livelihood sectors. Throughout the region, shifts in duration, frequency and intensity of extreme weather and climatic events have already caused serious economic losses in climate sensitive sectors (for example, in 2004, the impact of Hurricane Ivan on Grenada resulted in the nation's agriculture and spice industry gross domestic products earnings being set back by 7-10 years). Continued and projected climatic changes not only place the Caribbean amongst the most vulnerable to the impacts and CVC, but threatens the region's economy, growth and aspirations for sustainable development.

1.02 At the start of the 21st century, there were still challenges adequately characterising and understanding the past and impending threats of CVC to the region due to a paucity of information on account of (a) the general lack of climate change studies at scales matching the geographical size of territories within the region; (b) minimal or no peer-reviewed sector-specific or related studies on the influence of climate change; and (c) the absence of continuous in-situ meteorological data. This led Caribbean scientists and relevant stakeholders to embark on a drive to improve data availability from both in-situ meteorological stations and climate model projections as well as working towards the provision of climate change data and information at spatial and temporal scales more relevant to the region for use in decision-making, risk reduction and improving overall resilience. This drive resulted in the production of the set of first relevant and semi-scale specific regional climate model outputs using the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Emission Scenarios (SRES) as well as the subsequent Representative Concentration Pathways (RCPs) scenarios. The results of these endeavours were used by the Caribbean and other Small Island Developing States in:

(a) their campaign to have the end of century global warming target be limited to 1.5°C above pre-industrial levels;
(b) the production of several of the region's national communications to the United Nations Framework Convention on Climate Change;
(c) a wide array of publications on the impact of climate variability and climate change on varying sectors, such as agriculture;
(d) the development and implementation of numerous capacity building and training workshops geared at improving the climate knowledge and capacity in the region; and
(e) the preparation of the State of the Caribbean Climate (SOCC) Report, through support from the Caribbean Development Bank (CDB) [1] to The University of the West Indies (UWI), Mona. The report, which was published online in 2020, analysed the current and future state of the region's climate using the best available science and data at the time.

1.03 The SOCC Report has been viewed as a landmark activity for the region, as it provided the most in-depth view of Caribbean States in terms of the impacts of CVC and has been a go-to resource for anyone conducting climate-related endeavours within the Caribbean. Importantly, the report contributed to an increase in the basic knowledge and understanding of CVC of Borrowing Member Countries (BMCs) of the CDB by providing decision-makers with the best available climate science information at the time in an easily digestible document. Notwithstanding this, the Caribbean is once

[1] This was made possible through financing from the European Union (EU) within the framework of the African, Caribbean, Pacific, EU, Natural Disaster Risk Management in CARIFORUM countries.

again lagging the globe in terms of the scenarios used to inform climate change, adaptation and mitigation efforts as the globe has now moved away from the use of both SRES and RCP scenarios to Shared Socioeconomic Pathways (SSPs). There is therefore urgent need for the region to close this gap, so that it strengthens its efforts to appropriately respond to the threat of climate change.

1.04 Recognising the importance of addressing the aforementioned gaps, the CDB, under the EU-funded Caribbean Action for Resilience Enhancement Programme, has provided grant resources to the UWI, Mona to implement the "Climate Systems, Techniques, and Resources, for Improved Decision-making, Education and Sustainability (STRIDES)" project. The Climate STRIDES project seeks to engender enhanced climate resilience in the region through the provision of systems, tools and resources that improve decision making capacity, general awareness and influence behaviour change in the face of a changing climate.

2. OBJECTIVE

2.01 The objective of this consultancy is to use the statistical output and represent it spatially through the use of geographic information systems (GIS). Assist in displaying the output of statistical models to provide valuable insights and data-driven results to support decision-making processes related to climate and associated sectors.

3. SCOPE OF WORK

3.01 The scope of work for the GIS collaborator includes being a support to the Statistical Modelling Consultant in the use statistical output and represent it spatially through the use of GIS and involves:

(a) Producing GIS-Based Results:

  (a) Utilise the outputs from the statistical models to produce GIS-based results (these can be in latitude, longitude and value orientation).
  (b) Ensure that the GIS-based results offer valuable insights for stakeholders and decision-makers.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The GIS collaborator will be responsible for this project should possess the following qualifications and experience:

(a) A Bachelor of Science in Geography, GIS or GIS related discipline and at least five years of experience.
(b) Strong background in developing and producing GIS maps.
(c) Excellent collaboration and communication skills to work effectively with the Statistical Consultant.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The GIS collaborator will be assigned to the Statistical Consultant. The GIS collaborator will also report to the Project Coordinator of the Climate STRIDES project.

6. DURATION

6.01 It is estimated that 9 person-months will be required to complete the tasks outlined in this consultancy.

APPENDIX 10G

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR JUNIOR WEB DEVELOPER

1. BACKGROUND

1.01 The Caribbean comprises nations that are diverse in terms of geographical size, population, political stability as well as economic drivers. This diversity is however dwarfed by the common vulnerability to the impacts of climate variability and change (CVC) that each of the territories experience; and which places the Caribbean amongst the most vulnerable, across all socio-economic and livelihood sectors. Throughout the region, shifts in duration, frequency and intensity of extreme weather and climatic events have already caused serious economic losses in climate sensitive sectors (for example, in 2004, the impact of Hurricane Ivan on Grenada resulted in the nation's agriculture and spice industry gross domestic products earnings being set back by 7-10 years). Continued and projected climatic changes not only place the Caribbean amongst the most vulnerable to the impacts and CVC, but threatens the region's economy, growth and aspirations for sustainable development.

1.02 At the start of the 21st century, there were still challenges adequately characterising and understanding the past and impending threats of CVC to the region due to a paucity of information on account of (a) the general lack of climate change studies at scales matching the geographical size of territories within the region; (b) minimal or no peer-reviewed sector-specific or related studies on the influence of climate change; and (c) the absence of continuous in-situ meteorological data. This led Caribbean scientists and relevant stakeholders to embark on a drive to improve data availability from both in-situ meteorological stations and climate model projections as well as working towards the provision of climate change data and information at spatial and temporal scales more relevant to the region for use in decision-making, risk reduction and improving overall resilience. This drive resulted in the production of the set of first relevant and semi-scale specific regional climate model outputs using the Intergovernmental Panel on Climate Change's (IPCC's) Special Report on Emission Scenarios (SRES) as well as the subsequent Representative Concentration Pathways (RCPs) scenarios. The results of these endeavours were used by the Caribbean and other Small Island Developing States in:

(a) their campaign to have the end of century global warming target be limited to 1.5°C above pre-industrial levels;
(b) the production of several of the region's national communications to the United Nations Framework Convention on Climate Change;
(c) a wide array of publications on the impact of climate variability and climate change on varying sectors, such as agriculture;
(d) the development and implementation of numerous capacity building and training workshops geared at improving the climate knowledge and capacity in the region; and
(e) the preparation of the State of the Caribbean Climate (SOCC) Report, through support from the Caribbean Development Bank (CDB) [1] to The University of the West Indies (UWI), Mona. The report, which was published online in 2020, analysed the current and future state of the region's climate using the best available science and data at the time.

1.03 The SOCC Report has been viewed as a landmark activity for the region, as it provided the most in-depth view of Caribbean States in terms of the impacts of CVC and has been a go-to resource for anyone conducting climate-related endeavours within the Caribbean. Importantly, the report contributed to an

[1] This was made possible through financing from the European Union (EU) within the framework of the African, Caribbean, Pacific, EU, Natural Disaster Risk Management in CARIFORUM countries.

increase in the basic knowledge and understanding of CVC of Borrowing Member Countries (BMCs) of the CDB by providing decision-makers with the best available climate science information at the time in an easily digestible document. Notwithstanding this, the Caribbean is once again lagging the globe in terms of the scenarios used to inform climate change, adaptation and mitigation efforts as the globe has now moved away from the use of both SRES and RCP scenarios to Shared Socioeconomic Pathways (SSPs). There is therefore urgent need for the region to close this gap, so that it strengthens its efforts to appropriately respond to the threat of climate change.

1.04 Recognising the importance of addressing the aforementioned gaps, the CDB, under the EU-funded Caribbean Action for Resilience Enhancement Programme, has provided grant resources to the UWI, Mona to implement the "Climate Systems, Techniques, and Resources, for Improved Decision-making, Education and Sustainability (STRIDES)" project. The Climate STRIDES project seeks to engender enhanced climate resilience in the region through the provision of systems, tools and resources that improve decision making capacity, general awareness and influence behaviour change in the face of a changing climate.

2. OBJECTIVE

2.01 The main objective of this consultancy is to optimise the accessibility and management of climate-related information through the development and deployment of a user-friendly website that will act as a general portal for past and future State of the Caribbean Climate (SOCC) reports and associated data. An anticipated outcome is that this will streamline data retrieval, ensure the long-term preservation of historical climate data, and provide an efficient platform for stakeholders.

3. SCOPE OF WORK

3.01 The scope of work for the junior web developer will encompass a range of tasks and responsibilities focused on:

(a) Archiving and Legacy Storage of SOCC Reports:
- (i) Identify and gather all previous SOCC reports and associated data as well as identify and link individual country reports where available.
- (ii) Develop a comprehensive archiving system to securely store the historical SOCC reports for legacy access.
- (iii) Collaborate with UWI Mona Information Technology Services (MITS) to implement data backup procedures to safeguard against potential data loss.

(b) Expansion of Webserver Storage:
- (i) Collaborate with MITS to assess the current storage capacity of the SOCC webserver.
- (ii) Collaborate with MITS to facilitate the implementation of the storage expansion measures.

(c) Creation of a Subdomain for New SOCC Report and Outputs:
- (i) Work with MITS to establish a subdomain dedicated to the new SOCC report.
- (ii) Develop the necessary web infrastructure to host the outputs generated by the climate modelling and statistical modelling consultants.
- (iii) Ensure seamless integration and accessibility of the subdomain with the main SOCC website.

(d) Data Management and Security:

(i) Implement data management best practices to organise and categorise the archived SOCC reports and generated outputs.
(ii) Ensure data security measures are in place to protect sensitive information and restrict access to authorized personnel only.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The Consultant responsible for this project should possess the following qualifications and experience:

(a) A Bachelor of Science in electronics, computer science or related discipline.
(b) Five years of professional experience.
(c) Familiarity and previous experience with web infrastructure and content management systems such as Symfony, Docker and PHP would be a distinct advantage.
(d) Knowledge of data security and backup protocols to ensure data integrity and protection.
(e) Excellent collaboration and communication skills to work effectively with a Mona Information Technology Services, Climate Modelling Consultant and Statistical Modelling Consultant
(f) Knowledge and familiarity with versioning software and development life cycle
(g) Proven ability to work large datasets to construct and deploy interactive and updatable databases.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The Junior Web Developer Consultant will be assigned to the Climate Studies Group Mona at the University of the West Indies and will report to the Project Coordinator of the Climate STRIDES project.

5.02 The Junior Web Developer Consultant is expected to produce the following deliverables:

(a) A report detailing the identification, gathering, and archiving system development for SOCC reports, inclusive of data backup procedures in collaboration with MITS.
(b) A report on the assessment and implementation process for expanding the storage capacity of the SOCC webserver, highlighting the collaborative efforts with MITS and the achieved enhancements as well as details on the establishing of the subdomain for the new SOCC report, including the creation of web infrastructure and its integration with the main SOCC website, documented comprehensively.
(c) A strategy document that lays out the implemented data management practices and security measures for protecting and organising SOCC reports and outputs.
(d) A secure, accessible digital archiving system designed for storing and retrieving historical SOCC reports and data, ready for authorized user access.
(e) An upgraded storage solution on the SOCC webserver.
(f) A live, fully operational subdomain equipped with the necessary infrastructure to host the new SOCC report and outputs, seamlessly integrated with the main website.
(g) A report detailing overview of the applied data management and security measures, including the systems used for categorisation and the protocols for restricting access to sensitive information.

6. DURATION

6.01 The estimated duration for completing the tasks outlined in this consultancy is approximately 15 months, to be carried out intermittently.

APPENDIX 10H

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR A CURRICULUM REVIEW

1. BACKGROUND

1.01 The Caribbean is extremely vulnerable to the impacts of climate change, rendering economies, livelihoods, infrastructure, human health and the general populace at extreme risk. As part of comprehensive mitigation and adaptation strategies, prioritising climate change education (CCE) is critical to enhance awareness, knowledge, skills and behaviours among the public. While acknowledging the importance of CCE across all sectors and levels of society, particular emphasis should be placed on children and youth. As future decision-makers and citizens, it is crucial to invest in their education to foster attitudinal and behavioural shifts, ultimately facilitating a generational transformation in climate change action.

1.02 The Caribbean Development Bank has provided financing to the University of the West Indies (UWI) to implement the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES). The project financing is supporting consultancy services and the procurement of goods and services for the design and publication of the updated State of the Caribbean Climate Report, CCE materials, knowledge products, and others decision-support tools, to improve climate resilience decision-making, raise awareness about climate change risks and impacts, and promote climate-smart attitudes, actions and practices in the Caribbean. The project includes the development of a textbook for secondary level students as well as an accompanying teachers' manual. To inform this process, a review of secondary level curriculum across specified Caribbean countries must be undertaken.

2. OBJECTIVE

2.01 This consultancy aims to improve CCE by recommending the integration of pertinent content into existing academic curricula. Ultimately, the consultancy will enhance the overall educational experience by incorporating of climate change topics across various subjects, thereby empowering students to become informed and engaged citizens in the face climate change challenges.

3. SCOPE OF WORK

3.01 The Consultant will undertake the following tasks under the direct supervision of the School of Education project team members:

(a) Conduct a thorough review of the secondary level curriculum of all subject areas in four Caribbean countries (Dominica, Grenada, Guyana, Jamaica) [1] to assess:
  (i) existing climate change content;
  (ii) climate change gaps; and
  (ii) possible points of infusion of climate change content.

(b) Compile a comprehensive report for each of the four countries.

(c) Produce a comprehensive report consolidating the results and recommendations of the curriculum review.

(d) Participate actively in regular meetings organised by the Climate STRIDES/School of Education project team to monitor the progress based on an agreed timeframe, identify and

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address collectively any pending issues, and provide updates on the assigned deliverables.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The Consultant should possess:

Essential:

(a) A master's degree or equivalent in Education; Climate Change; Environmental Sciences, Curriculum Development/Evaluation or related fields.
(b) Seven years of relevant professional experience.
(c) Strong skills in research methods for qualitative and quantitative data and data analysis.
(d) Experience in curriculum evaluation/review.
(e) Experience in synthesizing material of a technical or scientific nature; writing for academic publications and other professional written work, including for a general audience.
(f) Excellent analytical, writing and communication skills in English language.

Desirable:

(a) Familiarity with key CCE concepts and topics (e.g., greenhouse effect, weather, climate, mitigation, adaptation, etc.).

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The consultancy is home-based and will take place in the consultant's usual place of residence/work. No travel is expected as part of this assignment. The consultant will:

(a) Report to the Project Consultant of the Climate STRIDES project and the School of Education project team members.
(b) Produce the following deliverables:
    (i) Inception Report, including methodology and curricular review strategy for each country.
    (ii) Draft Report detailing findings of curricular review for each country including (aa) existing climate change content, (bb) climate change gaps, and (cc) possible points of infusion of climate change content.
    (iii) Final Comprehensive Report detailing findings of curricular review for each country including (aa) existing climate change content and (bb) possible points of infusion of climate change content.
    (iv) The report should not exceed 100 pages (excluding annexes)
    (v) All deliverables shall be submitted to the Climate STRIDES project team in English language.

6. DURATION

6.01 The level of effort is estimated to be 24 person-days over a period months.

APPENDIX 10I

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR A WRITER – CLIMATE CHANGE TEXTBOOK AND TEACHERS' MANUAL

1. BACKGROUND

1.01 The Caribbean is extremely vulnerable to the impacts of climate change, rendering economies, livelihoods, infrastructure, human health and the general populace at extreme risk. As part of comprehensive mitigation and adaptation strategies, prioritising Climate Change Education (CCE) is critical to enhance awareness, knowledge, skills and behaviours among the public. While acknowledging the importance of CCE across all sectors and levels of society, particular emphasis should be placed on children and youth. As future decision-makers and citizens, it is crucial to invest in their education to foster attitudinal and behavioural shifts, ultimately facilitating a generational transformation in climate change action.

1.02 The Caribbean Development Bank has provided financing to the University of the West Indies (UWI) to implement the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES). The project financing is supporting consultancy services and the procurement of goods and services for the design and publication of the updated The State of the Caribbean Climate Report, CCE materials, knowledge products, and others decision-support tools, to improve climate resilience decision-making, raise awareness about climate change risks and impacts, and promote climate-smart attitudes, actions and practices in the Caribbean. The project includes the development of a textbook for secondary level students as well as an accompanying teachers' manual. To inform this process, a review of secondary level curriculum across specified Caribbean countries must be undertaken.

2. OBJECTIVES

2.01 This consultancy aims to develop a climate change climate textbook for secondary level students along with a teachers' manual. Ultimately, it will improve climate change education and stimulate climate-smart attitudes, actions and practices among students.

3. SCOPE OF WORK

3.01 The Consultant will undertake the following activities:

(a) Review curriculum evaluation report(s) on the secondary level curriculum of all subject areas in four Caribbean countries (Dominica, Grenada, Guyana, Jamaica) for (i) existing climate change content, (ii) gaps in climate change content, and (iii) possible points of infusion of climate change content.
(b) Identify commonalities across the four countries with respect to (i) existing climate change content, (ii) gaps in climate change content, and (iii) possible points of infusion of climate change content.
(c) Develop an annotated Table of Contents for the proposed textbook.
(d) Produce a draft and final climate change textbook for secondary level students along with a teachers' manual that addresses findings from the curricular review for all four countries.
(e) Participate in regular meetings organised by the Climate STRIDES/School of Education project team to monitor the progress based on an agreed timeframe, identify jointly any pending issues, and provide updates on the assigned deliverables.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The Consultant should possess:

Essential:

(a) A master's degree or equivalent in Education; Climate Change; Environmental Sciences, Curriculum Development/Evaluation or related fields.
(b) Seven years of relevant professional experience.
(c) Excellent analytical, writing and communication skills in English language.

Desirable:

(a) Familiarity with key CCE concepts and topics (e.g., greenhouse effect, weather, climate, mitigation, adaptation, etc.).
(b) Experience in writing climate change content for diverse audiences, including children, youth and teachers.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The consultancy is home-based and will take place in the Consultant's usual place of residence/work. No travel is expected as part of this assignment.

5.02 The Consultant will report to the Project Coordinator of the Climate STRIDES project and the School of Education project team members.

5.03 The Consultant will produce the following deliverables:

(a) Inception Report, including workplan for the consultancy.
(b) Draft annotated Table of Contents for the textbook.
(c) Draft of the textbook.
(d) Final version of the textbook.
(e) Draft of teachers' manual.
(f) Final version of teachers' manual.
(g) The textbook should be approximately 100 pages (excluding annexes)
(h) All deliverables shall be submitted to the Climate STRIDES project team in English language.

6. DURATION

6.01 The level of effort is estimated at about 12 person days over a period of will be required to complete the tasks outlined in this consultancy.

APPENDIX 10J

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR A REVIEWER – CLIMATE CHANGE TEXTBOOK AND TEACHERS' MANUAL

1. BACKGROUND

1.01 The Caribbean is extremely vulnerable to the impacts of climate change, rendering economies, livelihoods, infrastructure, human health and the general populace at extreme risk. As part of comprehensive mitigation and adaptation strategies, prioritising Climate Change Education (CCE) is critical to enhance awareness, knowledge, skills and behaviours among the public. While acknowledging the importance of CCE across all sectors and levels of society, particular emphasis should be placed on children and youth. As future decision-makers and citizens, it is crucial to invest in their education to foster attitudinal and behavioural shifts, ultimately facilitating a generational transformation in climate change action.

1.02 The Caribbean Development Bank has provided financing to the University of the West Indies (UWI) to implement the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES). The project financing is supporting consultancy services and the procurement of goods and services for the design and publication of the updated The State of the Caribbean Climate Report, CCE materials, knowledge products, and others decision-support tools, to improve climate resilience decision-making, raise awareness about climate change risks and impacts, and promote climate-smart attitudes, actions and practices in the Caribbean. The project includes the development of a textbook for secondary level students as well as an accompanying teachers' manual. To inform this process, a review of secondary level curriculum across specified Caribbean countries must be undertaken.

2. OBJECTIVE

2.01 This consultancy aims to review and proofread both the climate change textbook and the accompanying teachers' manual to enhance the clarity, accuracy, and adequacy of the content. The overall objective is to improve CCE and stimulate climate-smart attitudes, actions and practices among students.

3. SCOPE OF WORK

3.01 The consultant will undertake the following activities:

(a) Provide feedback on the structure which should be organised and coherent.
(b) Check that content is accurate and aligns with current scientific knowledge.
(c) Ensure information is presented in a clear and engaging manner.
(d) Ensure key topics are adequately presented.
(e) Identify any gaps where additional content may be needed.
(f) Recommend any improvement in structure, style and language to improve readability.
(g) Suggest additional resources where needed.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The Consultant should possess:

Essential:

(a) A master's degree or equivalent in Education; Climate Change; Environmental Sciences, Curriculum Development/Evaluation or related fields.
(b) Seven years of relevant professional experience.
(c) Excellent analytical, writing and communication skills in English language.

Desirable:

(a) Familiarity with key CCE concepts and topics (e.g., greenhouse effect, weather, climate, mitigation, adaptation, etc.).
(b) Experience in writing climate change content for diverse audiences, including children, youth and teachers.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The consultancy is home-based and will take place in the Consultant's usual place of residence/work. No travel is expected as part of this subregional research.

5.02 The Consultant will report to the Project Coordinator of the Climate STRIDES project and the School of Education project team members.

5.03 The Consultant will produce the following deliverables:

(a) A Review Report, highlighting strengths and weaknesses of the draft textbook and manual.
(b) Specific recommendations for improvement with respect to content and resources.
(c) Feedback on language, style and readability.
(d) All deliverables shall be submitted to the Climate STRIDES project team in English language.

6. DURATION OF THE ASSIGNMENT/LEVEL OF EFFORT

6.01 The level of effort is estimated to be 6 person-days over a period of 2 months.

APPENDIX 10K

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR A MANGA SCRIPT WRITER AND GAME BOARD DEVELOPER – FOR THE DANNY CLIMATE CHANGE SERIES (SOCC REPORT)

1. BACKGROUND

1.01 The Caribbean faces common vulnerabilities to climate variability and change despite its diversity in size, population, and economic drivers. The impact of extreme weather events and climate change (CC) has frequently led to significant economic losses across key economic sectors and loss of lives, particularly among the most vulnerable groups. Challenges in characterising and understanding these threats arise from many factors, including inter alia unreliable and updated climate data and information, and inadequate CC studies, sector-specific research, and affordable finance at scale for climate action. To address some of these gaps, Caribbean scientists and stakeholders collaborated to enhance data availability, producing regional climate model outputs. These outputs played a crucial role in global advocacy, national communications to the United Nations Framework Convention on Climate Change (UNFCCC), publications, capacity-building workshops, and the publication of the State of the Caribbean Climate (SOCC) Report in 2020. While the SOCC Report has been a valuable resource, the Caribbean now lags behind global advancements in climate scenarios. To address this, the Caribbean Development Bank (CDB) has provided financing to the University of the West Indies (UWI) to implement the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES). The project financing is supporting consultancy services and the procurement of goods and services for the design and publication of the updated SOCC Report, climate change education (CCE) materials, knowledge products, and others decision-support tools, to improve climate resilience decision-making, raise awareness about CC risks and impacts, and promote climate-smart attitudes, actions and practices in the Caribbean.

2. OBJECTIVES

2.01 The overall objective of this consultancy is to advance youth climate action and advocacy in the Caribbean through (a) the development of a three-part manga book series: Danny Faces Climate Change (b) development of a board game: Danny Faces Climate Change. Both (a) and (b) should be designed to provide information in an, engaging and easily understood manner, catering to high school and tertiary students (grade 11 and above), as well as the general public. Ultimately, the consultancy will contribute to enhancing climate resilience by facilitating the acquisition and transfer of knowledge, while simultaneously spurring behavioural change.

3. SCOPE OF WORK

3.01 The Consultant will undertake the following activities:

(a) Scriptwriting for the three-part Manga Book series:

(i) The storylines should relate to any of the by-products of climate change i.e. hurricanes, floods, water, drought, vector-borne diseases and sea level rise, among others and be aligned to the SOCC report.
(ii) The storylines should relate to youth advocacy and climate action.
(iii) The storylines should incorporate the Danny images from the Mt. Kirkland Community (Jamaica: Fiction).

(b) Game Board Development for the Danny Board Game:

(i) determining the board layout and concept for the game
(ii) determining the rules and operation of the game for both hard copy and online versions.
(iii) creating, identifying and selecting game pieces, and other items for the game (hard copy).
(iv) coordinating, organising game testing sessions.
(v) determining the packaging for game (hard copy).
(vi) coordinating the printing of the hard copy game, as well as uploading the game online.

(c) Script Adaptations for the eBook and audio books (in terms of content, style and production)

(d) The consultant will also be required to actively support and participate in stakeholder engagement, training, sensitisation and awareness building sessions organised by the Climate STRIDES project.

4. QUALIFCATIONS AND EXPERIENCE

4.01 The Manga Script Writer and Game Board Developer should have:

(a) A master's degree in Environment Management / Sciences or Climate Sciences or Communication Studies.
(b) A proven track record (at least five years of experience) of working with academic/technical stakeholders in the area of science communication,); or on projects where technical information was disseminated to non-scientific audiences.
(c) Full awareness of the book publishing process/steps, especially as it relates to eBooks, audio books and self-publishing.
(d) Written books or articles before (is an Author).
(e) Designed games before and is familiar with the game development process.
(f) The ability to use Microsoft office suite of products e.g. Microsoft Word, Excel, PowerPoint and Publisher.

4.02 If the consultant can engage with, or arrange for this board game to be developed in collaboration with another funder/partner (aside from the CDB), that would be seen as a plus.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The manga script writer and game board developer will be assigned to the Climate Studies Group Mona at the University of the West Indies and report to the Project Coordinator of the Climate STRIDES project. The Consultant will also work closely with the graphic artist, the editor, translators, the game programmer, the song writer, the song producer, the manga illustrator and the audio production company.

5.02 The Consultant will be required to:

(a) Produce written scripts (in panels) for presentation and consideration for the three-part comic book series to the Climate Strides Project Team (first and final draft);
(b) Produce game concepts (ppt) for presentation and consideration by the Climate Strides Project Team; and

(c) Produce the selected final game concept approved by the Climate Strides Team.

6. DURATION OF THE ASSIGNMENT/LEVEL OF EFFORT

6.01. The level of effort of this assignment is estimated at 12 person-days .

APPENDIX 10L

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR A SONG WRITER

1. BACKGROUND

1.01 The Caribbean faces common vulnerabilities to climate variability and change despite its diversity in size, population, and economic drivers. The impact of extreme weather events and climate change (CC) has frequently led to significant economic losses across key economic sectors and loss of lives, particularly among the most vulnerable groups. Challenges in characterising and understanding these threats arise from many factors, including inter alia unreliable and updated climate data and information, and inadequate CC studies, sector-specific research, and affordable finance at scale for climate action. To address some of these gaps, Caribbean scientists and stakeholders collaborated to enhance data availability, producing regional climate model outputs. These outputs played a crucial role in global advocacy, national communications to the United Nations Framework Convention on Climate Change, publications, capacity-building workshops, and the publication of the State of the Caribbean Climate Report in 2020. While the SOCC Report has been a valuable resource, the Caribbean now lags behind global advancements in climate scenarios. To address this, the Caribbean Development Bank has provided financing to the University of the West Indies (UWI) to implement the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES). The project financing is supporting consultancy services and the procurement of goods and services for the design and publication of the updated SOCC Report, climate change education materials, knowledge products, and others decision-support tools, to improve climate resilience decision-making, raise awareness about CC risks and impacts, and promote climate-smart attitudes, actions and practices in the Caribbean.

2. OBJECTIVE

2.01 This consultancy aims to promote youth climate action and advocacy through the development of catchy, informative theme songs that inspire behaviour change. The songs should reflect the music, beat and rhythms of the Caribbean, and work in sync with the storylines of the manga book series and the short film.

3. SCOPE OF WORK

3.01 The Song writer is required to:

(a) Create one theme song for a three-part Manga book series (No more than 3 minutes).
(b) Create one theme song for a short film. (No more than 4 minutes).
(c) Work in collaboration with the song producer to identify the best voice (s) for the songs. Importantly, the songs should be registered and granted the necessary licenses.
(d) Support the recording of these songs by liaising with the song producer.
(e) Actively support and participate in stakeholder engagements, training, sensitisation and awareness building sessions. organised by the Climate STRIDES project.

3.02 The necessary credits and acknowledgements will be given, but the songs will be owned by the Climate STRIDES project team

4. QUALIFICATIONS AND EXPERIENCE

4.01 The Song Writer shall have:

(a) Over six years' experience in the Jamaican / Caribbean music industry.
(b) Exposure to, and experience with different Genres of music.
(c) Experience writing songs, jingles and musical content with a Caribbean feel or Caribbean influence (catalogue required).
(d) Knowledge of song registration, copyright and intellectual property requirements.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The song writer will be assigned to the UWI/CSGM team and report to the Project Coordinator of the Climate STRIDES project. He/she will also work closely with the manga script writer, song producer and filmmaking company. The song writer is required to:

(a) Produce two song ideas / lyrics for presentation and consideration by the Climate Strides project team. (manga theme song).
(b) Produce a written manuscript of selected song (for manga book).
(c) Produce two song ideas / lyrics for presentation and consideration by the Climate Strides project team. (short film theme song).
(d) Produce a written manuscript of selected song (short film).
(e) Support the necessary registration of the songs.

6. DURATION

6.01 This assignment should be for a total of 60 person-days over a period of no more than 6 months.

APPENDIX 10M

DRAFT TERMS OF REFERENCE

CONSULTANCY SERVICES FOR A GAME PROGRAMMER

1. BACKGROUND

1.01 The Caribbean faces common vulnerabilities to climate variability and change despite its diversity in size, population, and economic drivers. The impact of extreme weather events and climate change (CC) has frequently led to significant economic losses across key economic sectors and loss of lives, particularly among the most vulnerable groups. Challenges in characterising and understanding these threats arise from many factors, including inter alia unreliable and updated climate data and information, and inadequate CC studies, sector-specific research, and affordable finance at scale for climate action. To address some of these gaps, Caribbean scientists and stakeholders collaborated to enhance data availability, producing regional climate model outputs. These outputs played a crucial role in global advocacy, national communications to the United Nations Framework Convention on Climate Change (UNFCCC), publications, capacity-building workshops, and the publication of the State of the Caribbean Climate (SOCC) Report in 2020. While the SOCC Report has been a valuable resource, the Caribbean now lags behind global advancements in climate scenarios. To address this, the Caribbean Development Bank (CDB) has provided financing to the University of the West Indies (UWI) to implement the Climate Systems, Techniques and Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES). The project financing is supporting consultancy services and the procurement of goods and services for the design and publication of the updated SOCC Report, climate change education (CCE) materials, knowledge products, and others decision-support tools, to improve climate resilience decision-making, raise awareness about CC risks and impacts, and promote climate-smart attitudes, actions and practices in the Caribbean.

2. OBJECTIVE

2.01 This consultancy aims to create informative, fun and engaging climate change content through the medium of gaming to foster effective classroom teaching and student learning. Ultimately, the consultancy will contribute to enhancing climate resilience by facilitating the acquisition and transfer of knowledge and techniques that influence behaviour change.

3. SCOPE OF WORK

3.01 The Game Programmer should programme an online CC board game, specifically designed for educational use by both educators and students in Grades 11 and above. The scope of work for the consultant involves:

(a) Game programming.
(b) Game formatting and design.
(c) Using appropriate images, graphics, colours, layouts, formats and fonts for an online game.
(d) Participating in game testing sessions.
(e) Documentation of programming codes, that form part of the project report.

3.02 The online game should conform to global game publishing standards. All content created should be in formats compatible for upload to various online platforms. Upon project completion, the consultant is expected to provide UWI/CSGM team with access to the files and images used in the creation of the online game. The consultant will be required to actively support and participate in stakeholder engagement, training, sensitisation and awareness building sessions organised by the Climate STRIDES project.

3.03 The necessary credits and acknowledgements will be given, but the online board game will be owned by the Climate STRIDES project team.

4. QUALIFICATIONS AND EXPERIENCE

(a) Bachelor of Science Degree in Computer studies, Information Technology or Gaming Technologies and at least 5 years of relevant experience.
(b) Has a proven track record (at least 5 years of experience) of working with academic/technical stakeholders in the area of science communication; or on projects where technical information was disseminated to non-scientific audiences using gaming (a portfolio is required.
(c) Excellent programming skills.
(d) Can show experience with programming in Java, Python, Objective-C or other relevant programming language.

5. REPORTING REQUIREMENTS AND DELIVERABLES

5.01 The Game Programmer will be assigned to the UWI/CSGM team and report to the Project Manager of the Climate STRIDES project. He/she will also work closely with the manga script writer, the game board developer and the graphic artist.

5.02 The game programmer will be required to:

(a) Produce a first, second and final draft of the CC Board Game for upload online.
(b) Document and deliver in a written report the codes used in the creation of the game; along with the supporting files created, in the relevant formats to the Climate STRIDES project team

6. DURATION

6.01 The level of effort is estimated to be 10 days.

APPENDIX 11

BUDGET

Budget Item	CDB Contribution	Counterpart Contribution (USD)	Total Cost (USD)
Component 1: Enhanced Decision-Support Tools, Information and Data for Evaluating and Assessing Climate Change Resilience			
Output 1.1. New suite of high-resolution climate projections for the region using the latest available global scenarios	48,225	131,925	180,150
Output 1.2 Updated State of the Caribbean Climate Report - Technical Report, One Page Fact Sheets, Summary for Policymakers and GIS Maps	92,430	90,600	183,030
Output 1.3. Statistical Models that will inform policies - Longitudinal Models and Logistic Regression Models	121,410	74,820	196,230
Output 1.4. Expanded and updated webserver to host and that makes regionally available - GIS interactive maps with high resolution data for CDB BMCs, State of the Caribbean Climate and Outputs of Components 2 and 3	143,265	20,095	163,360
Output 1.5 Regional training, Capacity Building and Sensitisation Session(s) - Training/Capacity Building Sessions and Launch Event	-	9,325	9,325
Subtotal: Component 1	**405,330**	**326,765**	**732,095**
Component 2: Knowledge Products for Improved Awareness, Capacity Building and Climate Resilience			
2.1. Climate Change Textbook and Audio Version for Secondary School Students	43,200	17,530	60,730
2.2 Climate Change Teachers' Manual (hard copy)	18,250	6,880	25,130
2.3 Climate Change Manga Books	81,550	6,880	88,430
2.4 Climate Change Short Film	69,255	6,880	76,135
2.5 Climate Change Board Game	41,590	6,880	48,470
Subtotal Component 2	**253,845**	**45,050**	**298,897**
3. Training, Capacity Building, Stakeholder Engagement, Sensitisation and Awareness Building Session			
3.1 Promotional Materials, Memorabilia, Flyers and Advertisements	3,750		3,750
3.2 Overseas Travel	18,690	-	18,690
3.3 Training and Awareness Building Sessions	40,190	3,845	44,035
3.4 Training Enhancement (Implementers of project)	5,350	-	5,350
Subtotal: Component 3	**67,980**	**3,845**	**71,825**

Budget Item	CDB Contribution	Counterpart Contribution (USD)	Total Cost (USD)
Project Management			
Project Coordinator (full-time)	140,000	-	140,000
Technical Project Coordinator	-	30,100	30,100
Subtotal: Project Management	**140,000**	**30,100**	**170,100**
Total Direct Eligible Cost	**867,155**	**405,760**	**1,272,915**
Bank Transfer Fees	**10,000**	**0**	**10,000**
Contingency	**106,731**		**106,731**
Administrative/Indirect Costs		**26,354**	**26,354**
Grand Total	**983,886**	**432,114**	**1,416,000**

APPENDIX 12

PROCUREMENT PLAN

I. General

1. **Project Information:**

Country: Regional

Borrower: The University of the West Indies (UWI), Mona Campus

Project Name: Climate Systems, Techniques and Other Resources for Improved Decision-Making, Education and Sustainability (Climate STRIDES)

Project Implementing Agency (PIA): UWI Mona Campus

2. **Bank's Approval Date of the Procurement Plan:** July 1, 2024

3. **Period Covered By This Procurement Plan:** July 1, 2024 – September 30, 2026

II. Goods and Works and Non-Consulting Services

1. Prior Review Threshold: Procurement decision subject to Prior Review by the Bank as stated in the Procurement Procedures:

	Selection Method	Prior Review Threshold (USD)	Comments
1.	Limited Bidding – (LB)	≥ 12,000	
2.	Direct Selection (DS)	≥ 12,000	

2. Reference to (if any) Project Operational/Procurement Manual: Procurement Policy for Projects Financed by CDB (November, 2019) and Procurement Procedures for Projects Financed by CDB (January, 2021).

3. Any Other Special Procurement Arrangements: CDB financing is being provided through resources allocated to CDB under the Caribbean Action for Resilience Enhancement (CARE) Programme. As per the requirements of the CARE Contribution Agreement, eligibility shall be extended to countries which are eligible for procurement under EU-Funded projects, which are not CDB member countries, in accordance with the EU Eligibility Rules.

3. Procurement Packages with Methods and Time Schedule

1	2	3	4	5	6	7	8	9
Ref No.	**Contract (Description)**	**Estimated Cost (USD)**	**Selection Method**	**Pre-qualification (Yes/No)**	**Regional Preference (Yes/No)**	**Review by Bank (Prior/ Post)**	**Expected Bid-Opening Date**	**Comments**
1	**Enhanced Decision-Support Tools, Information and Data for Evaluating and Assessing Climate Change Resilience**							
(a)	Copyediting and graphic design		LB International	No	No	Prior	October 2024	
(b)	Software Subscription (SAS and STATA) Licenses)		LB	No	No	Post	October 2024	
(c)	Scalable network attached stora (NAS)		LB International	No	No	Prior	July 2024	
2	**Knowledge Products for Improved Awareness, Capacity Building and Climate Resilience**							
(a)	Venue for Stakeholder Consultations Meetings - PRE and POST textbook (4 session in person – Jamaica)		LB National	No	No	Post	July 2024	
(b)	Production/Layout, illustrations (40), printing (400 copies)		LB International	No	No	Prior	October 2025	
(c)	Flash drives for e-book (400)		LB International	No	No	Post	July 2026	
(d)	Production of 1 audio book		LB International	No	No	Post	January 2026	
(e)	Production/Layout, illustrations (40), printing (300 copies approx. 50 pages)		LB International	No	No	Prior	October 2025	
(f)	Services for a Manga Illustrator, editing, proofreading, formatting and printing 3 books (60 copies x 3 series English, French and Dutch)		LB International	No	No	Prior	October 2025	
(g)	Services for French and Dutch Translators		LB International	No	No	Post	October 2025	
(h)	Flash drives (400)		LB International	No	No	Post	July 2026	
(i)	English Audio Book (3 series)		LB International	No	No	Post	January 2026	

1	2	3	4	5	6	7	8	9
Ref No.	**Contract (Description)**	**Estimated Cost (USD)**	**Selection Method**	**Pre-qualification (Yes/No)**	**Regional Preference (Yes/No)**	**Review by Bank (Prior/ Post)**	**Expected Bid-Opening Date**	**Comments**
(j)	Services for a Song Producer		LB International	No	No	Post	October 2024	
(k)	Services for a Film Making Company		LB International	No	No	Prior	April 2026	
(l)	Printing and package Board Game (200)		LB International	No	No	Prior	January 2025	
(m)	Venue - (6) - Testing Sessions		LB International	No	No	Post	July 2024	
(n)	Graphic Artist		LB International	No	No	Post	July 2024	
3	**Training, Capacity Building, Stakeholder Engagement, Sensitisation and Awareness Building Session**							
(a)	Promotional memorabilia, flyer and advertisement		LB International	No	No	Post	April 2026	
(b)	Airfare (3 persons)		DS	No	No	Post	April 2026	
(c)	Training sessions – 12 local stakeholder engagements (Manga books, film and board games)		LB National	No	No	Prior	April 2026	The cost of each training session is less than the Prior Review Threshold.
(d)	Training sessions –6 overseas stakeholder engagements (comic books, film and board games, textbooks/manual)		LB National	No	No	Prior	April 2026	The cost of each training session is less than the Prior Review Threshold.
(e)	Sensitisation and Awareness Building Sessions		LB National	No	No	Post	April 2026	
(f)	Training sessions teachers (textbooks/manual (2 local sessions)		LB National	No	No	Post	April 2026	
(g)	Training session – virtual overseas teachers Dominica, Grenada and Guyana (4 virtual session)		LB National	No	No	Post	April 2026	
(h)	Training sessions – Project Implementers		LB National	No	No	Post	April 2026	

1	2	3	4	5	6	7	8	9
Ref No.	**Contract (Description)**	**Estimated Cost (USD)**	**Selection Method**	**Pre-qualification (Yes/No)**	**Regional Preference (Yes/No)**	**Review by Bank (Prior/ Post)**	**Expected Bid-Opening Date**	**Comments**
(I)	Software, programmes and tools (graphic design, illustration software / extensions, stock photos)		LB National	No	No	Post	April 2026	

III. Consulting Services

1. **Prior Review Threshold:** Procurement decision subject to Prior Review by the Bank as stated in the Procurement Procedures:

	Selection Method	Prior Review Threshold (USD)	Comments
1.	Individual Consultant Selection (ICS)	≥12,000	

2. **Reference to (if any) Project Operational/Procurement Manual**: Procurement Policy for Projects Financed by CDB (2019) and Procurement Procedures for Projects Financed by CDB (January, 2021)

   Any Other Special Procurement Arrangements: CDB financing is provided through resources allocated to CDB under the Caribbean Action for Resilience Enhancement (CARE) Programme. As per the requirements of the CARE Finance Agreement, eligibility shall be extended to countries which are eligible for procurement under EU-Funded projects, which are not CDB member countries, in accordance with the EU Eligibility Rules.

3.

4. **Procurement Packages with Selection Methods and Time Schedule**

1	2	3	4	5	6	7
No.	**Assignment (Description)**	**Estimated Cost USD**	**Selection Method**	**Review by Bank (Prior/Post)**	**Expected Proposal Submission Date**	**Comments**
1.	Project Coordinator		ICS	Prior	October 2024	
2.	Consultancy services for Climate Modelling Consultant		ICS	Prior	October 2024	
3.	Consultancy services for two Technical Assistants - UWI		ICS	Prior	October 2024	Two separate contracts.
4.	Consultancy services for a Technical Assistant - CIMH		ICS	Prior	October 2024	
5.	Consultancy Services for a Statistical Modelling Consultant		ICS	Prior	October 2024	
6.	Consultancy Services for Statistical Modelling Technical/Research Assistant		ICS	Prior	October 2024	
7.	Consultancy Services for GIS Collaborator		ICS	Post	October 2024	
8.	Consultancy services for a Junior Web Developer		ICS	Prior	October 2024	
9.	Consultancy Services for a Curriculum Review		ICS	Prior	December 2024	

1	2	3	4	5	6	7
No.	**Assignment (Description)**	**Estimated Cost USD**	**Selection Method**	**Review by Bank (Prior/Post)**	**Expected Proposal Submission Date**	**Comments**
10.	Consultancy Services for a Writer – CC Textbook and Teacher Manual		ICS	Post	December 2024	
11.	Consultancy Services for Book Reviewer		ICS	Post	December 2024	
12.	Consultancy Services for a Manga Script Writer and Game Board Developer		ICS	Prior	December 2024	
13.	Consultancy Services for Game Programmer		ICS	Post	December 2024	
14.	Consultancy Services for a Song Writer		ICS	Post	December 2024	

IV. Implementing Agency Procurement Capacity Building Activities with Time Schedule

In this section the agreed Procurement Capacity Building Activities are listed with time schedule.

No.	Expected Outcome/ Activity Description	Estimated Cost	Estimated Duration (Days)	Start Date	Comments
1.	Project launch workshop (virtual or in-person) with CDB and Implementing Agency to increase the capacity of Implementing Agency to follow CDB's procurement procedures	0	2	Q3 2024	
2.	Increased capacity of Implementing Agency to undertake procurement in accordance with CDB's Procurement Procedures through CDB's Online Procurement Training.		5	Q3 2024	

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.