**Appendix 2**

**TERMS OF REFERENCE**

**CONSULTANCY SERVICES FOR BIOSTATISTICS INTERN**

1. **Introduction**

The Caribbean Institute for Meteorology and Hydrology (CIMH is an Institution of the Caribbean Community (CARICOM) and the technical Organ of the Caribbean Meteorological Organization (CMO). The mandate of the CIMH is “to assist in improving and developing the Meteorological and Hydrological Services as well as providing the awareness of the benefits of Meteorology and Hydrology for the economic well-being of the CIMH member states. This is achieved through training, research, investigations, and the provision of related specialized services and advice”.

In achieving its mandate, the CIMH in 1973 established an affiliation with the University of the West Indies in which its primary responsibility is the delivery of the B.Sc. programme in Meteorology in the Faculty of Pure and Applied Sciences. The CIMH is recognized regionally and globally as:

* The World Meteorological Organization (WMO) Regional Training Centre for the Caribbean;
* A centre for applied research and development in meteorology, hydrology/water resources, climatology and related areas including disaster risk reduction and impacts forecasting;
* The WMO Regional Instrument Centre for the Caribbean;
* A WMO Centre of Excellence for Training in Satellite Meteorology;
* The WMO Regional Climate Centre (RCC) for the Caribbean;
* The Caribbean Centre for Climate and Environmental Simulations;
* The Climate Data Archive for CMO Member States;
* The Pan American Centre for the WMO Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS);

The CIMH has strong collaborations with other Regional Institutions, national organizations in CMO Member States and the international community. Since 2006, the CIMH has been providing internships opportunities to graduate and undergraduate students registered at regional and international universities. While the majority of internships have supported research and development in Earth and Atmospheric Sciences, in recent years the areas of focus have been expanded to include Social Sciences, Computer Science and Information Technology. Internships commonly range from 3-months to 1-year with the potential for an increase to two years. Many interns have converted their projects to publications and conference presentations as well as M.Sc. and PhD graduate research programmes.

Recognising the importance of building critical mass in weather, climate and hydro-meteorological professionals to the region's resilience to climate change, increasing climate variability and extreme weather, the CIMH initiated a young professionals programme in 2006 focused on students in the B.Sc. Programme in Meteorology at the University of the West Indies Cave Hill Campus. The programme subsequently expanded to include individuals from different disciplines including civil engineering, water resources management, climate science and remote sensing - all closely linked to the core programmes of the CIMH. In recent years, the programme has been further expanded to include individuals from the social sciences in recognition of the fact that engaging persons in these disciplines is critical to building professional relationships that are essential for understanding and better defining sectoral needs for applications of weather, climate and hydro-meteorological information. Currently, the programme caters to young professionals in undergraduate and graduate programmes.

Attachments of 1–2 years are usually undertaken by recent graduates seeking to extend their skillsets before either seeking employment or entering graduate programmes. These attachments focus on building prototypes of either new products or services. A good example is the implementation of the Wavewatch-3 software to build an operational high-resolution marine significant wave height forecasting platform for the Caribbean Sea and adjacent oceans (http://ww3.cimh.edu.bb). The young professionals support their supervisors by conducting a significant portion of the basic work required to complete and operationalise the project. Several young professionals in recent years have supported investigations into boundary problems related to climate and (a) tourism, (b) energy and (c) agriculture.

1. **Biostatistics Intern Position**

**2.1. Background**

Since January 2020, Caribbean states have been anticipating the arrival of COVID-19. Caribbean Public Health Agency (CARPHA), through its health mandate is expected to play a significant role leading the region’s response. Given the novelty of the virus globally, the health and scientific communities are in a rush to try to get a better understanding of how the virus spreads in order to develop strategies to limit the rate at which it propagates. Among the ideas being advanced is that there may be a set of climate parameters that may slow its spread leading to ideas that outbreaks of the virus may be seasonal with the primary season for outbreaks being the winter months. In addition, some researchers have suggested that air quality may also impact infection rates. However, due to paucity of biostatistical data related to the virus, many of the climate sensitivities advanced cannot be robustly examined.

The CARPHA under the auspicies of The Caribbean Institute for Meteorology and Hydrology (CIMH) will partner for the collection, organization, assessment and storage of the region’s biostatistical data related to the virus. This data is critical, not only to the region’s response to the virus but also supports global research related to the virus especially its propagation in the tropics and on Small Island Developing States (SIDS). The proposal augments CARPHA’s already stretched capacity to collect, organize, assess and store in real-time the region’s biostatistical data related to COVID-19 through the hiring of a biostatistician young professional. The data to be collected and managed by the consultant will support real-time decision-making by CARPHA but may subsequently be used among other things to explore any climate sensitivities that impact the spread of COVID-19. For example, the data may also be used to better understand how viruses propagate through tropical SIDS and whether there is any uniqueness relative to large continental land masses and mega-cities. The data will also be made available to the global research community in near real-time. It is expected that the intern will build significant competence in the application of biostatistics to real world public health challenges that will shape his/her future career choices.

**2.2. Objective**

The objective of the proposed consultancy is to provide CARPHA with technical assistance to address its current efforts collecting, organizing, analyzing and reporting the region’s biostatistical information related to the COVID-19 pandemic. The outputs of the consultancy will help provide the basis for examining the climate sensitivity of the COVID-19 pandemic and whether a basis can be established for developing a climate early warning service for COVID-19.

**2.3. Scope of Work**

The specific duties and responsibilities of the intern will include:

* Provides assistance on statistical methods and data processing for surveillance, research and assessment activities.
* Compiles, validates and analyses, data related to health statistics, surveillance data and research.
* Supports the preparation of relevant surveillance reports for CARPHA member states and selected stakeholders.
* Provides advice and assistance to member states for the development and strengthening of disease surveillance and health information systems.
* Supports the timely and accurate production of a range of external and internal information outputs, both regular and ad hoc; Assists in collaborations with CARPHA ITS and Communications to ensure timely and appropriate dissemination of information products.
* Supports the identification, development, adaptation and implementation of innovative new technologies and/or processes to support data capture, data management to improve the quality and timeliness of the data collected and reported by CMS.
* Participate in the development and preparation of regular updates, administrative and technical reports, conference abstracts, presentations, press releases and other relevant materials including communication tools such as situation reports, briefing notes and on-line resources to share and communicate with a range of internal and external shareholders.
* Contributes to the internal reporting requirements as part of the organizational planning process.
* Perform other duties as may be assigned or instructed, including providing support to other areas of work and departments or teams as required.
1. **Qualifications**
* A Bachelor’s degree in Statistics, Demography or a related field
* Award of a previous internship focusing on analyses, data analysis and report generation.
* Knowledge and experience of statistical software for eg. STATA, SPSS, other epidemiological software will be considered desirable such as EPI INFO & GoData
* Knowledge and experience in database management and the use of MS Excel.

Given the regional and interdisciplinary nature of CIMH’s work, the successful intern should also possess:

**Technical Expertise:**

* In-depth technical knowledge of laboratory systems, procedures and practices.
* Broad knowledge of microbiology and public health.
* Broad knowledge of safety principles and practices, including biosafety.
* Ability to organize and prioritize work.
* Good interpersonal, oral and written communication skills.
* Analytical and systems-thinking skills.
* Computer literacy.
* Sensitivity to quality related to laboratory diagnosis.
* Ability to develop easy-to-follow practical guides to laboratory testing and safety.
* Ability to evaluate and demonstrate practical on-the-bench laboratory diagnostic tests.
1. **Duration**

The assignment is for six (6) months. While the internship will be with the CIMH the intern will be based at the CARPHA Headquarters, Trinidad. CARPHA retains primary supervision of the intern.

1. **Reporting**

The successful candidate will be required to submit monthly progress reports and a final report within 1 week following the completion of the assignment detailing the activities performed under the internship.