**DRAFT TERMS OF REFERENCE**

**Strengthening OF RegIONAL QUALITY Infrastructure Programme CARICOM REGIONAL ORGANISATION FOR STANDARDS AND QUALITY**

**TECHNICAL CONSULTANT QUALITY ASSURANCE - MASS METROLOGY EXPERT**

1. **BACKGROUND**

1.01 The CARICOM Single Market and Economy (CSME) was established in 2001 with a primary objective of providing more and better opportunities to produce and sell goods and services, increase competitiveness, provide employment and improved standards of living for the people of the Caribbean Community (CARICOM) [[1]](#footnote-1)/. The CSME is also considered to be a platform on which economies of the Region can be successfully integrated into global trade – especially through plurilateral trade and development agreements such as the CARIFORUM-European Union (EU) Economic Partnership Agreement (EPA).

1.02 Notwithstanding the removal of tariffs or duties on goods of community origin, increased intra-regional trade and access to the CARICOM market (and beyond) is still very much dependent on producers being able to meet non-tariff measures such as Sanitary and Phytosanitary Standards (SPS)[[2]](#footnote-2)/ and Technical Barriers to Trade (TBT)[[3]](#footnote-3)/. These measures include not only substantive regulatory requirements, but also the conformity assessment[[4]](#footnote-4)/ procedures used to determine compliance with these regulations or standards.

1.03 Quality infrastructure (QI) refers to the public and private institutional framework needed to implement standardisation, accreditation and conformity assessment services (including inspection, testing, laboratory, and product certification). A well-functioning QI will not only open doors for producers in the CARICOM countries to the regional and international markets, but it will also help the regional producers to raise the standard of their production processes, thereby enhancing their competitiveness.

1.04 In recognising the need to harmonise its approach to and use of standards and technical regulations, CARICOM established the CARICOM Regional Organisation for Standards and Quality (CROSQ) in 2002 to facilitate the development of a harmonised regional quality infrastructure (RQI). CROSQ is an inter-governmental agency established under the Industrial Protocol of the Revised Treaty of Chaguaramas. This Treaty commits CARICOM countries to adherence to international standards and to the establishment of a regional standards organisation. CROSQ is the successor to the Caribbean Common Market Standards Council created in 1976. In this regard, key functions of CROSQ are to:

1. promote the development of standards and recognition of technical regulations;
2. encourage the recognition of internationally accredited certification systems;
3. facilitate the achievement of international competitiveness of regional goods and services by fostering a culture of quality in regional enterprises; and
4. contribute, through its operations, to the preservation of the environment and conservation of the national resources of the CSME.

1.05 The development of the RQI is driven by the regional quality policy (RQP)[[5]](#footnote-5)/ but operationalised through the internationally recognised QI services in each country. Taking into account the varying capacity at the national level and the priorities, the development of RQI has proceeded along the following pillars:

1. Adaptation of the RQP through the development of national quality policies (NQPs).
2. Strengthening Conformity Assessment.
3. Development and implementation of regional standardisation strategy, with concomitant and complementary national standardisation strategies[[6]](#footnote-6)/.

1.06 Over the last decade, CROSQ has made great strides in the Region through several projects and crucial partnerships with regional and international bodies. One such project was with the African Caribbean and Pacific Group of States and the European Union, Technical Barriers to Trade (ACP-EU TBT) Programme, which focused on development and roll-out of an e-learning programme on metrology and was successfully completed in 2017[[7]](#footnote-7)/. Additionally, CROSQ recently completed across several CARICOM member states namely: Barbados, Jamaica and Trinidad and Tobago, work on the development and implementation of technical regulations and methods of referencing standards.

1.07 Due to the limited customer base and resources in most CARICOM Member States these NSBs are also responsible for ensuring the accuracy of measurements in the country and the traceability of these measurements to the International System of Units. While an international recognised and harmonised metrology system at the national level is a critical component of the RQI, its development can be a challenge to some Member States due to the heavy capital investment and technical assistance that is often required[[8]](#footnote-8)/. Under the 10th EDF-EPA Caribbean Regional Indicative Programme - TBT Programme, CROSQ commenced the development of the regional foundation for arguably the three most basic measurement quantities of mass, volume, and temperature. This was achieved by developing three regional metrology reference laboratories as a sustainable means of ensuring that CARICOM NMIs can have their national standards calibrated at a reasonable cost without having to transport these standards outside the Region. Through the TBT Component of the 11th EDF-EPA Programme, there will be the development of three additional regional metrology reference laboratories, and two new measurement quantities developed towards accreditation at two CARIFORUM NMIs.

**CDB-CROSQ RQI Project**

1.08 In 2018, CDB approved a Grant to CROSQ to strengthen the Regional Quality Infrastructure Programme (CROSQ-CDB RQI). The Grant focused on enhancing national and regional QI across CARICOM through three (3) primary interventions in five (5) Member States, namely: Antigua and Barbuda, Grenada, Guyana, Saint Lucia, and Suriname. To date, three (3) National Quality Policies and requisite implementation roadmaps were developed in Antigua and Barbuda, Grenada, and Suriname, setting the framework in place for an enhanced QI in those member states and by extension, the Region. In addition, a regional quality promotions campaign was executed which stretched across eleven (11) CARICOM Member States; six (6) more than originally planned, promoting the importance of QI through several media platforms and workshops, and designed information materials and animation.

1.09 Equipment and technical assistance were also provided to Saint Lucia Bureau of Standards (SLBS) Metrology Laboratory and Central Laboratory of Suriname (CLS) in support of achieving accreditation to their respective scopes. SLBS Metrology lab is on the brink of achieving accreditation through the Jamaica National Agency for Accreditation (JANAAC) having successfully completed 99% of required activities. Since the SLBS lab focused on calibration, accreditation by JANAAC will allow the regional accreditation body to expand the scope under the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) with respect to ISO/IEC 17025:2017 for calibration laboratories. This intervention facilitated the enhancement of capacity in the Region as it relates to accreditation bodies, in addition to expanding regional capacity of calibration services by SLBS.

1. **OBJECTIVE**

2.01 The objective of this assignment is to provide technical assistance to develop the mass metrology capability of two (Dominica and St. Kitts and Nevis) National Metrology Institutions (NMIs) in the Caribbean Community (CARICOM), through the use of a stepwise methodology, that will align the national measurement infrastructure with the International Bureau of Weights of Measures (BIPM) thereby ensuring the provision of accurate and traceable mass measurements to manufacturers, testing laboratories, exporters and importers. This objective will also serve as a first step towards international recognition through the International Committee of Weights and Measures – Mutual Recognition Agreement (CIPM-MRA) by preparing the laboratories to be ready to submit their quality management systems for approval by the Quality Systems Task Force (QSTF) of the Inter-American Metrology System (SIM).

1. **SCOPE OF WORKS**

3.01 The Consultant will carry out the activities described hereunder and any other activities necessary to accomplish the stated objectives of the consultancy assignment, whether or not a specific activity is cited in these terms of reference. Throughout the assignment, the Consultant will liaise with a Project Team, which will be appointed to lead and monitor the Project. that more specifically, will develop the metrology calibration laboratories towards the pre-assessment stage of meeting the requirements of the ISO/IEC 17025 quality management system (QMS)[[9]](#footnote-9)/.

3.02 The main tasks/activities are described below:

1. Carry out a technical audit/gap analysis of each laboratory including but not limited to an assessment of:
2. The laboratory infrastructure including climatic conditions;
	* + 1. The adequacy of the number and competence of staff;
			2. The quality management system; and
			3. The in-country demand for this service
3. Prepare a technical audit/gap analysis report, with concrete recommendations for closing the observed gaps, and produce an implementation plan.
4. Assist with the procurement of equipment and physical infrastructure preparedness.
5. Assess the training needs of staff in the laboratory based on the gap analysis carried out and formulate an overall training programme.
6. Design and deliver a technical training in mass metrology staff of the laboratory.
7. Design and deliver a training on meeting the requirements of the ISO17025 quality management system standard.
8. In consultation with laboratory technical and managerial staff, create templates and other forms, calculation sheets etc. that comply with the respective standard and are acceptable to the laboratory.
9. Review the preliminary and revised drafts of all documentation submitted by the Quality Manager (e.g. the quality manual, standard operating procedures, work instructions, calculation spreadsheets, forms, and personnel records), provide detailed feedback and approve final documentation.
10. Assess the development of the laboratory after the metrology staff have completed their training.
11. Guide and review the regional mass inter-laboratory comparison involving at least Dominica, St. Kitts and Nevis and one reference laboratory.
12. Review internal audit reports identifying areas for improvement for each laboratory and providing concrete recommendations to address them and assist to address same. This will also include maintenance issues for example calibrating equipment.
13. Review the results of the peer review conducted for the laboratory and prepare an end-of-project report, which includes recommendations on the way forward for the laboratory.

3.03 In conducting the assignment, the Consultant is required to facilitate the participation and engagement of the relevant staff at National Standards Bureau (NMI), including both women and men.

1. **DURATION**

4.01 This assignment is for a total of 70 person-days over a period of 24 calendar months.

1. **DELIVERABLES AND REPORTING REQUIREMENTS**

5.01 The consultant will report to the Project Officer, CROSQ and will be required to submit/deliver the following:

1. Within two weeks of commencing the assignment, an Inception Report containing a detailed work plan and schedule for each laboratory, including equipment requirements and physical infrastructure development requirements.
2. Within eight weeks of commencing the assignment, gap analysis reports and implementation plans for each laboratory, inclusive of equipment procurement and physical infrastructure preparedness to be so guided in implementation by the consultant.
3. Within four weeks of the delivery of the equipment (or before), facilitate a training workshop for at least two participants from each laboratory and submit the training report.
4. Within eight weeks of the delivery of the equipment, copies of templates, calculation spreadsheets and forms complying with respective standard and acceptable to the laboratory and CROSQ.
5. Within 12 months of project implementation, submit an Intermediary Report containing detailed feedback on the progress of each laboratory and technical assistance provided to reinforce learning and training report from attachments, and a schedule of next steps for approval.
6. Within four weeks of receiving the draft QMS documentation from each laboratory, provide detailed feedback on the final draft of the QMS documentation.
7. Within three weeks of receipt of the draft report of the inter-laboratory comparison and internal audit report, provide an analysis of the performance of each laboratory with concrete recommendations to improve the results and assist to implement those recommendations.
8. Within four weeks of the completion of the peer reviews, submit the end-of-project report.
9. **QUALIFICATIONS AND EXPERIENCE**
	1. The consultant should possess the following qualifications and experience:
10. Graduate qualification in Natural Sciences, Applied Sciences, Engineering or any other related field.
11. Ten (10) years’ work experience in a mass laboratory accredited to ISO17025 or NMI with published CMCs in mass metrology.
12. Ten (10) years’ experience implementing quality management systems in a mass laboratory. Experience in laboratory assessment in the CARICOM region or in a developing country would be an asset.
13. Ten (10) years’ experience in facilitating training in implementing the requirements of the ISO17025 quality management system in a metrology environment.
14. Strong interpersonal and communication skills; ability to be tactful and flexible in dealing with personnel at all levels of an organisation.
15. Excellent command of written and spoken English. Knowledge of other regional language would be an asset.
16. **SUPERVISION OF THE CONSULTANT**

7.01 CROSQ will facilitate the work of the consultant and work with the beneficiary countries to make available all studies, reports, and data relevant to the Project. The Project Officer, CROSQ will be assigned to be the liaison between CROSQ, the country and the consultant.

7.02 It is estimated that this consultancy will require 70 person-days per year over a period of 24 calendar months.

1. / <http://caricom.org/caricom-single-market-and-economy>. [↑](#footnote-ref-1)
2. / SPS can be seen as a sub-category of technical regulations in that they may also take the form of regulations or standards, laying down product-related requirements. However, the sub-category of SPS measures is defined according to the purpose of the measure, namely the protection of human or animal health against risks in food or feed; the protection of human, animal or plant health against risks from pests or diseases of plants or animals; and the protection of the territory of a country against other damage from the entry, establishment or spread of pests. This sub-category of technical regulations is often addressed separately in trade agreements. [↑](#footnote-ref-2)
3. / TBT is the term used to refer to technical regulations and standards. These measures lay down substantive requirements relating to product characteristics or their related processes and production methods. They also include labelling requirements applicable to products, processes, and production methods. The difference between technical regulations and standards is that the former are mandatory while the latter are not. [↑](#footnote-ref-3)
4. / Conformity assessment comprises testing, inspection, and certification of products or services. Testing is the determination of a product’s characteristics against the requirements of the standard. Inspection encompasses the examination of a product design, end product, or process, and the determination of its conformity with requirements. Certification is the formal substantiation by a certification body after an evaluation, testing, inspection, or assessment, that a product, service, organisation, or individual meets the requirements of a standard. [↑](#footnote-ref-4)
5. / Approved by the CARICOM Council for Trade and Economic Development (COTED) in November 2017. [↑](#footnote-ref-5)
6. / Standards are used to codify the technical characteristics and market preferences for products and processes, facilitating knowledge absorption and technological change. Standards have proven effective in promoting the adoption of desirable process and product characteristics (reliability, durability, and so on) and providing roadmaps to improve quality. For example, the International Standards Organisation (ISO) 9001 standard provides an organisation with a model to follow for the design, implementation, and assessment of quality management systems. The regional approach to standardisation has been adopted to reduce the extent to which country-specific standards can constrain the realisation of regional and global economies of scale. Harmonisation of standards also improves trade facilitation by reducing compliance costs. [↑](#footnote-ref-6)
7. / Metrology provides reliable measurements as a basis for scientific research, technical development, and production. Metrology is also needed to ensure goods, services and processes comply with quality, environmental, health and safety requirements, as well as meeting consumers’ needs and expectations. [↑](#footnote-ref-7)
8. / Developing an effective QI poses many challenges for CARICOM countries. QI facilities, such as laboratories, are expensive to develop and operate. Not only is the equipment costly, specialised technicians are needed to undertake QI work. It therefore is unsustainable for any country in CARICOM to develop and maintain an entire range of QI services. In this regard, the RQP is based on the best practice approach of the United Nations Industrial Development Organisation (UNIDO) to developing RQI. [↑](#footnote-ref-8)
9. / ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories is the main ISO standard used by testing and calibration laboratories. In most major countries, ISO/IEC 17025 is the standard for which most labs must hold accreditation in order to be deemed technically competent. In many cases, suppliers and regulatory authorities will not accept test or calibration results from a lab that is not accredited. [↑](#footnote-ref-9)