

**GOVERNMENT OF JAMAICA**

**CLIMATE CHANGE ADAPTATION AND RISK REDUCTION TECHNOLOGY AND STRATEGIES TO IMPROVE COMMUNITY RESILIENCE (CARTS) PROJECT**

**CONSULTANCY SERVICES FOR THE DESIGN OF A COMMUNITY FLOOD EARLY WARNING SYSTEM FOR SAVANNA LA MAR, WESTMORELAND, JAMAICA**

**REQUESTS FOR EXPRESSIONS OF INTEREST**

**DEADLINE: Wednesday, August 14, 2019 at 4.00 p.m.**

The Government of Jamaica through the Westmoreland Municipal Corporation (WMC) has received financing from the Community Disaster Risk Reduction Fund (CDRRF), which is managed by the Caribbean Development Bank (CDB), towards the cost of implementing the *Climate Change Adaptation and Risk Reduction Technology and Strategies to Improve Community Resilience* (CARTS) project and intends to apply a portion of the proceeds of this financing to eligible payments under a contract for which this invitation is issued.

Payments to be made by CDB will only be at the request of WMC and upon approval by CDB, and will be subject in all respects to the terms and conditions of the Financing Agreement. The Financing Agreement will prohibit withdrawal from the financing account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of CDB, is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than WMC shall derive any rights from the Financing Agreement or have any claim to the proceeds of the Financing.

The Westmoreland Municipal Corporation, the Executing Agency, now wishes to procure the professional services of a consultant for the Design of a Community Flood Early Warning System for Savanna La Mar, Westmoreland, Jamaica. The duration of the assignment is expected to be for a period of four (4) months.

The Westmoreland Municipal Corporation now invites interested eligible individuals to submit Expressions of Interest indicating their qualifications, relevant experience and capability to provide the required professional services. The details of the service to be provided is outlined in the Terms of Reference which is available from the first email address. The Expression of Interest (EOI) should include the attachments in the format specified in the following Request for Expressions of Interest (REOI) documents:

- Curriculum Vitae (Attachment 1)
- Submission Letter (Attachment 2).

Individuals shall be eligible to participate if:

- (a) the persons are citizens or *bona fide* residents of an eligible country; and
- (b) in all cases, the professional service provider has no arrangement and undertakes not to make any arrangements, whereby any substantial part of the net profits or other tangible benefits of the contract will accrue or be paid to a person not a citizen or *bona fide* resident of an eligible country.

Eligible countries are member countries of CDB.

The attention of interested Individuals is drawn to paragraph 1.9 of [CDB's Guidelines for the Selection and Engagement of Consultants \(2011\)](#), setting forth CDB's policy on conflict of interest.

In the assessment of submissions, consideration will be given to qualifications and relevant experience on similar assignments. Experience working in a community project setting will be an asset. All information must be submitted in English. Further information, including the Terms of Reference for the required professional service, may be obtained from the first address below during office hours from Monday to Friday between 9:00 a.m. and 5:00 p.m. Jamaica time.

Electronic copies of the Expressions of Interest must be emailed to the first address below, and copied to CDB at the second address below, no later than 4.00 p.m. on **Wednesday, August 14, 2019**. The email submission must include the name and address of the applicant and the subject line of the email shall be clearly marked as specified:

**“Expression of Interest - Consultancy Services for the Design of a Community Flood Early Warning System for Savanna La Mar, Westmoreland, Jamaica.”**

Following the assessment of submissions, the most technically capable and appropriately experienced applicant will be invited to negotiate a contract to provide the professional services. The Government of Jamaica through the Westmoreland Municipal Corporation reserves the right to accept or reject late applications or to cancel the present invitation partially or in its entirety. It will not be bound to assign any reason for not engaging the services of any applicant and will not defray any costs incurred by any applicant in the preparation and submission of Expressions of Interest.

Address 1:

Address 2

Email: [wmcprocure@gmail.com](mailto:wmcprocure@gmail.com)

Email: [procurement@caribank.org](mailto:procurement@caribank.org)

**The Westmoreland Municipal Corporation**

Project Management Unit  
Poor Relief Dept. Building  
Dunbars River, Savanna-La-Mar  
Westmoreland, Jamaica  
Tel: (876) 955-2654

**Procurement Officer**

Caribbean Development Bank  
Willey, St. Michael  
Barbados  
Tel: (246) 431-1600

**ATTACHMENT 1**

**CURRICULUM VITAE (CV)**

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**1. Proposed Position** \_\_\_\_\_

**2. Name of Individual:** \_\_\_\_\_

**Address of Individual:** \_\_\_\_\_

**3. Date of Birth:** \_\_\_\_\_ **Nationality:** \_\_\_\_\_

**4. Education** [*Indicate college/university and other specialized education of staff member, giving names of institutions, degrees obtained, and dates of obtainment*]: \_\_\_\_\_

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**5. Membership of Professional Associations:** \_\_\_\_\_

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**6. Other Training** [*Indicate significant training since degrees under 5 - Education were obtained*]: \_\_\_\_\_

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**7. Countries of Work Experience:** \_\_\_\_\_

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**8. Languages** [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]: \_\_\_\_\_

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**9. Employment Record**

*[Starting with present position, list in reverse order every employment held by staff member since graduation, giving for each employment (see format here below): dates of employment, name of employing organization, positions held.]*

From [Year]: \_\_\_\_\_ to [Year]: \_\_\_\_\_

Employer: \_\_\_\_\_

Positions held: \_\_\_\_\_

Tasks and Accomplishments \_\_\_\_\_

**10. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**

*[Among the assignments in which the Consultant has been involved, kindly indicate the following information for few (Minimum of two examples) for those significant assignment that best illustrate capability handle the proposed task that best illustrate staff capability to handle the tasks listed under point 9 and accomplish its objectives.]*

<p><b>Example 1.</b></p> <p><i>[List the consultant's significant tasks and Activities performed under this assignment]</i></p>	<p>Name of assignment or project: _____ _____</p> <p>Year: _____</p> <p>Location: _____</p> <p>Main project features: _____</p> <p>Positions held: _____</p> <p>Main Accomplishment: _____ _____</p>
<p><b>Example 2.</b></p> <p><i>[List the consultant's significant tasks and Activities performed under this assignment]</i></p>	<p>Name of assignment or project: _____ _____</p> <p>Year: _____</p> <p>Location: _____</p> <p>Main project features: _____</p> <p>Positions held: _____</p> <p>Main Accomplishment: _____ _____</p>

**13. Certification:**

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

\_\_\_\_\_ Date: \_\_\_\_\_  
*[Signature of Individual]* *Day/Month/Year*

**ATTACHMENT 2**  
**SUBMISSION LETTER**

[Location, Date]

**To:           Westmoreland Municipal Corporation**  
**c/o The Project Management Unit**  
**Shop # 1, Dunbars River**  
**Savanna-la-Mar**  
**Westmoreland**

**Attention:**

Dear Madam:

I, the undersigned, offer to provide the consulting [insert *title of assignment*] service in accordance with the Westmoreland Municipal Corporation's advertisement dated [*Insert Date*] and I hereby submit my Expression of Interest.

I hereby declare that all the information and statements made in this Expression of Interest are true and accept that any misinterpretation contained in it may lead to my disqualification.

I undertake, if my Expression of Interest is accepted, to initiate the consulting services related to the assignment not later than the date indicated in the Terms of Reference.

Yours sincerely,

Signature: \_\_\_\_\_

Name of Individual (*In full and initials*): \_\_\_\_\_

Address of Individual: \_\_\_\_\_

Mobile Phone Number of Individual: \_\_\_\_\_

**CLIMATE CHANGE ADAPTATION AND RISK REDUCTION TECHNOLOGY AND STRATEGIES TO  
IMPROVE COMMUNITY RESILIENCE PROJECT**

**CONSULTANCY SERVICES FOR THE DESIGN OF A COMMUNITY FLOOD EARLY WARNING  
SYSTEM FOR SAVANNA LA MAR, WESTMORELAND, JAMAICA**

**TERMS OF REFERENCE**

**1. BACKGROUND**

1.01 The Government of Jamaica is the recipient of grant funding from the Community Disaster Risk Reduction Fund (CDRRF) for the financing of the Climate Change Adaptation and Risk Reduction Technology and Strategies to Improve Community Resilience (CARTS) Project which will be executed by the Westmoreland Municipal Corporation (WMC), one of 14 local authorities in Jamaica. CDRRF is a multi-donor trust fund which is managed by the Caribbean Development Bank (CDB). WMC is responsible for the sustainable economic development, good governance of the parish of Westmoreland and the provision of efficient service to residents and visitors, and facilitating sustainable local economic development and commercial activities within a planned environment. Information on the role, administration, services provided by WMC is shown at the website <http://westmorelandmc.gov.jm/>.

1.02 The CARTS Project, designed by WMC, seeks to address some of the disaster risks, climate change (CC) impacts and related livelihood issues in the town of Savanna-La-Mar, the parish capital, by improving the resilience to CC and enhancing the disaster risk management capacities within the town and three surrounding communities, specifically Russia, New Market Oval, and Llandilo. The town with a population estimated at 22,633 in 2011, is considered a sub-regional centre as it is the focal point for the parish's administrative, commercial, marketing, retail activities and services which are provided to the adjacent agricultural communities and Negril, a key tourist resort. In relation to business activities, the town has several formal and informal enterprises that operate along the main road, Great George Street, and within its surrounding communities. See Figure 1 for a map of the geographic area to be covered by the Project.

1.03 The CARTS project consists of four components and they are:

- (a) Component 1: Preparation of a Floodwater Control Master Plan and Installation of an Early Warning System (EWS).
- (b) Component 2: Community Disaster Risk Reduction and Climate Change Public Education and Awareness and Capacity Building.
- (c) Component 3: Community Disaster Risk Reduction Demonstration Projects.
- (d) Component 4: Ecosystem-based Livelihood Enhancement Pilot Projects.

1.04 Jamaica is vulnerable to multiple natural hazards with floods probably being the most frequently occurring hazard. This problem is exacerbated by the onset of CC which is projected to increase the frequency and intensity of flood events, as well as have severe effects on Jamaica's coastal areas and the marine environment in areas such as Savanna la Mar. Added to this situation is the fact that several sections of Savanna la Mar are either low-lying or below sea-level over the years there have been repeated floods which damage infrastructure and properties, disrupt the local economy and livelihoods, displaced communities, public and private sector enterprises and placed the residents at risk. Floods can also help to increase the transmission of the communicable diseases.

1.05 The floods that have occurred over the years have not only been the cause of significant economic losses, they also posed major health risks because of the potential threats arising from water-borne diseases such as typhoid fever, and cholera, as well as vector-borne diseases, such as malaria, dengue, Chikungunya (Chick V) and Zika virus (ZIKV), which are carried by mosquitos.

1.06 Given the frequency and intensity of flooding in the town and its environs, there is a need for an EWS to issue warnings for impending or already occurring floods. A flood EWS are made up of four components: (a) assessments and knowledge of flood risks in the area; (b) local hazard monitoring

(forecasts) and warning service; (c) flood risk dissemination and communication service, especially to person located in vulnerable communities; and (d) improve community preparedness and response capabilities and sharing of information with relevant stakeholders. When combined, this helps to improve community preparedness for extreme weather events, in terms of warnings about the flood and increasing understanding of the risks and application of appropriate flood responses. This also helps to minimise public safety risks and damage to infrastructure.

1.07 It is particularly important for the local community and households to receive EW for the onset of disasters such as earthquakes, tsunamis, flash floods, cyclones and storms, etc. The EW also serves as the trigger point for an evacuation order and timely decision-making by the individuals and agencies such as WMC that could result in saving numerous lives and reducing property damage. The absence of or an inadequate EW could may result in what could be considered an avoidable circumstance becoming a catastrophe.

1.08 Although Savanna-la-mar and its environs has been frequently impacted by flooding, there is no flood EWS. One way to assist communities to prepare for and protect the residents from flood risks is to implement a flood EWS. Against this background, WMC is seeking to engage the services of an Independent consultant to design and test a community Early Warning System for the Greater Savanna-La-Mar area of Westmoreland, including the low lying communities such as New Market Oval, Llandilo and Russia.

## **2. OBJECTIVES**

2.01 The overall objective of the consultancy is to design a Flood EWS that addresses the risks that impact Savanna-La-Mar and its environs by predicting flood events; testing the EWS in order to assess its effectiveness in facilitating early action in response. The EWS should, where practicable, complement existing community-based preparedness and mitigation systems which are aimed at keeping communities in Savanna-la-mar safe and increasing their resilience to flood events.

2.02 The role of effective communication in EWS cannot be over-emphasised. It is essential to provide vulnerable communities with timely rainfall and flood risk updates. To this end, another objective of the consultancy is to inform residents in the vulnerable communities and other key stakeholders and audiences about flood risks. In addition to knowing about flood risks and other related information, the target audiences in the town and the surrounding communities should also know how to monitor rainfall updates and flood projections, especially during the hurricane season and the onset of a heavy rainfall events, so that they will know when to start preparations.

2.03 Enhancing the capacity of communities and stakeholders, especially their planning skills and ability to respond to a flood event through the conduct of a mock flood exercise is another objective of the consultancy.

## **3. SCOPE OF SERVICES**

3.01 The scope of services to be provided by the Consultant will include the following:

### **Preparatory Activities**

- (a) Defining the project area and its characteristics.
- (b) Conducting a rapid community climate risk and vulnerability assessment.
- (c) Identifying and engaging the stakeholders.

### **Designing the EWS**

- (a) Reviewing background information on community-based flood EWS' in Jamaica and the wider Caribbean.
- (b) Assessing the data on the Cabarita River Watershed and developing the required model(s) for the EWS.

- (c) Assessing the rain gauge system in the Cabarita River Watershed in order to determine whether the existing gauges will be able to provide adequate coverage for the EWS and provide rainfall data in real time to the Savanna- la-Mar flood alert team.
- (d) Designing a community flood EWS to alert all residents, public and private enterprises in Savanna-la-mar and its environs at least 30 minutes before a possible flood event. (The recommended solution must be accessible via the internet through standard means of access or using smart phones. The system should also provide real-time alerts to cell phones, computers or any smart device that can facilitate the notification process.)
- (e) Providing recommendations on standard operating EWS protocols - the monitoring stations figure alert and danger levels that need to be established effective and efficient operations of the EWS.
- (f) Sharing information on the proposed flood EWS with the stakeholders in Savanna-la-Mar at community meetings and incorporate, where realistic comments/feedback provided at these meetings.
- (g) Identifying, in consultation with the Savanna-la-Mar Community Flood Alert Team, established by WMC, options for siting the equipment. Rain gauges in the upper watershed must be integrated into EWS such that rainfall data is provided in real time to the Savanna- la-Mar flood alert team.
- (h) Assisting WMC with the preparation of a graphic of the EWS to show the integration of elements of the system and how the message is transmitted to the various target points and audiences.
- (i) Assisting with the procurement of the equipment for the EWS that can provide real-time data on water levels, temperature, humidity, etc.
- (j) Installing and/or overseeing the installation of the EWS equipment at the selected locations.
- (k) Preparing an operations manual for the community flood EWS.
- (l) Testing of the system.

#### **Outlining the governance arrangements for the EWS**

- (a) Preparing information on the governance arrangements required for planning and maintaining the EWS, to include the key stakeholders, local communities, local and national government agencies, non-government organisations, private sector agencies, and the academic community.
- (b) Outlining the roles and responsibilities for management and maintenance of the system.
- (c) Outlining the training requirements for WMC staff.

#### **Communicating and disseminating information on the EWS**

- (a) Providing recommendations on the communication channels such as telephones, internet, radio stations, etc. that should be established, designated focal persons in the communities, the Savanna-la-Mar flood alert team who should be trained and used to provide alerts on the danger levels.
- (b) Providing recommendations on the appropriate tool(s) such as a whistle, siren or megaphone or volunteers also go door-to-door to vulnerable groups such as senior citizens, persons with disabilities and other vulnerable groups.



### **Response Testing - Mock Flood Exercises**

- (a) Assisting, WMC with the implementation of Mock flood exercises that use the EWS in order to enhance the skills, knowledge and capacity of communities and other key stakeholders to effectively respond to flood events.

### **Identifying EWS sustainability requirements and providing recommendations for achievement**

- (a) Outlining the requirements for sustainability of the EWS and providing recommendations for the achievement of this goal.
- (b) Facilitating knowledge transfer to WMC and community stakeholders on the use and management of the EWS and the relevant data and technological outputs.

## **4. IMPLEMENTATION ARRANGEMENTS AND DURATION OF THE CONSULTANCY**

4.01 WMC's CARTS Project Manager (PM) or his/her designate will have overall responsibility for coordinating the administrative and logistic arrangements for the consultancy and facilitate the work of the Consultant. WMC will introduce the Consultant to project stakeholders, including staff at WMC, representatives from public, private sector and community based organisations, and key stakeholders identified by the Consultant who are sources of information required to complete the activities outlined in at Section 3 of this Terms of Reference (TOR). WMC will also assist with any operational issue(s) which may arise. Background information and documents on the CARTS project will be provided electronically by WMC. Organisation and conduct of the flood EWS stakeholder sharing sessions will be done by the CARTS PM and Community Outreach Officer and WMC's Disaster Preparedness Coordinator. EWS equipment such as sensors to measure water levels at sites in rivers, forecasting and other related equipment required for the establishment of the system will be provided by WMC.

4.02 The Consultant will be required to carry out the duties listed at Section 3 of the TOR. The Consultant will be required to review available literature and previous studies that may provide information that will impact the execution of the consultancy as well as develop a thorough knowledge of the study areas, key stakeholders and the characteristics and impact of the hazards and key issues. The Consultant will work remotely and at WMC's offices as required. The Consultant will provide computing and related equipment, software and models required from the implementation of the assignment. The Consultant will be required to work collaboratively with the staff of the WMC and CARTS project stakeholders.

4.03 The consultancy is to be implemented over a period of six (6) months.

## **5. QUALIFICATIONS AND EXPERIENCE**

5.01 The Consultant must meet the following requirements:

- (a) A degree in Geography, Environmental Sciences, Disaster management or Environmental Engineering or Hydrology or related programme. Post graduate certification in hydrology. Certification in hydrological forecasting, modeling, computing will be assets. A minimum of ten (10) years' experience with the design and installation of EWS is required.
- (b) Technical experience in undertaking the design and implementation of EWS in Jamaica and/or the Caribbean is required.
- (c) Experience with the use of remote sensing techniques or similar methodologies for collecting and analysing data without the instrument being used to collect the data being in direct contact with the object would be an asset.

- (d) Experience with emergency communications systems would be an asset.
- (e) Strong interpersonal, communication and facilitation skills.
- (f) Excellent written and spoken English language skills.

## **6. DELIVERABLES**

6.01 The Consultant will be required to submit the following:

- (a) Draft Work Plan: the Report (maximum ten pages) should include the technical methodology for implementation of an Early Warning System and basic mitigation strategies to include; evacuation route, assembly area and possible shelter as well as and techniques and show the integration of elements of the system. The report should include a Gantt Chart showing timelines and it be submitted to WMC for review and comments seven days after the commencement of the assignment. One hard copy of the report, and one copy in the electronic format, should be submitted to WMC.
- (b) Draft Report on the Recommended Design for the EWS, including the governance arrangements: the report should be submitted to WMC electronically for review and comments.
- (c) Interim Progress Reports on the implementation of the Consultancy: the reports should be a maximum of six pages and submitted monthly. The reports should provide information on the accomplishments, risks and challenges impacting the implementation of the assignment. They should be submitted to WMC in the electronic format for review and comments one week after the end of each month.
- (d) Report on the Stakeholder Participation Meetings: the report should summarise the main points of the presentations on the Site Inspection and/or Progress Reports made at the meetings. It should provide key comments and issues raised at each meeting with the stakeholders, as agreed with WMC and outline how the issues have been or will be addressed. The report should be submitted in the electronic format to WMC seven days after the completion of the stakeholder meetings.
- (e) Community Flood EWS Operations Manual: the draft manual should be submitted in the electronic format to WMC for comments. The final manual should address the comments provided by WMC.
- (f) EWS Mock Flood Exercise Report: the document should address and report on key comments, issues, and observations arising from the exercise, implemented in consultation with WMC. The report should also include a mitigation programme and related strategies to address the issues raised. The report should be submitted in the electronic format to WMC seven (7) days after the completion of the mock exercise.
- (g) Draft Completion Report: the document should address the implementation each component of the Scope of Works at Section 3 of this Terms of Reference and provide information on accomplishments, challenges and how they were addressed, the requirements for sustainability of the EWS and provide recommendations for the maintenance of the system. One copy of the report should be submitted to WMC in the electronic format for WMC's review and comments.
- (h) Final Completion Report: the document which incorporates the comments provided by WMC and the stakeholders on the Draft Completion Report at (g) above. One hard copy of the Final Completion report should be submitted to WMC and one copy in the electronic format 7 days after receiving WMC's comments.

6.02 The electronic copies of the documents and models outlined above at (a) to (h) should be submitted to WMC in Microsoft Word, Adobe PDF, PowerPoint and Excel formats, where applicable and photographs and other data in easily accessible formats.

**FIGURE 1: GEOGRAPHIC AREA - CARTS PROJECT**

