TERMS OF REFERENCE

REGIONAL
(RG-T4359)
TECHNICAL OFFICER – VECTOR BORNE DISEASE EARLY WARNING SYSTEMS

1. BACKGROUND

The Caribbean Public Health Agency (CARPHA), as the lead regional public health agency and an expression of Caribbean Cooperation in Health, is mandated by its Inter-governmental Agreement (IGA) to support its 26 Member States in bolstering national systems and coordinating regional response to public health threats. CARPHA has established programs for pandemic prevention, preparedness and response (PPR) and coordination (Communicable Diseases, Emergency Response, Tourism and Health, Foodborne, Vector-borne, and Field Epidemiology) and serves as the Regional Reference Laboratory. The Agency works closely with regional and international agencies and uses regional mechanisms, surveillance systems, and networks for coordinating its public health response. CARPHA is competent in all three areas of PPR and has a successful track record of same, as demonstrated by its regional COVID-19 response. The Agency is uniquely positioned for successful implementation of PPR capacities in the region, and to leverage its coordinating ability to encourage complementarity.

The Pandemic Fund (PF), established in September 2022, is the first multilateral financing mechanism dedicated to providing multiyear grants to help low- and middle-income countries become better prepared for future pandemics. The PF's first Call for Proposals provides additional financing to strengthen PPR capabilities and address critical gaps in low- and middle-income countries through investments and technical support at the national, regional, and global levels. It is expected to support and reinforce capacity building and implementation of pandemic prevention, preparedness and response (PPR) under the International Health Regulations (IHR) 2005 and other legal frameworks, consistent with the One Health approach. The three high-priority areas are:

- Comprehensive disease surveillance and early warning systems (EWS)
- Laboratory systems
- Human resources and public health and community workforce capacity.

In August 2023, the PF Governing Board announced that CARPHA's regional entity proposal, entitled '*Reducing the Public Health Impact of Pandemics in the Caribbean through Strengthened Integrated Early Warning Surveillance, Laboratory Systems and Workforce Development'* was successfully selected for the first round of financing. CARPHA is the Executing Agency and the IDB is the Implementing Entity.

The Goal of this Project is to Reduce the Public Health Impact of Pandemics in the Caribbean through Prevention, Preparedness, and Response. The Objective is to support CARPHA in reducing the public health impact of pandemics in the Caribbean by strengthening PPR surveillance & EWS, laboratory systems and workforce capacity regionally at CARPHA and at country levels.

The Project comprises the following five components:

- Component 1: Strengthening and Expanding Integrated EWS
- Component 2: Expansion of Laboratory Systems
- Component 3: Workforce Development
- Component 4: Regional Strategic Coordination, Collaboration & Commitment to Pandemic Response
- Component 5: Monitoring, Evaluation, and Project Management

The Consultancy is concerned with Component 1 and seeks an individual to function as the **Technical Officer-Vector Borne Disease Early Warning Systems** in the Project Execution Unit of the Project.

2. OBJECTIVE

The objective of the Consultancy for **the Technical Officer-Vector Borne Disease Early Warning Systems** is to bolster regional capabilities in the early detection and response to Vector Borne Diseases through the establishment of an advanced epidemiological unit which will leverage state-of-the-art technologies and methodologies to integrate data and generate actionable insights.

3. SCOPE OF SERVICES, TASKS AND EXPECTED DELIVERABLES

The **Technical Officer-Vector Borne Disease Early Warning Systems** will be responsible for developing and using a three-step approach to optimizing data use and improving predictive capabilities for Vector Borne Diseases:

Step 1 - Determining data relevance and analysis protocols: Once the data is collected, the next step involves identifying the most relevant components for epidemiological analysis and establishing robust protocols for their examination:

- Data filtering: implementing algorithms and criteria to sift through the collected data, isolating the most pertinent information for VBD monitoring and response.
- Protocol development: creating standardized protocols for data analysis that include statistical methods, machine learning models, and other analytical tools tailored to VBD surveillance.
- Training and capacity building: providing training to epidemiologists, data scientists, and public health officials on the new protocols and analytical techniques to ensure consistency and accuracy in data interpretation.
- Quality assurance: establishing quality control measures to maintain the integrity and reliability of the data and analysis outcomes.

Step 2 - Optimizing real-time data collection and integration: The first step focuses on enhancing the mechanisms for real-time data collection and involves:

- Automated data collection: deploying automated reporting systems in healthcare facilities, laboratories etc. to gather real-time data on disease incidence, vector populations, and environmental conditions.
- Digitalization of data sources: when needed, converting existing manual and analog records into digital formats to ensure comprehensive and seamless data integration.
- Integration: harmonizing new data with current databases and information systems used by CARPHA and regional health authorities to create a unified data repository.
- Interoperability: ensuring that the data systems are interoperable, allowing for smooth data exchange between different platforms and stakeholders, thereby enhancing the overall data ecosystem.

Step 3 - Context-specific prediction and understanding associations: The final step is the development of predictive models and tools to understand the relationship between VBDs and various influencing factors:

- Predictive modelling: using machine learning and advanced statistical methods to create models that predict VBD patterns based on historical data, environmental and climatic factors, and other relevant variables.

- Multi-source data integration: combining data from diverse sources such as climate data, population movement patterns, socioeconomic factors, and healthcare access to enhance the robustness of the predictive models.
- Contextual analysis: conducting in-depth studies to understand how specific local conditions and variables influence Vector Borne Disease transmission and outbreaks.
- Visualization tools: developing user-friendly dashboards and visualization tools to present the predictions and associations in an easily interpretable format for policymakers and health practitioners.

- The main target groups are Health professionals within CARPHA Member States working with early warning systems and Vector Borne Diseases, particularly Surveillance Officers, Environmental Health/ Vector Control Officers, public health practitioners, Entomologists and Health Promotion/Health Education Officer.
    - **Result 1.1** Engage in an initial briefing with the Project Director and other relevant personnel to discuss the scope of work to be undertaken, the approach, and any other issues pertaining to the Project, upon the commencement of the Consultancy.
    - **Result 1.2** Conduct a desk review of existing literature and data related to Vector Borne Disease Early Warning Systems (EWS) in the Caribbean region.
    - **Result 1.3** Prepare and submit for the approval of the Project Director, an Inception Report which includes at minimum:
        - Desk review of existing literature and data related to the topic of the publication.
        - Initial findings and progress with the desk review.
        - The process/methodology for project completion.
        - Detailed project timeline/workplan.
        - Potential risks and strategies to mitigate risks.
    - **Result 1.4** Produce Monthly Interim reports.
    - **Result 1.5** Determining of data relevance and analysis protocols as described in Step 2 above.
    - **Result 1.6** Context-specific predictions and understanding associations as described in Step 3 above.
    - **Result 1.7** Prepare a final report for submission to the Project Director.
- Work with Project Director to ensure the pandemic fund activities are implemented in alignment with what is required by the relevant department leads
- Interact with the CARPHA Vector borne Disease Department and CARPHA Member States in accordance with the Project Operations Manual, including aligning to CARPHA's communication protocols with Member States and other stakeholders
- Other related duties that may be implied in the contract or assigned by Project Director.

4. QUALIFICATIONS AND EXPERIENCE

Academic Qualifications:

- A graduate degree from a recognized university in Mathematics, Statistics, or other similar scientific research-based degree.
- Additional training from a recognized university in computing or a natural science is desirable.

Experience:

The **Technical Officer-Vector Borne Disease Early Warning Systems** will be expected to possess the following:

A minimum of 3 years' work experience in epidemiology or public health or a related field.

Work experience implementing similar activities.

Expert Knowledge and Skills:

- Geographic Information Systems (GIS)
- Forecasting and nowcasting approaches
- Excellent interpersonal skills
- Excellent organization skills
- Attention to detail
- Proficiency in the scientific method and study design
- Proficiency in the application of biostatistics to solving public health problems
- Proficiency in use of STATA, SAS or R for statistical data analysis
- Proficiency in the use of ArcGIS or QGIS or other related GIS software
- In-depth understanding of the public health system in CMS
- In-depth understanding of public health principles

Mandatory Compliance:

- **Eligibility:** as per *Policies for the Selection and Contracting of Consultants Financed by IDB-GN-2350-15 May 2019*: Section I. Clause 1.13 Eligibility. Information on Eligible Countries is at Annex 3.
- **No Conflict of Interest:** as per *Policies for the Selection and Contracting of Consultants Financed by IDB-GN-2350-15 May 2019*: Section I Clause 1.11 Conflict of Interest.
- **Not Sanctioned by the Bank:** IDB's Group List of sanctioned firms and individuals – https://www.iadb.org/en/topics/transparency/integrity-at-the-idb-group/sanctioned-firms-and-individuals%2C1293.html

5. CHARACTERISTICS OF THE CONSULTANCY

- Type of Consultancy: Individual
- Duration: 24 months (first 6 months probationary)
- Place of Work: Caribbean Public Health Agency (CARPHA) Headquarters, Port of Spain, Trinidad and Tobago (in person)
- Working Language: English

6. REPORTING REQUIREMENTS AND TIME SCHEDULE FOR DELIVERABLES

All payments will be made upon submission and acceptance of monthly invoices and timesheets by the Project Director (CARPHA Technical Lead) or designate.

7. CLIENT INPUT AND COUNTERPART PERSONNEL

CARPHA will provide the **Technical Officer-Vector Borne Disease Early Warning Systems** with the applicable laws and policies, Operations Manual, relevant project documentation, office space and relevant computer equipment.

8. COORDINATION

The **Technical Officer-Vector Borne Disease Early Warning Systems** will report to the Technical Coordinator and the Project Director (CARPHA Technical Lead) or designate. The Project Director will be responsible for the coordination of activities under the contract, for accepting and approving reports on behalf of CARPHA, receiving and approving invoices for payment, and preparing performance evaluation reports.

The **Technical Officer-Vector Borne Disease Early Warning Systems** is expected to collaborate, liaise or meet as required with specialist team members in the PEU, CARPHA's personnel, assigned subject matter experts, executives and stakeholders, and representatives of the IDB.

Annex 1: Evaluation Criteria

Selection Component	Evaluation Criteria	Max Points
1. Academic Qualifications	A graduate degree from a recognized university in Mathematics, Statistics, or other similar scientific research-based degree.	10
	Additional training from a recognized university in computing or a natural science is desirable.	5
2. Required Experience	A minimum of 3 years' work experience in epidemiology or public health or a related field OR implementing similar activities.	15
Expert Knowledge and Skills	Geographic Information Systems (GIS)	10
	Forecasting and nowcasting approaches	10
	Proficiency in the scientific method and study design	10
	Proficiency in the application of biostatistics to solving public health problems	10
	Proficiency in use of STATA, SAS or R for statistical data analysis	10
	Proficiency in the use of ArcGIS or QGIS or other related GIS software	10
	In-depth understanding of the public health system in CMS	5
	In-depth understanding of public health principles	5
Total Points		**100**

Annex 2: Curriculum Vitae format

Name of Consulting Service:	
Name of Individual Consultant:	*[Insert full name]*
Date of Birth:	*[day/month/year]*
[1]Nationality	

Education: *[List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained]*

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_____

Experience Relevant to the Assignment: *[Experience related to the services and tasks to be performed; professional skills according to the assignment requirements, and knowledge of administrative systems and government organization within the country of the Employer, Region or similar. List previous positions relevant to the Assignment in reverse order, provide dates, name of contracting organization, titles of positions held, types of activities performed that best illustrate capability to handle the services/tasks and location of the assignment. Provide contact information of previous Employers who can be contacted for references. past position that is not relevant to the assignment does not need to be included.]*

Period	**Contracting Organization/type of services provided/ Title/Position; Contact Information for References**	**Country**	**Summary of Key Activities Performed relevant to the Assignment**
[e.g., May 2015-present]	*[e.g., Ministry of ……, advisor/consultant to…* *For references: Tel……/e-mail……; Mr.*		

[1] See Annex 3 of the Terms of Reference Outline for list of member countries of the Bank

	Bbbbbb, Deputy Minister]		

Membership in Professional Associations and Publications:

Language Skills (indicate only languages in which you can work):

Consultant contact information: *[e-mail……., Telephone No……]*

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, experience, skills and knowledge and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Employer, and/or sanctions by the Bank.

Name of Consultant Signature Date*[day/month/year]*

	Yes	No
(i) This CV correctly describes my qualifications, experience, skills and knowledge		
(ii) I am employed by the Executing or the Implementing Agency		

(iii) I was part of the team who wrote the Terms of Reference for this consulting services assignment		
(iv) I am currently debarred by a multilateral development bank (If yes, identify who)		

I confirm that I will be available to carry out the assignment for which my CV is submitted in accordance with the scope of services and Consultant's reporting obligations set out in the Terms of Reference.

Annex 3: Eligible Countries

This section lists the Bank's member countries, as well as the criteria to determine the nationality of consultants.

"Eligible countries are: Argentina, Austria, Bahamas, Barbados, Belgium, Belize, Bolivia, Brazil, Canada, Colombia, Costa Rica, Chile, Croatia, Denmark, Dominican Republic, Ecuador, El Salvador, Finland, France, Germany, Guatemala, Guyana, Haiti, Honduras, Israel, Italy, Jamaica, Japan, Mexico, Netherlands, Nicaragua, Norway, Panama, Paraguay, People's Republic of China, Peru, Portugal, Republic of Korea, Slovenia, Spain, Suriname, Sweden, Switzerland, Trinidad & Tobago, United Kingdom, and United States, Uruguay and Venezuela.

Eligible Territories are:

a) Guadeloupe, French Guiana, Martinique, Reunion – as Departments of France
b) U.S. Virgin Islands, Puerto Rico, Guam – as Territories of the USA
c) Aruba – as a constituent country of the Kingdom of the Netherlands; and Bonaire, Curacao, Saint Marten, Saba, St Eustatius – as Departments of the Kingdom of the Netherlands
d) Hong Kong – as a Special Administrative Region of the People's Republic of China".

<u>Nationality and origin of Goods and Services Criteria</u>

The policy provisions make it necessary to establish criteria to determine a) the nationality of the firms and individuals eligible to bid or participate in a bank-financed contract and b) the country of origin of goods and services. For these determinations, the following criteria shall be used:

Nationality:

An individual is considered to be a national of a member country of the Bank if he or she meets either of the following requirements:

i. is a citizen of a member country; or

ii has established his/her domicile in a member country as a "bona fide" resident and is legally entitled.