



An initiative of the African, Caribbean and Pacific Group,
funded by the European Union, and implemented by:



CARIBBEAN INSTITUTE FOR METEOROLOGY AND HYDROLOGY

EXPANDED WEATHER AND CLIMATE FORECASTING AND INNOVATIVE PRODUCT AND SERVICE DEVELOPMENT AND DELIVERY IN THE CARIBBEAN PROJECT

CONSULTANCY SERVICES FOR BUILDING THE CAPACITY OF YOUNG PROFESSIONALS IN CLIMATOLOGY, METEOROLOGY, HYDRO-METEOROLOGY AND RELATED FIELDS

REQUEST FOR EXPRESSIONS OF INTEREST

The *Caribbean Institute for Meteorology and Hydrology (CIMH)* has received financing from the Caribbean Development Bank (CDB) in an amount equivalent to *EUR773,025* towards the cost of Expanded Weather and Climate Forecasting and Innovative Product and Service Development and Delivery in the Caribbean 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 by CDB will be made only at the request of *the CIMH* and upon approval by CDB, and will be subject in all respects to the terms and conditions of the Financing Agreement. The Financing Agreement prohibits 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 *the CIMH* shall derive any rights from the Financing Agreement or have any claim to the proceeds of the Financing.

The CIMH, the Implementing Agency, now wishes to procure a young Caribbean professional who will support research and development activities of CIMH.

The objective of the attachment is to continue the process of developing the next generation of regional professionals specialising in climatology, meteorology, hydrology and related disciplines through attachment and mentorship programmes focused on developing new innovative technologies and methodologies that address regional and global objectives. The duration is for a period of one (1) year attachment.

The CIMH now invites interested eligible individual young professionals to submit Expressions of Interest inclusive of a letter of motivation indicating qualifications and experience for the Renewable Energy Intern position.

Consultants (young professionals) shall be eligible to participate if:

1. The persons are citizens or *bona fide* residents of an eligible country; and
2. In all cases, the consultant 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 outlined in Appendix 1 below.

The attention of interested Consultants 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.

The Terms of Reference for the vacancy assignment has been provided as Appendix 2. In the assessment of submissions, consideration will be given to qualifications and experience on similar assignments. All information must be submitted in English. Further information may be obtained from the first email address below between 8:00 and 16:00 hours, Monday to Friday.

Submissions in PDF format of the Expressions of Interest must be received at the email address, projects@cimh.edu.bb and copied to procurement@caribank.org, no later than 16:00 AST on Monday, 22nd July, 2019. The email containing each submission should include the name and address of the applicant and shall be clearly marked "Expression of Interest – Consultancy Services for Capacity Development of Young Caribbean Professionals" and the position/vacancy - Renewable Energy Intern.

Following the assessment of submissions, the most technically capable and appropriately experienced applicant will be invited to negotiate a contract to provide the consultancy services. *The CIMH* 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.

1. *Address 1*

Project Officer
Caribbean Institute for Meteorology and Hydrology
Husbands.
St. James BB23006
Barbados
Tel: 1-(246) 425-1362/63
Fax: 1-(246)-424-4733
Email: projects@cimh.edu.bb

2. *Address 2*

Procurement Officer
Procurement Policy Unit
Caribbean Development Bank
P.O. Box 408, Wildey
St. Michael
BARBADOS, W.I.
Tel: + (246) 431-1600
Fax: + (246) 426-7269
Email: procurement@caribank.org

EUROPEAN UNION ELIGIBILITY RULES
AFRICAN CARIBBEAN PACIFIC – EUROPEAN UNION
NATURAL DISASTER RISK MANAGEMENT

PARTICIPATION IN PROCEDURES FOR THE AWARDING OF
PROCUREMENT CONTRACTS OR GRANT CONTRACTS

1. Participation in procedures for the award of procurement contracts financed under the EU Contribution Agreement for the Implementation for the Action entitled: “Africa Caribbean Pacific – European – Caribbean Development Bank (ACP-EU-CDB) Natural Disaster Risk Management in CARIFORUM Countries” (ACP – EU NDRM Resources), is open to international organisations and all natural persons who are nationals of, or legal persons who are established in, an eligible country.

2. Eligible countries¹ are deemed to be:

(a) Caribbean Development Bank member countries:

Anguilla, Antigua and Barbuda, Barbados, Belize, Brazil, British Virgin Islands, Canada, Cayman Islands, China, Columbia, Dominica, Germany, Grenada, Guyana, Haiti, Jamaica, Italy, Mexico, Montserrat, St Kitts and Nevis, Saint Lucia, St Vincent and the Grenadines, Suriname, The Bahamas, Trinidad and Tobago, Turks and Caicos Islands, the United Kingdom and Venezuela.

(b) Members of the “African, Caribbean and Pacific (ACP) Group of States”²:

Africa:

South Africa³, Angola, Benin, Botswana, Burkina Faso, Burundi, Central African Republic, Cameroon, Cape Verde, Chad, Comoros Islands, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Togo, Zambia and Zimbabwe.

¹ Note some countries may be eligible by virtue of more than one category

² Cotonou Partnership Agreement of 23 June 2000 (as amended by the provisional application of Decision No 1/2000 of the ACP-EC Council of Ministers of 27 July 2000, Decision No 1/2000 of the ACP-EC customs cooperation committee of 18 October 2000, Decision No 1/2001 of the ACP-EC customs cooperation committee of 20 April 2001, Decision No 2/2001 of the ACP-EC customs cooperation committee of 20 April 2001, Decision No 3/2001 of the ACP-EC customs cooperation committee of 10 May 2001, Decision No 4/2001 of the ACP-EC customs cooperation committee of 27 June 2001, Decision No 5/2001 of the ACP-EC customs cooperation committee of 7 December 2001, Decision No 2/2002 of the ACP-EC customs cooperation committee of 28 October 2002, Decision No 1/2003 of the ACP-EC Council of Ministers of 16 May 2003, Council Decision (EC) of 19 December 2002, Decision No 1/2004 of the ACP-EC Council of Ministers of 6 May 2004, Decision No 2/2004 of the ACP - EC customs cooperation committee of 30 June 2004 and Decision No 4/2005 of the ACP-EC customs cooperation committee of 13 April 2005).

- ³ Natural and legal South African persons are eligible to participate in contracts financed by the 10th/11th EDF. However, the 10th/11th EDF does not finance contracts in South Africa.

Caribbean:

Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago.

Pacific:

Cook Islands, East Timor, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, the Solomon Islands, Western Samoa, Tonga, Tuvalu, Vanuatu.

Overseas Countries and Territories:

Anguilla, Antarctic, Netherlands Antilles, Aruba, British Indian Ocean Territory, British Virgin Islands, Cayman Islands, Falkland Islands (Malvinas), French Polynesia, French Southern Territories, Greenland, Mayotte, Montserrat, New Caledonia, Pitcairn, Saint Helena, Saint Pierre and Miquelon, South Georgia and South Sandwich Islands, Turks and Caicos, Wallis and Futuna Islands.

- (c) A Member State of the European Union:

Austria, Belgium, Bulgaria, Croatia, Czech republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

An official candidate country of the European Union:

The Former Yugoslav Republic of Macedonia, Turkey, Iceland, Montenegro.

A Member State of the European Economic Area: Iceland, Lichtenstein, Norway.

- (d) All natural persons who are nationals of, or legal persons who are established in, a Least Developed Country as defined by the United Nations:

Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Dem. Rep. Congo, Equatorial Guinea, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Haiti, Kiribati, Lao PDR, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Djibouti, Solomon Islands, Somalia, South Sudan, Sudan, Tanzania, The Gambia, Timor-Leste, Togo, Tuvalu, Uganda, Vanuatu, Yemen, Rep. and Zambia.

- (e) Participation in procedures for the award of procurement contracts or grants financed from the Facility shall be open to all natural persons who are nationals of, or legal persons established in, *any country other than those referred to in paragraph 1, where reciprocal access to external assistance has been established*. Reciprocal access in the Least Developed Countries as defined by the United Nations (UN) shall be automatically granted to the OECD/DAC members: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States.
3. Services under a contract financed from the Facility may be provided by experts of any nationality, without prejudice to the qualitative and financial requirements set out in the Bank's procurement rules.
4. Supplies and materials purchased under a contract financed from the Facility must originate in a State that is eligible under paragraph 1. In this context, the definition of the concept of 'originating products' shall be assessed by reference to the Bank's prevailing procurement guidelines/procedures, and supplies originating in the EU shall include supplies originating in the Overseas Countries and Territories.
5. Whenever the Facility finances an operation implemented through an international organisation, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons who are eligible under paragraphs 1, care being taken to ensure equal treatment of all donors. The same rules apply for supplies and materials.
6. Whenever the Facility finances an operation implemented as part of a regional initiative, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons who are eligible under paragraph 1, and to all natural and legal persons from a country participating in the relevant initiative. The same rules apply for supplies and materials.
7. Whenever the Facility finances an operation co-financed with a third entity, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons eligible under paragraph 1, and to all persons eligible under the rules of the third entity. The same rules shall apply to supplies and materials.

Caveat: The Bank and EU eligibility requirements are subject to change by the Bank and the EU. The applicant is responsible for checking whether there have been any updates on the eligibility requirements, as well as the UN's list of Least Developed Countries.

TERMS OF REFERENCE

CONSULTANCY SERVICES FOR RENEWABLE ENERGY 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.

2. Renewable Energy Intern Position

2.1. Background

The Renewable Energy Intern will support the establishment of up-to-date wind and solar energy resource maps and predict future performance of wind energy systems for Barbados.

The Barbados Government through the Ministry of Energy and Water Resources is involved in a number of solar energy projects. However, there are plans to advance the development of wind projects by identifying and testing sites that may be suitable for wind energy.

Wind energy is location specific and requires long term wind measurements in order to verify the power in the wind energy. Since the power of the wind is related to the cube of the wind speed it is important to secure good accuracy and predictability of the wind speeds over the operations of any wind energy facility.

In the 1980s the wind energy in Barbados was studied based on the approach of carrying out 2-6 weeks wind data collection and correlating it with long term data being collected at the airport in Barbados and CMIH. Studies at the University of the West Indies (UWI) suggest that although there is not much spatial and temporal variability in the solar energy throughout the small area of Barbados there is enough variation to impact the production of solar energy and by extension the selection of sites for solar systems. Before any significant investment, it is important to establish if the wind resource 30 years ago remains similar to that at present day and whether present day characteristics will persist for a further 30 years - the expected life cycle of any significant investment. Hence, it is important to establish whether the data collected 30 years ago can lead to the identification of sites to carry out wind development in 2019.

The Government of Barbados (GOB) recently purchased a portable 10 meter high weather station that is capable of measuring wind speeds, solar insolation, rainfall, barometric pressure etc. In addition, the GOB has several solar projects which have included solar insolation measurements (e.g., gymnasium, Bridgetown, etc). There are also several solar systems that are remotely monitored.

2.2. Objective

To establish and up-to-date wind and solar energy resource maps for Barbados and verify the predicted performance of GOB solar energy projects and predict future performance of wind energy systems at selected sites.

2.3. Scope of Work

The specific duties and responsibilities of the intern will include:

- Review wind energy estimates determined from wind speeds measured by the CMIH in the wind energy resource assessment of Barbados (40 sites). The sites were measured at 10 M for 4-6 days at specific Julian days;
- For the 40 sites carry out daytime measurement using the portable weather station and correlate to the day time value at the airport and CMIH to determine if there is any suggested relationship between the value for the wind measured 30 years ago and that measured for the limited time in 2019.
- Collect data on wind energy at other wind measurement locations including GOB solar energy project locations.
- Acquire the solar insolation data at the solar energy sites in Barbados (e.g., Bridgetown Sewerage Plant, Bowmanston pumping station, Barbados Gymnasium, CMIH etc) and determine the specific power output of the systems as it relates to the performance of the solar systems
- Review the performance of the GOB solar projects that have remote sensing via the internet to determine their specific performance. Report on the performance of these systems on a monthly basis in terms of total KWh of electricity produce and KWh/KWp of installed solar using the existing computer link to their online performance.
- Prepare an interim solar energy resource map for Barbados both in terms of solar intensity and predicted performance of solar systems at various locations in KWh/KWp.

6. Qualifications

Candidates applying for the position should have as a minimum, a BSc degree in Meteorology along with experience and/or training in wind and solar energy is an asset. Persons with degrees in other areas of science and engineering and experience collecting and processing solar and wind data will be considered for the internship.

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

Core Competencies:

- Proven strong academic track record.
- Knowledge, experience and understanding in using wind measuring and weather measuring devices.
- Experience in doing data gathering, research and analysis is essential.
- Experience in collecting data and using online search tools to recover data on the internet is required.
- Strong written and oral communication skills.
- High level of computer literacy (Excel, Word, Python, Matlab and Octave along with core competencies in GIS).
- Previous work experience is advantageous.

- Proven analytical and report writing skills are advantageous.

Behavioral Competencies:

- Highly organized and self-motivated;
- Demonstrated ability to do research;
- Creativity, flexibility and ability to work within deadlines;
- Maturity, initiative, tact and high sense of responsibility;
- Demonstrated ability to work in a team.

7. Duration

The assignment is for 12 months. While the internship will be with the CIMH the intern will split time at the Ministry of Energy and Water Resources where the intern will be part of a team consisting of persons from the Ministry of Energy and Water Resources, Barbados Water Authority, The Barbados National Petroleum Corporation and the Barbados National Oil Company Limited and may also include other GOB agencies with their own solar or wind energy projects.

The Principal of the CIMH retains primary supervision of the intern, however, it is expected that the Chief Energy Conservation Officer in the Energy Conservation and Renewable Energy Unit will contribute significantly to the supervision of the intern.

8. Reporting

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