



Terms of Reference

Assignment Title: Consulting Services for a firm to redevelop and enhance the usability of Country Multi-Peril Disaster Risk Profiles

1. Background

In 2007, the Caribbean Catastrophe Risk Insurance Facility was formed as the first multi-country risk pool in the world and was the first insurance instrument to successfully develop parametric policies backed by both traditional and capital markets. It was initially designed as a regional catastrophe fund for Caribbean governments to limit the financial impact of devastating hurricanes and earthquakes by quickly providing financial liquidity when a policy is triggered. CCRIF was developed under the technical leadership of the World Bank and with a grant from the Government of Japan. It was capitalized through contributions to a multi-donor trust fund (MDTF) by the Government of Canada, the European Union, the World Bank, the governments of the United Kingdom and France, the Caribbean Development Bank and the governments of Ireland and Bermuda, as well as through membership fees paid by participating governments.

In 2014, the facility was restructured into a segregated portfolio company (SPC) to facilitate offering new products and expansion into new geographic areas and is now named CCRIF SPC. The new structure, in which products are offered through a number of segregated portfolios (SPs), allows for total segregation of risk. In April 2015, CCRIF SPC signed an MOU with COSEFIN - the Council of Ministers of Finance of Central America, Panama and the Dominican Republic - to enable Central American countries to formally join the facility. The expansion into Central America and new products for the Caribbean is supported through a new World Bank administered multi-donor trust fund established for that purpose. The MDTF channels resources from various donors, including Canada, through the Department of Foreign Affairs, Trade and Development; the United States, through the Department of the Treasury; the European Union, through the European Commission; and Germany through the Federal Ministry for Economic Cooperation and Development. The expansion into Central America has the potential to diversify CCRIF's risk portfolio and improve access by Central American governments to reinsurance markets thus reducing the cost of risk transfer, allowing these benefits to be passed on to all CCRIF members.

CCRIF SPC is registered in the Cayman Islands with a board of directors which is responsible for governance and the strategic direction of the company and a chief executive officer with responsibility for managing the company on a day-to-day basis. It operates primarily as a virtual organization, supported by a network of service providers covering the areas of risk management, risk modelling, captive management, reinsurance, reinsurance brokerage, asset management, technical assistance, and corporate communications and information technology. CCRIF offers earthquake, tropical cyclone and excess rainfall policies to Caribbean and Central American governments. The facility helps to mitigate the short-term cash flow problems small developing economies suffer after major natural disasters. The parametric nature of the insurance that CCRIF's provides, allows the Facility to make rapid payouts after a policy is triggered, helping

member governments finance their initial disaster response and maintain basic government functions after a catastrophic event.

Nineteen Caribbean governments are currently members of the Facility: Anguilla, Antigua & Barbuda, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, Montserrat, Saint Lucia, St. Kitts & Nevis, St. Maarten, St. Vincent & the Grenadines, The Bahamas, Trinidad & Tobago and Turks & Caicos Islands. Nicaragua, Panama El Salvador and Guatemala are CCRIF CA SP members.

CCRIF has recently implemented a new Excess Rainfall Loss model (XSR 2.0) which computes the country aggregated losses due to excess rainfall on a daily basis and, when the excess rainfall exceeds a threshold level on a sufficiently large portion of a country, it computes the losses and the insurance payouts according to pre-defined policy parameters.

CCRIF SPC replaced its Tropical Cyclone (TC) and Earthquake (EQ) loss assessment model with a new model, System for Probabilistic Hazard Evaluation and Risk Assessment (SPHERA), for Caribbean and Central American Countries in the June 2019/2020 policy cycle. As part of the new model development process, new disaster risk profiles were developed summarizing the risk exposures of countries, and explanations of modelling for tropical cyclone, earthquake and excess rainfall products.

In 2019, CCRIF has launched a parametric fisheries product and in 2020, a public utilities product.

This TOR supports the tender for a consultant who will perform the review of these profiles, with the aim being to enhance them for better usage by governments, their ministries, and other relevant Caribbean and potentially international institutions involved in disaster risk management.

2. Objectives

This consultancy is being commissioned to obtain a comprehensive understanding of the potential areas for enhancement of the Country Multi-Peril Disaster Risk Profiles (CRP) to encourage usage by relevant national and regional agencies by adding and extending relevant information and bringing it on a state-of-the-art platform, with the potential to interact with the information and compare it to other CRPs or visualize certain details. The final product should allow CCRIF members and stakeholders (such as Ministries of Finance, national and regional disaster management agencies, donors, research institutions, and reinsurers) to use the CRPs for better decision making on their disaster risk management practices including better decision making on their insurance policies, risk retention strategies as well as planning for disaster risk reduction initiatives. In addition, the Consultant is expected to provide recommendations on the dissemination and communication of the CRPs, to redesign and upgrade the current template as well as to update the current CRPs to incorporate these enhancements.

3. Scope of Works

The expected services from a successful Consultant are the following:

Before receiving and reviewing CRPs, the Consultant will be required to sign a Non-Disclosure Agreement regarding content of the CRPs and discussions with governments.

Activity I: Redevelopment of Country Multi-Peril Disaster Risk Profiles

(i) **Review and assess** the CRPs currently provided to member countries and assess a) stakeholder demand and opportunities¹; and b) communication gaps related to dissemination, understanding and uptake of risk identification information and existing CRPs.

(ii) **Provide feedback on** areas for improvement for the dissemination and communication of CRPs based on an assessment of other CRPs (used globally), with the goal of improving their relevance. The Consultant is also expected to review previous recommendations from studies which may be useful (e.g., the World Bank's Risk Viewer tool) and independently provide advice on target agencies which may find the CRPs useful.

(iii) **Create both Microsoft Word and web-based** templates of the CRP to incorporate improvements based on findings from the above-mentioned assessment component. This would include recommendations of different risk metrics presented.

(iv) Subject to the acceptance of the template by CCRIF, development of a CRP for each of CCRIF's members

Activity II: Development of interactive tools

¹ stakeholders include Ministries of Finance, national and regional disaster management agencies, donors, research institutions, and reinsurers.

(i) **Develop a user-friendly interactive risk profile** platform that could be used within CCRIF's WeMap platform (a web-based platform developed for CCRIF members to monitor the impacts of earthquake, cyclones, and excess rainfall on their portfolio and check if their insurance policy will be triggered) that stakeholders could scrutinize exposure and loss metrics and allow for enhanced risk visualization and decision making. The platform will allow for risk optimization decision making such as through allowance for cost benefit calculations to support risk reduction interventions. The integration of the platform with WeMap will be the responsibility of CCRIF and its service providers.

(ii) **Develop Disaster risk financing tool.** The consultant would propose portfolio a risk profile optimizing tools and similar to activity (iv) but based on the Event Loss tables used in the models. The idea is for the users of CCRIF's clients to have a tool at hand that would allow them to create an indicative pricing for a policy option designed according to their own needs, this is one step of the overall vision to expand WeMap into a learning platform for CCRIF's members

Activity III: Conduct a CRP benchmark analysis for other available risk profiles.

Under the NDA, this work could collaborate to evaluate the models and key components.

- (i) Development of evaluation criteria for multi hazard CRPs (CCRIF's own, publicly available and other relevant – for example where feasible catastrophe modelling company profiles). This would include development of assessment criteria of hazard, exposure and vulnerability. The outputs products include earthquake, tropical cyclone and flood hazard assessment information.
 - a) Review of existing hazard, exposure and vulnerability modules within risk models for Caribbean Central and South American Countries
 - b) Development of criteria for comparison and ranking of assessment based on Task 1a.
 - c) Support the development of a web page to and communication material of Tasks 1a and 1b.

(ii) The assessment would also explore options for making inputs and outputs of CCRIF models more accessible and transparent to stakeholders including assessment of potential use of global standardized platforms in achieving this.

Additional Information:

Interaction with the CCRIF team and its service providers. The review will be conducted remotely, and frequent interaction is expected with designated persons of the CCRIF team. The CCRIF designated person(s) may also provide the Consultant with comments about the Consultant's findings. Although the Consultant will not have direct access to the CCRIF's

catastrophe models discussions may be needed with CCRIF’s service providers (particularly the CCRIF’s modelling company) for clarifications. The Consultant will also have the necessary information on the modelling methodology (and associated vulnerability curves), inputs such as the exposure database, and outputs including but not limited to Event Loss Tables, and Exceedance Probability Curves. Such interaction is expected to occur via electronic mail and other means. If the interactions occur via electronic mail, the Consultant will carbon copy designated persons at CCRIF. If the interactions occur via phone or virtual meetings, the designated CCRIF person(s) will be notified so that he/she can participate in the call, if needed.

Interaction with governments and other governmental agencies. The Consultant is expected to advise on potential agencies to use the risk profiles. In the event that the Consultant needs to participate in multi-stakeholder workshops, meetings/conferences with governments, their line ministries and other agencies to determine areas of enhancement of the CRPs, a request will be made to the CCRIF team.

Reporting. The Consultant is expected to make regular interactions with designated members of the CCRIF team with interaction with some service providers.

Location. The Consultant is expected to work remotely.

4. Time Schedule

The assignment is expected to commence on December 1, 2021. The expected level of effort (LOE) is 60 days over a period of three months from December 1, 2021, till February 28, 2022. The specific dates for deliverables will be agreed by contract. Delays are justified if caused by the proven tardiness in receiving the requested information or agreements on timing of discussions with governments.

The Consultant is expected to deliver the following reports:

DELIVERABLES
Delivery and acceptance by CCRIF of work plan including short report (of ten or fewer pages) illustrating methodology for (i) redesign and updating of the CRPs, (ii) development of the interactive risk profile platform, (ii) optimizing DRF tool and (iv) the CRP benchmark analysis
Delivery and acceptance by CCRIF of an interim report summarizing findings from other CRPs and any relevant discussions with agencies, CCRIF service providers, and potentially any government line ministries, and illustrating areas for improvements for each of the CRPs
Submission and acceptance by CCRIF of revised template for three CRPs, to be agreed on with the CCRIF.
Submission and acceptance of the final template for all 22 CRPs

Delivery and acceptance of a final report summarizing findings from other CRPs and any relevant discussions with agencies, CCRIF service providers, and potentially any government line ministries, and illustrating areas for improvements for each of the CRPs
Delivery of the interactive risk profile platform with the system tested and activated by CCRIF's IT team
Delivery of the DRF optimizing tool with the results tested and accepted by CCRIF
Delivery and acceptance of the CRP benchmark analysis

5.0 Additional Work

There may be a follow-on assignment to develop country risk profiles for the drought, fisheries and public utilities products.

6.0 Qualifications of the team

The suggested team composition should include:

- A Team Leader qualified in cat modelling or an equivalent and suitable qualification and at least 5 years of experience in the development and/or usage of with disaster risk profiles.
- Risk modeling expert, actuary and or economist with a good background in catastrophe risk modelling and disaster risk financing

Experience of the team

The firm must demonstrate the following:

- Substantial knowledge and experience with disaster risk profiles and their usage.
- Team members with excellent analytical skills, and ability to prepare professional narrative reports summarizing observations and conclusions in English and
- Experience and knowledge of the Caribbean and Central American context.
- Good oral and written communication abilities in English