TERMS OF REFERENCE

CONSULTANCY SERVICES: TECHNICAL ASSISTANCE TO THE BAHAMAS BUREAU STANDARDS AND QUALITY METROLOGY LABORATORY AND SERVICES

1. BACKGROUND

1.01 The Bahamas is a heavily tourism-based economy, with financial services contributing the second largest share of economic output. The World Travel and Tourism Council estimates that in 2019, travel and tourism in The Bahamas accounted for a total contribution of 43.3% of the nation's gross domestic product (GDP), while employing approximately 52.2% of the total workforce. The international offshore services sector directly contributes approximately 15% of GDP. The concentration of economic activities in tourism and financial services renders the economy particularly vulnerable to external demand shocks and the impact of natural disasters. The coronavirus (COVID-19) pandemic has reversed growth trends. Preliminary data show that from January to June 2020, The Bahamas received 354,700 stopover visitors, reflecting a 66.8% decline compared with the same period in 2019. Meanwhile, cruise arrivals were also down 52.7% by June 2020 to 1.33 million. Relatedly, available data for March 2020, indicate that the average hotel occupancy rate fell significantly to 41.8% from 86.7% for the same period in 2019.

1.02 The multiplicity of actions taken or earmarked by GOCB in response to the pandemic were condensed in the plan *"A Resilient Bahamas: A Plan for Restoration"*, which was the baseline for the FY 2020/2021 Budget[1/]. The plan focuses on five critical areas:

(a) Enhance Public Health and Safety.
(b) Expand Social Protection.
(c) Sustain Employment.
(d) Strengthen the Domestic Economy.
(e) Accelerate Government Reforms and National Resilience.

1.03 The plan is in congruence with the medium-term (2017–2022) socio-economic policy agenda, which rests on three pillars: (i) Enhancing Fiscal Responsibility; (ii) Fostering Fiscal Sustainability; and (iii) Bolstering Growth and Job Creation. This agenda which is being pursued over the medium term (2017–2022), was presented in the 2017 Manifesto and the Speech from the Throne and elaborated in the 2018/19 budget speech. In pursuit of pillar III, GOCB has prioritised improving the enabling environment for business, developing Micro, Small and Medium Enterprises (MSMEs) and entrepreneurship, and exploiting opportunities offered by the Blue Economy.

1.04 GOCB has recognised that strengthening the domestic economy and facilitating growth in the MSME sector will be contingent on improved trade facilitation as well as the exploitation of the market access afforded by agreements such as the EPA. The key to enhancing the capacity of firms to meet increasingly stringent market access requirements is ensuring the establishment of a robust national quality infrastructure (NQI). According to the CARICOM Regional Organisation for Standards and Quality (CROSQ), NQI is the institutional framework that establishes and implements the practice of standardisation, metrology (measurement), accreditation and conformity assessment services, which includes inspection (quality performance and legal metrology[2/]), testing (trade and medical), calibration (measurement devices) and certification of quality (product, process, and personnel). Standardisation of quality by producers not only improves products and services to meet increasingly demanding customer expectations but also enhances opportunities for expansion into new export markets.

[1/] Our Priorities (bahamasbudget.gov.bs)

[2/] Legal metrology is the application of legal requirements to measurements and measuring instruments.

1.05 The signing of the EPA and the impending accession to the World Trade Organisation (WTO) has opened up global markets, but has also highlighted a number of trading realities, that will affect the potential of Bahamian firms to capitalise. The Bahamas does not have in place the conformity assessment mechanisms to provide assurance to trading partners that the products meet rigorous international requirements. This is especially important with food products, where "farm to fork" traceability and an infrastructure that provides accredited testing and export certification are essential. In terms of imports, the weak conformity assessment capacity also limits the ability of the regulatory agencies to assure the quality of imported goods. Cognizant of the challenges faced by service providers, manufacturers, and exporters when accessing international markets, GOCB has embarked on a programme to develop the NQI to facilitate improved competitiveness for goods and services exports and ensure consumer safety.

Development of The Bahamas NQI

1.06 The BBSQ is a statutory body established under the Standards Act (2006) and the Weights and Measures Act (2006) with reporting relationship to the Ministry of Finance. The BBSQ is governed by a Standards Council delegated to provide a satisfactory level of oversight and also govern the policy direction of the BBSQ. The Standards Council Corporate Governance Manual defines the role of the Council and delineates how the Council carries out its responsibilities. BBSQ became operational in 2016 and is the focal point for the development of The Bahamas NQI. Its primary function is the formulation and/or adoption of standards in addition to offering metrology, inspection, testing and certification services, the latter three being collectively termed conformity assessment. BBSQ also has a training and consulting mandate as well as regulatory responsibility for the operation of a legal metrology and quality-related inspection service that it carries out via market surveillance on non-food products. With technical assistance (TA) from the 10th European Development Fund, BBSQ guided the development and approval of the National Quality Policy (NQP)[3/] in 2018.

1.07 Pursuant to the implementation of the policy, a Metrology Bill has been drafted[4/] and this will replace the Weights and Measures Act (2006). BBSQ has formally commenced its legal metrology service with the verification of non-automatic weighing instruments and fuel dispensers, as part of its mandate to implement the Act, protect consumers and ensure fair trade in the market. The programme is in its early stages but is faced with the challenges of timely calibration of its reference standards (which must be conducted overseas at some cost) and field standards. With over 30 inhabited and geographically dispersed islands, BBSQ faces challenges in reaching remote areas to conduct its verification services and verify instruments that are used in the trading of goods and services.

1.08 To address the challenges articulated above and to meet the calibration and testing demands of the local industry[5/], BBSQ has procured and retrofitted a 40ft container to serve as a mobile metrology laboratory. BBSQ has also commenced recruitment of staff for the laboratory. To further guide the development of a metrology service and inform the operationalisation of the metrology laboratory, CROSQ conducted an assessment in February 2020 and made the following recommendations:

(1) BBSQ should focus on developing its mass calibration service as the highest level of ensuring the accuracy of the volumetric standards used in the petroleum sector. This mass calibration service would also be vital for fulfilling the requests of the pharmaceutical

[3/] The NQP is aligned to the CARICOM Regional Quality Policy (RQP) promoted by CROSQ. The NQP honors the commitments of regional and international trade agreements such as the CSME, EPA and the WTO Technical Barriers to Trade Agreement.

[4/] The draft bill is awaiting ratification by the Cabinet before submission to Parliament.

[5/] A February 2020 private sector consultation led by CROSQ identified testing and calibration demands in the petroleum, pharmaceutical, electricity, and the construction sectors.

sector as well as the calibration of small and micro volumes (e.g., pipettes) in the laboratories throughout The Bahamas (pharmaceutical, medical, and testing).

(2) BBSQ should develop its technical understanding of the verification of electricity meters and potable water meters to serve as the arbitrator for any measurement disputes between the utility provider and consumers. Once this competence is developed, the BBSQ could also provide technical guidance to the utility company on the most suitable measurement devices to be purchased for the local market as well as ensure that the accuracy of the measurement devices purchased are as specified.

(3) Mass calibration should be complemented with testing services such as the verification of hollow concrete blocks and possibly, the verification of reinforcing steel bars, and the verification of concrete compression testing machines.

(4) In relation to the environmental assessment of the container laboratory, CROSQ found that while the laboratory could meet the ambient conditions required for Class E_2 masses, the humidity in the laboratory needed to be reduced and the fluctuations minimised.

(5) BBSQ should establish a quality management system that conforms to the International Standards Organisation (ISO) 17025 standard[6/].

1.09 It is within this context that BBSQ now seeks to further develop the capacity to provide metrology services to meet the demands of industry and to sustain the efficient provision of legal metrology services.

2. OBJECTIVES

2.01 The objective of this consultancy is to provide technical assistance to the BBSQ to:

(a) Assess the demand for calibration services and develop a strategy to guide the expansion of metrology services in The Bahamas.

(b) Establish a competent calibration service to meet identified demands among current and potential users of metrology services.

(c) Develop and implement a quality management system in preparation for accreditation to the ISO/IEC 17025.

3. SCOPE OF THE CONSULTANCY SERVICES

3.01 The Consulting firm will conduct the following but not be limited to**:**

(a) Conduct document review to gain understanding of the context and issues of metrology and calibration infrastructure in The Bahamas and at the BBSQ, including the status of laboratories with respect to meeting accreditation requirements. Prepare and submit an inception report including a workplan and proposed methodology for executing the assignment.

[6/] ISO/ International Electrotechnical Commission (IEC) 17025 enables laboratories to demonstrate that they operate competently and generate valid results, thereby promoting confidence in their work both nationally and around the world.

(b) Prepare a Strategic Plan for the Development of Metrology Services:

(i) Assess the needs and priorities of metrology in terms of infrastructure, measurement standards and equipment adequate to meet basic requirements. Specifically: Develop a comprehensive potential client listing for the BBSQ for calibration services.

(aa) In consultation with BBSQ design and administer a needs assessment questionnaire to potential clients.

(bb) Analyse data and prepare a demand assessment report with recommended scope of services inclusive of fields and range of calibration services to be offered.

(ii) Document the current range of calibration services currently available in The Bahamas (publicly and privately).

(iii) Conduct a review of the institutional (including personnel) and regulatory framework for metrology against regional and international best practice and within the context of the demand assessment.

(iv) Prepare an Interim Report with findings and gaps of the review on institutional, and regulatory framework for metrology in The Bahamas with recommendations to close them. The report should include a training and equipment needs assessment.

(v) Based on the foregoing, draft a metrology strategy and implementation plan for a 10-year horizon.

(c) Establish a competent calibration service:

(i) Conduct a detailed assessment of the Container Laboratory for its adequacy and suitability as a metrology laboratory. The resultant laboratory assessment report should detail recommendations for final improvements on the container laboratory to meet measurement method requirements (e.g., OIML R111). The report should have sufficient details to inform architects/engineers or construction and procurement personnel of performance and specifications for the laboratory building.

(ii) Oversee the procurement and execution of technical services to improve the Container Laboratories, including final signing off.

(iii) Prepare technical specifications for the procurement of specific measurement standards and laboratory equipment in mass and volume.

(iv) Coordinate commissioning of laboratory equipment, training of staff and preparation for the delivery of calibration services.

(v) Assist the BBSQ with identification, recruitment, training and development of staff for the laboratory staff.

(d) Develop and implement a quality management system in preparation for accreditation to the ISO/IEC 17025:

(i) Carry out a technical audit/gap analysis of any existing quality management system (QMS) in place at the BBSQ with respect to meeting the requirements of ISO/IEC 17025.

(ii) Prepare technical audit/gap analysis report, with recommendations for closing observed gaps, and produce an implementation plan (only two measurands - units of measurements - will be considered).

(iii) Assess the training needs of staff in the laboratory based on the gap analysis carried out and formulate an overall training programme.

(iv) Ensure that trainings are gender-balanced and that gender considerations in the composition of teams are included.

(v) Advise on the establishment of an audit team to carry out performance and system internal audits and outline its responsibilities.

(vi) Design and deliver technical training for laboratory technical staff on the application of techniques/standards for ISO/IEC 17025 and on the conduct of internal audits/management reviews. The workshops should be carried out on a 'train-the-trainer' basis and topics should cover the following:

(aa) Managing ISO/IEC 17025 for five (5) senior BBSQ/laboratory technical staff and the Quality Manager.

(bb) Internal Auditing for six (6) BBSQ/laboratory technical staff.

(cc) Procedural Writing for a QMS for ten (10) laboratory technical staff.

(dd) Method Validation for five (5) laboratory technical staff.

(ee) Measurement Uncertainty for eight (8) laboratory technical staff.

(ff) Basic Metrology & Calibration for ten (10) laboratory technical staff.

(gg) Control Measures for ten (10) laboratory technical staff.

(hh) Proficiency Testing/Statistics for five (5) laboratory technical staff.

(ii) Corrective Action and Root Cause Analysis for ten (10) laboratory technical staff.

(vii) In consultation with BBSQ technical and managerial staff, create templates and other forms that conforms to the ISO/IEC 17025 standard and are acceptable to the organisation.

(viii) Review the preliminary and revised drafts of all documentation submitted by the Quality Manager (e.g., the quality manual, standard operating procedures, work instructions and personnel records), provide detailed feedback and approve final documentation.

(ix) Review and provide feedback on each Audit Plan; assess the performance of an adequate sample of audits and the performance of the internal auditors; review each Audit report and provide comments to the audit team.

(x) Develop a proficiency testing plan for each laboratory, schedule proficiency tests and where available, review test results and provide comments on corrective action taken.

(xi) Review the results of the pre-assessment/final independent audit conducted for the laboratory and prepare an end-of-project report, which includes recommendations on the way forward for the laboratory.

3.02 In conducting the assignment, the Consultant is required to facilitate the participation and engagement of all staff at BBSQ, including both women and men.

4. QUALIFICATIONS AND EXPERIENCE

4.01 The firm or team of consultants shall meet the following requirements:

Key Expert 1 (KE1) - Quality Infrastructure Consultant (Team Leader)

Qualifications and Skills

(a) Staff compliment with post-graduate qualification(s) in Engineering, Natural Sciences, Applied Sciences, Business, or associated discipline.

(b) Staff compliment at a supervisory level with at least seven years' experience operating a calibration or testing laboratory with specific capacity to operate according to the requirements of the ISO/IEC 17025 standard.

(c) Ten years' experience in the implementation of quality infrastructure technical assistance projects (Standards and Technical Regulation, Metrology, Accreditation, Conformity Assessment or Quality Promotion) in support of trade and private sector development in support of trade and private sector development in the Caribbean or ACP countries.

(d) Ability to prepare high quality technical reports in the English Language.

(e) Experience in conducting similar projects in Caribbean/CARICOM Member Countries or Small Island Developing States would be an asset.

Key Expert 2 (KE2) - Quality Management Systems Consultant

Qualifications and Skills

(a) Staff compliment with post-graduate qualification(s) Natural Sciences, Applied Sciences, Business, or associated discipline.

(b) Staff compliment with at least five years' experience operating a calibration or testing laboratory with specific capacity to operate according to the requirements of the ISO/IEC 17025 standard. Experience operating a metrology laboratory in the CARICOM Region or in a developing country will be an asset.

(c) Five years' experience in conducting training on ISO/IEC 17025 or similar management system and laboratory competency standard.

(d) Ability to prepare high quality technical reports in the English Language.

(e) Experience in conducting similar assignments in the Caribbean/CARICOM Member Countries or Small Island Developing States would be an asset.

5. DELIVERABLES AND REPORTING REQUIREMENTS

5.01 The consulting firm will report to the Director, BBSQ and will be required to submit/deliver the following:

(a) Within two weeks of commencing the assignment, an Inception Report containing a detailed work plan and schedule.

(b) Within six weeks after commencing the assignment, an Interim Report with findings and gaps of the review on institutional (including a quality management system), laboratory), human, regulatory framework for metrology in The Bahamas and from assessment of the laboratory container with recommendations to close them.

(c) Two months after approval of the Interim Report a Report with the Demand Assessment Result Report with recommended scope of services

(d) Within three months after commencement of the assignment a laboratory assessment report with detail recommendations for final improvements on the container laboratory to meet measurement method requirements (e.g., OIML R111) and job description of staff needed.

(e) Within two months after approval of the Demand Assessment Report, a draft metrology strategy and implementation plan for a 10-year horizon.

(f) Within two months after the approval of the Demand Assessment Report and Scope of services, provide a list of equipment with specification for procurement.

(g) Within two months after arrival of the procured equipment, provide a report on condition, installation and commissioning and training conducted and further plans for training and the readiness of the laboratory to offer services.

(h) Within eight months of commencing the assignment, copies of templates and forms conforming with ISO/IEC 17025 standard and acceptable to BBSQ.

(i) Within 12 months of commencing the assignment, a Report containing detailed feedback on a preliminary draft of the QMS documentation.

(j) Within 14 months of commencing the assignment, a Report containing detailed feedback on the first draft of the QMS documentation.

(k) Within 15 months of commencing the assignment, a Report containing detailed feedback on the final draft of the QMS documentation.

(l) Within 16 months of commencing the assignment, a Report that outlines:

(i) All training workshops conducted, a draft in-house training programme and related training materials.

(ii) All activities and results of the opening of the laboratory to offer services to the public.

(m) Within 18 months of commencing the assignment, a Final Report that provides details of the assignment, including activities performed, results obtained, recommendations and follow-up actions required.

6. SUPERVISION OF THE CONSULTANT

6.01 The consulting firm will report to the Director of BBSQ. BBSQ will facilitate the work of the consultant and make available all studies, reports, and data relevant to the Project.

6.02 This assignment is for a total of 115 person-days over a period of 18 calendar months.