

TERMS OF REFERENCE

CONSULTANCY SERVICES FOR THE DESIGN AND DELIVERY OF TRAINING MODULES TO BUILD CAPACITY IN THE AUDITING AND IMPLEMENTATION OF ISO/IEC 17025:2017 STANDARDS BASED QUALITY MANAGEMENT SYSTEMS

1. BACKGROUND

1.01 Belize is a small, lower-middle income country heavily reliant on exports and tourism. Forty-one percent (41%) of Belize's population was below the poverty line in 2013 with an unemployment rate of 13.7%, as of September 2020 Labour Force Survey (LFS) (This was up from 10.4% in September 2019^{1/}). According to the September 2020 LFS, during the period March to August 2020, there were 38,909 persons without work because of the coronavirus 2019 (COVID-19). One in three of these persons worked in tourism, the country's second largest sector. Of those still employed, one in four suffered a reduction in wages. The decline in international travel resulted in overnight arrivals falling by 68.2% in the first ten months of the year while cruise ship arrivals were down by 63.7% for the same period, causing further adverse fiscal impact on GOBZ.

1.02 As part of economic relief efforts from COVID-19, regional governments including GOBZ, have explored opportunities for increased investments in the export sector as part of a broader strategy to gain access to new markets. This focus by the GOBZ is underpinned by the National Trade Policy (NTP) 2019–2030^{2/}. The NTP identifies and seeks to address critical issues, including meeting internationally accepted quality standards, a critical requirement for increased market access.

1.03 According to the CARICOM Regional Organisation for Standards and Quality (CROSQ), the National Quality Infrastructure (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^{3/}), 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. The Belize National Standardisation Programme (2018) recognises the importance of a developed NQI and calls for the “continuous strengthening of national and regional quality infrastructure in order to facilitate greater participation in trade agreements so as to, *inter alia*, improve levels of productivity, innovation and export competitiveness; increase levels of consumer, health and environmental protection; and reduce technical barriers to trade”.

1.04 The development of an NQI also forms a significant foundation for consumer protection. Protecting human safety and health and the environment are important objectives of standards. Minimum quality and safety standards, including measurement standards and traceability to international standards allow consumers to assess a product before purchasing it, have confidence and trust in the measurements shown, and enable regulators to exclude unsafe products from the market.

1.05 The Belize Bureau of Standards (BBS) is a Government department under the Ministry of Agriculture, Food Security and Enterprise. BBS is recognised under the Standards Act, Chapter 295 and 295s of the Revised Laws of Belize as the National Standards Body. Its purpose is to facilitate the development of national standards by promoting the use and harmonisation of standards for sustainable production in the trade of goods and services. BBS is the focal point for the country's NQI. In large and/or

^{1/} Source: Statistical Institute of Belize.

^{2/} <https://www.dgft.gov.bz/wp-content/uploads/2019/03/National-Trade-Policy-2019-2030.pdf>

^{3/} Legal metrology is the application of legal requirements to measurements and measuring instruments.

developed countries, the three main functions of an NQI—standards, metrology and accreditation—are performed by a combination of public sector and private sector entities. BBS performs all of these functions, in addition to ensuring conformity assessment. The NTP speaks directly to the strengthening of BBS as part of its strategy to increase the international competitiveness of goods and services in Belize through the development of the NQI across the public and private sectors.

1.06 To meet the demand for conformity assessment^{4/} services particularly regarding testing and calibration of measurement devices, and to better perform its role as a World Trade Organisation (WTO) Technical Barriers to Trade (TBT) and EPA enquiry point^{5/}, BBS has embarked on a programme of institutional strengthening and physical infrastructure upgrading, with the following results thus far:

- (a) BBS became ISO 9001:2015^{6/} certified, indicating its operational competency under a robust Quality Management System, with staff members trained as lead auditors.
- (b) BBS initiated the process of having its trade and metrology laboratories accredited to ISO/IEC 17025:2017^{7/} beginning with the foundational training of nine (9) of its over 30 staff members.
- (c) With funding from the 10th EDF Standby Facility, BBS developed a sustainability plan, which included a road map to strengthen the institution and a financial feasibility model. Funding was also provided to develop a conformity assessment framework, including legal metrology, to guide the expansion of BBS' capacity to respond to industry needs, including accurate, reliable and traceable measurements to international standards. This conformity assessment framework is guided by the Caribbean Cooperation for Accreditation Scheme. The intended benefits of accreditation under the Scheme include: (a) the improved acceptance of conformity assessment bodies' (CABs) results on the international level; (b) reduced need for conformity assessment of local products in foreign countries; (c) access by producers, exporters and importers to internationally recognised conformity assessment services; and (d) the development of the national and regional quality infrastructure. All of these conformity assessment services are underpinned by the need for robust metrology infrastructure that include timely and accurate calibration of measurement devices, for example, weigh scales, volume dispensers, thermometers etc and the legal enforcement of this metrology market. BBS metrology framework is guided by the Caribbean Metrology Strategy.
- (d) There is now an approved National Standardisation Programme.

Calibration and Verification of Weighing Instruments

1.07 One of the roles performed by National Standards Bureaus (NSBs) in CARICOM is the calibration and verification of measuring instruments used in their respective country. Accurately calibrated weights are important in manufacturing, including the agri-food industry, where the inaccurate detail of product composition can be a barrier to trade. In a reliable calibration system, a measurement has metrological traceability, which is defined by the International Vocabulary of Metrology as “the property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty”. This refers to a chain of calibrations of

^{4/} Conformity Assessment is the verification of a product, service or management system meeting specific requirements.

^{5/} Enquiries into technical barriers to trade regarding standards for labeling, packaging, metrology, and consumer protection.

^{6/} Criteria for quality management systems which can be applied in any organisation. It ensures consistent quality products and services through improved operations.

^{7/} Criteria for quality management systems for testing laboratories to demonstrate competence and the generation of valid results.

measuring instruments, where one instrument is calibrated by the instrument with the next highest accuracy. The purpose of the traceability is to demonstrate that the instrument is accurate and linked to the scientific definition for that quantity thereby ensuring its equivalence to measurements taken internationally^{8/}.

1.08 At present, BBS can provide some mass calibration services; but in keeping with the objectives of its conformity assessment framework and in alignment with the sustainability plan, these must be enhanced to meet the current and future needs of industry. BBS has only one set of E₂ mass standards as its highest standard. Given the current demand for calibration services, this set of E₂ standards is overused and has had to undergo frequent calibration abroad, to maintain accuracy and overall traceability in the measurement system. This is an added cost to BBS and is neither an effective nor efficient maintenance of the measurement system. Furthermore, there is the added challenge of interruption in services when the standards are sent abroad for calibration. Within BBS, there is also an existing gap along the traceability chain on the lower end at F₂. This class of weights serves legal requirements specific to Legal Metrology. In this instance the Bureau requires F₂ accuracy class standards to conduct calibrations of masses of greater nominal value (100 kg to 1000 kg).

Demand for Quality and Standardisation Service

1.09 There is an increasing global demand for quality and harmonisation of standards. Currently, commercial institutions in Belize lack the recognised quality management systems (QMSs) to remove the TBTs which are associated with international standards. The ISO 9001:2015 standard provides requirements for general QMSs, towards quality products and services. The implementation of QMSs based on this standard can improve operations and provide quality assurance to foreign stakeholders.

1.10 CABs are the entities which confirm an institution's adherence to particular requirements and standards through impartial and competent assessment. However, CABs must be recognised through international accreditation for their certification to have any validity. ISO certification grants these bodies the necessary validation on their ability to perform reliable assessments. Under the ISO scheme, CABs are categorised into those which verify and grant certification to persons, management systems, tests results and products, and processes and services. There are ISO standards for each of these types of CABs^{9/}. In Belize, the CABs are the Belize Agricultural Health Authority, the Polymerase Chain Reaction Laboratory, the Ministry of Tourism, the Belize Agricultural Health Authority Food Safety Laboratory and the Citrus Research and Education Institute (CREI). Currently, CREI is accredited having received technical assistance (TA) and financing from the 10th EDF EPA Standby Facility. Accreditation is a costly exercise as there is no National Accreditation Body^{10/} in Belize; and while BBS performs the function of National Accreditation Focal Point (NAFP)^{11/}, it has limited capacity to support the certification of CABs in Belize. This has limited exports as products and services have not been able to receive the valid certifications to participate in the global marketplace.

^{8/} In the International Organisation of Legal Metrology (OIML) R111-1 international recommendation, which is the standard for weights, the masses used for mass calibration carry increasing levels of precision; from M₃ (the lowest level of precision) to E₀, the highest level of precision. As a higher level of mass standard is required to calibrate a lower level; therefore, it is not scientifically viable to use an E₂ mass standard to calibrate an E₂ set of weights.

^{9/} Management systems CABs fall under ISO/IEC 17021, ISO/IEC 17065 covers CABs for processes, products and services, certification of persons falls under ISO/IEC 17024 and testing laboratories are certified under ISO/IEC 17025. Currently only three of Belize's CABs apart from the Bureau are accredited.

^{10/} An accreditation body is an organization that provides accreditation services, which is a formal, third party recognition of competence to perform specific tasks. National Accreditation Bodies (NABs) assess the impartiality and competence of CABs and can grant viable ISO accreditation if they are members of the International Accreditation Forum.

^{11/} National Accreditation Focal Point (NAFP) core function is to assist CABs in gaining internationally recognised accreditation from a Partner Accreditation Body. One role a NAFP assumes is building CABs capacity, be it through TA, knowledge transfer or other modalities of institutional building towards accreditation.

1.11 BBS offers sensitisation training on ISO 9001:2015 and ISO/IEC 17025:2017 standards to CABs and other stakeholders in order to broaden their understanding of the need to implement proper QMSs and improve the capacity of CABs to gain accreditation. Staff of BBS are trained as auditors and implementors of ISO 9001:2015 and have gained fundamental knowledge of ISO/IEC 17025:2017. BBS does not however, have the capacity to offer TA to CABs in an official NAFP capacity, therefore leaving CABs dependent on costly external services for accreditation.

2. OBJECTIVES OF THE CONSULTANCY

2.01 The objective of this consultancy is to design and deliver virtually a capacity development module for stakeholders of BBS and BBS staff to audit and implement ISO/IEC 17025:2017 based quality management systems.

3. SCOPE OF CONSULTANCY SERVICES

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

- (a) Conduct meeting with representatives of the Client (BBS) to detail the objectives of the assignment and in particular learner needs. After meeting with Client, prepare Inception Report that presents the findings from background research and start-up meeting.
- (b) Assess the training needs of trainers, clients and staff of BBS to assist with the formulation an overall training programme.
- (c) Design a draft programme specification for each of the modules relating to audit and implementation of requirements of ISO/IEC 17025:2017. Each module should outline the learning objectives; the learning outcomes; and teaching and learning strategies. Modules should include but not limited to:
 - (i) Managing ISO/IEC 17025.
 - (ii) Internal auditing.
 - (iii) Procedural writing for a QMS.
 - (iv) Method validations.
 - (v) Control measures.
 - (vi) Proficiency testing/statistical analysis and quality control.
 - (vii) Root cause analysis.
- (d) Prepare final programme specifications.
- (e) Deliver modules and materials (soft copy) to trainers, stakeholders and staff of BBS virtually on audit and implementation of ISO/IEC 17025:2017 based quality management systems.
- (f) Prepare learner feedback report and analysis from training activities.
- (g) Prepare final report on audit and implementation of ISO/IEC 17025:2017 based quality management systems with relevant recommendations to BBS.

4. DELIVERABLES AND REPORTING REQUIREMENTS

4.01 The Consulting firm shall report to the Project Coordinator and will be required to submit/deliver the following:

- (a) Inception Report—Within two weeks of accepting the assignment, the Consulting firm will submit an Inception report, which will contain the proposed programme specifications as outlined in 3.01(c) above.
- (b) Final Programme Design—Within two weeks of receipt of comments from BBS on the proposed programme specifications, the Consultant will submit a report with the final programme specifications outlined in 3.01(d) above.
- (c) Draft Final Report—Within one month of delivering the modules, the Consulting firm will submit a draft final report, including recommendations for BBS for closing capacity gaps among staff of BBS and its external stakeholders.
- (d) Final Report—Within one week of the receipt of feedback from BBS on the draft final report, the Consulting firm will submit the Final Report.

5. QUALIFICATIONS AND EXPERIENCE

5.01 The assignment will be carried out by a firm whose team should possess the following:

- (a) A bachelor's degree in Engineering, Social Sciences (with a strong concentration on scientific methods of research design) or a relevant professional qualification or designation.
- (b) Ten years of experience in auditing and implementing ISO/IEC 17025 based QMSs, including two years involving ISO/IEC 17025:2017 standards.
- (c) Three years of experience teaching the auditing and implementation of ISO/IEC 17025 based QMSs, with at least one year involving ISO/IEC 17025:2017 standards.
- (d) A senior lead auditor certified in ISO/IEC 17025:2017 from an institution accredited from an approved body of the International Accreditation Forum.

6. SUPERVISION OF THE CONSULTANT

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

6.02 It is estimated that this consultancy will require ten person working days over a period of eight calendar weeks.