Terms of Reference

*Consultancy to develop a detailed design for a Regional Integrated Public Health Surveillance System in CARPHA and its Member States*

1. **Background:**

The Caribbean Public Health Agency (CARPHA) is a regional Institution of the Caribbean Community (CARICOM), was established on July 4, 2011, through the ratification of an Inter-Governmental Agreement by CARICOM Heads of Government. CARPHA subsumed the functions of the previous five Regional Health Institutions – The Caribbean Epidemiology Centre (CAREC), the Caribbean Food and Nutrition Institute (CFHI), the Caribbean Health Research Council (CHRC), the Caribbean Regional Drug Testing Laboratory (CRDTL) and the Caribbean Environmental Health Institute (CEHI). The Agency began operation in January 2013 with Headquarters in Port of Spain, Trinidad and offices in Saint Lucia and Jamaica. CARPHA serves 26 Member States in the Caribbean Region.

The Agency is mandated to, *inter alia*, provide strategic direction in analysing, defining and responding to public health priorities of the region, including public health emergencies of international concern, and played a key coordinating role in the regional public health response to the COVID-19 pandemic.

## The current situation in the sector

CARPHA houses and holds responsibility for fifteen (15) regional public health surveillance systems on behalf of its Member States - Syndromic Surveillance, Communicable Disease Surveillance, SARI/ARI Surveillance, HIV / STI Surveillance, Influenza Surveillance, Mortality and Morbidity Surveillance, Population Surveillance, Vector-Borne Surveillance, Food-Borne Surveillance, Travellers’ Health Surveillance, Environmental Surveillance, Non-Communicable Disease Surveillance, Food and Nutrition Surveillance, Cancer Surveillance and Pharmacovigilance (Post-Market) Surveillance.

There have been several initiatives at CARPHA and in CMS to develop and improve the various regional public health surveillance systems, and to strengthen the surveillance capacity of regional human resources for health. While CMS have made strides to improve surveillance and response to these public health conditions, the information needed for appropriate holistic response is still often fragmented, incomplete, and difficult to consolidate across the data sources.

The COVID-19 pandemic experience has confirmed the regional priority for strengthened real-time public health surveillance systems through, inter alia, the development and implementation of an electronic indicator- and event-based public health surveillance platform to facilitate the detection and linking of potential events of concern for public health, animal health, and health security, at national and regional levels. A regional web-based, real-time public health surveillance system is expected to enhance risk assessment, monitoring, prevention and control of established infectious diseases and new and emerging public health threats.

CARPHA developed a Regional Integrated Surveillance Strategy, which was endorsed by Member States in 2021, to chart the way to providing accurate, timely, standardized and relevant information to inform decision-making and action taken by CARPHA Member States and other stakeholders. The proposed regional integrated surveillance system will be managed by CARPHA on high-level IT infrastructure, and will seek to increase inter-operability of systems, facilitate secure and low-cost access by CMS to their surveillance data, provide off-site back-up of this critical data, expand the data analysis and synthesis system functions, and produce integrated consolidated reports for effective public health surveillance in the region. It is envisaged that, along with the improvement in the standards and quality of services delivered by CARPHA, the integrated approach will emphasise the increased focus on reaching vulnerable populations and inequality. The integrated system is expected to strengthen institutional governance and facilitate improved decision-making for public health.

1. **Objective(s) of the Services:**

*The overall objective of the project of which this contract will be a part is as follows:*

To improve regional digital surveillance to support detection, preparedness and response to public health threats and emergencies in CARPHA and CARPHA Member States.

*The specific objective of this contract is as follows:*

To develop a detailed design of a regional Integrated Public Health Surveillance System, including a data framework, data security terms, and technical requirements for its implementation in CARPHA and its Member States.

1. **Scope of Services, Tasks (Components) and Expected Deliverables:**

The Consultant is expected to carry out the following activities, and produce the following deliverables outlined below:

***3a. Result 1: Inception Report, including a detailed Workplan, developed and submitted for approval of the Project Manager.***

1. **Inception Meeting**: Engage in a kick-off meeting with the designated Project Manager and other relevant stakeholders within the Contracting Authority to discuss the scope of the work to be undertaken, the methodology, approach and any other issues pertaining to the Project upon the commencement of the Consultancy.
2. **Initial Desk Review**: Conduct an initial desk review of key information and documentation relevant to the consultancy. This may include the Regional Integrated Surveillance Strategy, the Regional Public Health Surveillance Manuals, documentation on current regional public health surveillance datasets, and other relevant documentation and information from CARPHA and other sources. Existing frameworks for integrated public health surveillance data and other relevant external information should be well researched.
3. **Define the purpose and scope of the regional Integrated Public Health Surveillance System to be designed through this consultancy**: In consultation with the CARPHA Team, identify the specific existing and proposed public health surveillance datasets that the framework will address, and the key stakeholders who will use the framework. The list of contents of the framework to be developed should be finalised, and may include: Data Collection, Data Processing, Data Analysis, Data Storage and Management, Data Sharing and Dissemination, Ethics and Privacy and Collaboration and Partnership. The scope of work for the data security terms and technical requirements should also be defined.
4. **Develop a detailed workplan to address the scope of work of the consultancy**: The workplan should provide a planned schedule of activities, deliverables and reports. The following key deliverables should be included: the development of a schematic of datasets document; the definition of data points/elements to be included in the system; the development of standards for datasets; the development of a data governance structure; the development of data security terms and protocols; and drafting of data sharing agreements. The conduct of a needs assessment should also be included, as outlined below.
5. **Design a plan to conduct a needs assessment**: In consultation with the CARPHA Team, develop a detailed plan to conduct a needs assessment to identify the specific requirements and priorities of the stakeholders who will use the Regional Integrated Public Health Surveillance System, including any barriers or areas where improvements could be made in existing regional public health surveillance systems, such as data collection, management, reporting, and use, or enabling factors such as data governance and coordination among stakeholders, as additional data needs for new/emerging infections and disease datasets. Specific attention shall be paid to the development/finalisation of datasets for the surveillance of COVID-19 and emerging infections, with Senaite lab data as the base. This will involve (but is not limited to) gathering information on the data needs, data quality, and data accessibility requirements of public health actors such as Chief Medical Officers of Health, national epidemiologists, national surveillance teams, national laboratory directors, and other relevant policymakers, researchers and practitioners in CARHA Member States and its partner agencies/networks. Additional desk research will also be required.
6. **Submission of Inception Report**: Prepare and submit for the approval of the Project Manager, an Inception Report that presents the outputs of the above tasks and as defined in accordance with the reporting requirements in Section 5 of these Terms of Reference.

***3b. Result 2: Interim Progress Report 1 developed and submitted for approval of the Project Manager.***

1. **Finalise the needs assessment plan**: Based on the feedback of the Project Manager, finalise the needs assessment plan, including methodology, tools and analysis plan. This may require additional literature review, consultation with the Project Manager and key stakeholders, communications and logistical planning, risk management, etc.
2. **Conduct the needs assessment**: Implement the agreed needs assessment plan using the final approved methodologies and tools, with the support of the Project Manager to access key documents, informants and other sources of information. This stage may include desk work and field work. The Consultant shall routinely communicate with the Project Manager on key points of summarised progress (including emerging issues that may require additional data collection) as well as challenges and any requests for support.
3. **Draft a schematic of the datasets to be included in the system**: Review the regional public health surveillance datasets at CARPHA, together with the proposed datasets (COVID-19 and emerging infections). Create a list of variables that are included in each dataset, along with their data structures (e.g., numerical, categorical, text, etc.) and other information such as data sources, types, etc. Identify similarities and differences between the datasets. Review, identify and document potential linkages between the datasets. Create a schematic using tools such as diagrams, flowcharts, or network graphs to represent the datasets and their relationships. The schematic should be easy to read and understand and should include relevant information such as dataset names, variable names, and the type of relationship between the datasets.
4. **Submission of Interim Report 1**: Prepare and submit for the approval of the Project Manager, an Interim Progress Report 1 that presents the outputs of the above tasks and as defined in accordance with the reporting requirements in Section 5 of these Terms of Reference.

***3c. Result 3: Interim Progress Report 2 developed and submitted for approval of the Project Manager.***

1. **Completion of Needs Assessment:** Complete the needs assessment exercise as per requirements and in consultation with the Project Manager.
2. **Needs Assessment Analysis**: Analyse the data collected through the needs assessment as per agreed analysis plan. Prioritize any identified gaps based on their potential impacts on the surveillance system, such as the risk to public health or the ability to respond effectively to emerging infections. Identify limitations of the data, and recommendations to address the needs, gaps and challenges identified.
3. **Finalise schematic of datasets**: Based on feedback from the Project Manager and the results of the needs assessment, finalise the schematic of the datasets to be included in the system.
4. **Data Governance**: Based on the results of the needs assessment and consultation with the CARPHA team, develop the data governance structure for the surveillance system, (i.e. the management framework that outlines the roles, responsibilities, policies, and procedures for managing the data), including who will be responsible for managing the data and how it will be secured.
5. **Data Standards**: Based on the results of the needs assessment and consultation with the CARPHA team, develop data standards for collecting, processing, and reporting data in the surveillance system, including data definitions, coding schemes, and formatting requirements.
6. **Data Security**: Based on the results of the needs assessment and consultation with the CARPHA team, develop data security protocols for the surveillance system, including access controls, data encryption, and data backup procedures. Data security is critical for protecting sensitive data and ensuring that authorized users only access the data.
7. **Submission of Interim Report 2**: Prepare and submit for the approval of the Project Manager, an Interim Report (2) that presents the outputs of the above tasks and as defined in accordance with the reporting requirements in Section 5 of these Terms of Reference.

***3d. Result 4****:* ***Draft Final Report developed and submitted in accordance with the reporting requirements in Section 5 of these Terms of Reference***

1. **Develop a data framework**: Based on the agreed purpose, scope, needs assessment and review of existing frameworks, develop the framework for the regional Integrated Public Health Surveillance System.
2. **Review the framework with stakeholders**: In collaboration with the Project Manager, present the data framework to a small group of stakeholders, with the purpose of identifying any issues or areas for improvement. This can help refine the framework before it is rolled out to a wider audience.
3. **Develop guidance materials**: In addition to the framework, guidance materials should be developed to help CARPHA and external users understand how to apply the framework in practice. This may include user manuals, training materials, and other resources.
4. **Data Sharing**: Based on the needs assessment, develop draft data sharing terms and conditions for sharing data, including data use restrictions and data security requirements. This will facilitate data sharing with other public health agencies, healthcare providers, or researchers, in consultation with CARPHA Member States.
5. **Technical requirements**: Based on the needs assessment, identify the technical requirements to successfully implement the recommendations, and outputs of this consultancy (data framework, data governance, data standards, data security and data sharing).
6. **Submission of the Draft Final Report**: Prepare and submit for the approval of the Project Manager, a Draft Final Report that presents the outputs of the above tasks and as defined in accordance with the reporting requirements in Section 5 of these Terms of Reference

***3e. Result 5: Final Report submitted and approved in accordance with the reporting requirements in section 5 of these Terms of Reference***

1. Review and incorporate the compiled feedback from the Project Manager into the Final Report, in accordance with the reporting requirements in section 7.1 of these Terms of Reference.
2. **Team Composition & Qualification Requirements for the Key Experts (and any other requirements which will be used for evaluating the Key Experts under Sub‑Clause 21.1 of the Data Sheet)**

### *Key experts*

All experts who have a crucial role in implementing the contract are referred to as key experts. Key experts are defined, and they must submit CVs and signed Statements of Exclusivity and Availability. The profiles of the key experts for this contract are as follows.

*Key expert 1: Project Lead- Project Manager*

*Qualifications and skills*

* + - University degree in ICT, Computer Science, Engineering, MIS, Management or a related area;
    - Proven ability to manage a team of international and local specialists is an advantage;
    - Fluency in both written and spoken English is essential.

*General Professional Experience*

* At least five (5) years of professional experience in management positions would be an asset;
* At least five (5) years of experience in process/application development experience;
* Requisite IT skills, including at least Word, Excel and PowerPoint;
* Understanding of project and software development lifecycle methodologies;
* Experience in designing and implementing public health programs and policies.

*Specific Professional Experience*

* + - * Experience in public health and information technology with a strong understanding of the fundamentals of global health informatics;
      * Experience as the team leader in at least one project concerning organisational change/implementation of Information systems across public sector institutions would be an asset;
      * Experience in the implementation of large IT projects and/or design of enterprise- architecture or service architecture would be an advantage;
      * Experience in Systems Analysis and Design or related field; and
      * Proven experience in conducting analysis and process definition using structured techniques and diagramming for current standards, interoperability frameworks, and ICT management would be an asset.

*Key expert 2: Application Developer/ Information Technology*

*Qualifications and skills*

* University degree in Computer Science, Application Development, Informatics / Information Technology, Engineering, Business or related fields
* Fluency in both written and spoken English is essential.

*General Professional Experience*

* At least three (3) years of professional experience in the field of ICT;
* Minimum of two (2) years of working experience in Enterprise Architecture and technical IT application design would be an asset; and
* Experience as an IT Expert in projects in the Caribbean Member States and/or African, Pacific or EU Countries will be an advantage.

*Specific Professional Experience*

* Working experience in the use of international IT standards; Knowledgeable about current mainstream technologies, and the ability to quickly comprehend the functions and capabilities of new evolving technologies, including cloud computing and open source, would be an asset;
* Working experience in at least one project on computerising the public health environment is an advantage.

*IT Skills:*

1. Knowledge of two or more programming languages, preferably in-demand ones such as SQL, Java, JavaScript, C# or C++, Python, ZODB object database, PHP, Ruby on Rails, or iOS.

### *Other experts, support staff & backstopping*

CVs for experts other than the key experts should not be submitted in the tender, but the tenderer will have to demonstrate in their offer that they have access to experts with the required profiles. The Contractor shall select and hire other experts as required according to the needs. The selection procedures used by the Contractor to select these other experts shall be transparent and shall be based on pre-defined criteria, including professional qualifications, language skills and work experience.

1. **Reporting Requirements and Time Schedule for Deliverables:**
2. The intended start date is August 2023 for a period of Four (4) months from this date.
3. The assignment will be carried out under the direct supervision of the Head, Health Information, Communicable Diseases & Emergency Response (HCE) and IT Manager at CARPHA, who will be responsible for approving all Reports of the Firm.
4. The Contractor will submit the following reports in English in electronic format in two versions (one in Microsoft Word (.docx) format and one in .PDF format) in an **electronic format** to the Project Managers:

| **Table 1 Reporting Schedule and Deliverables** | | |
| --- | --- | --- |
| **Name of Report** | **Deliverable** | **Timeline** |
| Inception Report | 1. Report will be a maximum of 12 pages (main text excluding annexes) 2. Report shall contain a description of initial findings, progress in collecting data, and any difficulties encountered or expected 3. A key annex to the Report will include a detailed work plan with the timelines for the specific project activities and the methodology for the activities. | Three (3) weeks from the start of the contract. |
| Interim Report 1 | 1. Report will be a maximum of 12 pages (main text excluding annexes) 2. Report shall contain a description of progress made with the execution of the agreed workplan, challenges encountered, and action (to be /) taken to address challenges, as well as a summary of the data/information gathered and preliminary findings. 3. Technical deliverables outlined in the scope of work shall be sufficiently detailed and included as Annexes 4. The detailed analyses underpinning the recommendations shall also be presented in annexes to the main report. | One (1) Month after the Inception report |
| Interim Report 2 | 1. Report will be a maximum of 12 pages (main text excluding annexes) 2. Report shall contain a description of progress made with the execution of the agreed workplan, challenges encountered, and action (to be /) taken to address challenges, as well as a summary of the data/information gathered and preliminary findings. 3. Technical deliverables outlined in the scope of work shall be sufficiently detailed and included as Annexes 4. The detailed analyses underpinning the recommendations shall also be presented in annexes to the main report. | One (1) Month after the Interim report 1 |
| Draft  Final Report | 1. The Report will be a maximum of 25 pages 2. Report shall contain a full description of the execution of the scope of work, challenges encountered, and action taken to address challenges. 3. Technical deliverables outlined in the scope of work shall be sufficiently detailed and included as Annexes 4. The detailed analyses underpinning the recommendations shall also be presented in annexes to the main report. | Two (2) weeks before the end of the period of implementation |
| Final Report | 1. Same specifications as the Draft Final Report. 2. Incorporate / address the Client’s comments on the Draft Final Report, including Appendixes. | Within seven (7) days of receipt of comments on the Draft Final Report |

1. **Client’s Input:**
2. *Services, facilities and property to be made available to the Consultant by the Client:*

The consultancy will be virtual. Office accommodation for each expert working on the contract is to be provided by the Consultant.

The Consultant shall ensure that experts are adequately supported and equipped. In particular, it must ensure that there is sufficient administrative, secretarial and interpreting provision to enable experts to concentrate on their primary responsibilities.

1. *Professional and support counterpart personnel to be assigned by the Client to the Consultant’s team:*

This Technical Assistance (TA) contract will be managed by CARPHA. The day-to-day management and supervision of the project will be carried out by the Head, Health Information, Communicable Diseases & Emergency Response (HCE) and IT Manager, who will be directly responsible for ensuring the achievement of the objectives identified under the Project.

In addition, the project team will be supported by representatives from Technical departments under the Surveillance, Disease Prevention and Control Division and the Project Coordinating Unit (PCU) for:

* Provision of strategic guidance;
* Assessment of progress of work;
* Review of the Consultant’s Interim Reports;
* Identification and resolution of critical points or bottlenecks for project implementation;
* Decision-making regarding timing, cost or project contents;
* Assessment of the performance of the Consultant.

CARPHA will provide the Consultant with access to relevant documents / resources via electronic format or other agreed means to facilitate work as the need arises.