TERMS OF REFERENCE

CONSULTANCY SERVICES FOR POST-HARVEST TECHNOLOGY TRAINING FOR FRESH PRODUCE VALUE CHAIN – GRENADA

1. BACKGROUND

1.01 Grenada is a small, open economy, comprising the islands of Grenada, Carriacou and Petite Martinique. The economy is highly susceptible to both external economic shocks and natural disasters, which have affected critical infrastructure. Like many of the services-based economies in the Region, Grenada has been hard hit by the coronavirus (COVID-19) pandemic[1/]. Following, modest annual gross domestic product (GDP) growth rate of 2% in 2019, the economy was projected to contract by 12% in 2020, owing to a decline in the tourism and private tertiary education sectors due to the pandemic[2/].

1.02 Agriculture remains an important sector of the economy accounting for approximately 6.4% of GDP, and 7.3% of total employment[3/]. Further development of the agriculture sector is an important objective to achieve economic diversification, export growth and the enhancement of rural livelihoods. Prior to the COVID-19 pandemic, growth in exports was driven mainly by increased prices for key products such as nutmeg and mace, fish, milling products, cocoa, fresh fruits and vegetables. Since 2014, the agriculture sector has grown by an average of approximately 30% annually, largely due to an increase in output from the non-traditional crop sub-sector (excluding bananas and nutmeg). As part of the COVID-19 relief package, the Government of Grenada (GOGR) has provided support to the Grenada Nutmeg Association, Grenada Cocoa Growers Association and other groups including agro-processors.

Marketing and National Importing Board (MNIB)

1.03 MNIB is a statutory body established under the Marketing Board Act 1973. It plays a leading role in the buying and selling of fresh produce from agricultural co-operatives (approximately 2,000 farmers in 2016) both for export and local sales to hotels, restaurants, supermarkets, and vendors. It provides related services such as processing, handling, storage, exportation, shipping, and marketing of all produce. MNIB is also mandated to enter into transportation, supply and sales contracts with agro-producers, and to establish and operate depots, agencies and cold storage facilities to buy, deliver, grade and sell all produce. The MNIB has a packing house, a wholesale distribution operation and several retail outlets for fresh produce and other food items. MNIB only buys from farmers registered with the Ministry of Agriculture and the fresh produce must satisfy MNIB's grading system of colour, texture, and size.

1.04 Within the fresh produce value chain there are also other buyers like Winfresh Ltd., an agro-processor and exporter, supermarkets and over 80 "hucksters"[4/], that typically operate one truck each and collect fresh produce from farmers around the island. This produce is exported to various Caribbean countries such Trinidad and Tobago and also sold locally to retailers and hotels. MNIB purchases approximately 50% of all the fresh produce from farmers on the island while hucksters purchase approximately 20% directly from farmers[5/].

[1/] https://www.caribank.org/newsroom/news-and-events/cdb-projects-return-economic-growth-2021

[2/] World Bank. (2020). *Latin America and the Caribbean - Macro Poverty Outlook (MPO): Country-by-country Analysis and Projections for the Developing World*. Available online at http://pubdocs.worldbank.org/

[3/] The Observatory of Economic Complexity (OEC). (2021). *Grenada Exports and Imports*. Available online at https://oec.world/

[4/] An entrepreneur that buys and resells primarily agricultural products.

[5/] World University Services of Canada (WUSC) Caribbean. (2016). *Market Study for Fresh Produce St. Lucia, Grenada, Dominica and St. Vincent & The Grenadines*. Promotion of Regional Opportunities for Produce Through Enterprises and Linkages (PROPEL). Available online https://agricarib.org/

Grenada Bureau of Standards (GDBS)

1.05 GDBS also plays a key role in the production and export of fresh produce. GDBS was established by Standards Act No. 6 of 1989 and has further responsibilities under the Metrology Act and Regulations, 1997 and the Exportation of Fresh Produce Act, 1998. GDBS is responsible for licensing fresh produce exporters and for inspection and certification of the storage facilities, grading and packing of fresh produce, which must be conducted in accordance with approved standards. It also develops national standards and encourages standardisation in trade, including, training, to help producers and aggregators like MNIB and Winfresh Ltd. to improve product quality. GDBS provides conformity assessment services (inspection, testing and certification of packhouses for aggregators in keeping with technical regulations, protection of environment, occupational health and safety and supporting exporters and producers.

1.06 There is great potential for Grenada to increase food exports to the Caribbean Forum (CARIFORUM) countries, the European Union (EU), United Kingdom (UK) and United States of America (USA) due to market access opportunities made available under trading agreements such as the CARICOM Single Market and Economy (CSME) and the CARIFORUM–EU Economic Partnership Agreement (EPA). The expansion of fresh produce exports from Grenada is constrained by challenges such as low productivity and competitiveness, high energy and labour costs, environmental, and disaster and climate change vulnerability.

1.07 There are also constraints related to the inability of fresh produce to meet the technical requirements of key markets such as UK, EU and USA. Today's food supply chains are globalised and complex. There is increasing consumer awareness of food-borne illnesses and health implications with an assignment of legal responsibility to food chain operators to guarantee food safety[6/]. Key export markets like the EU, UK and USA, which continue to play leading roles in setting food safety standards, require that food imports should meet specific technical requirements and conformity assessment procedures to guarantee food safety[7/]. These are typically embodied in specific food safety management systems (FSMs) to which food producers have to be certified.

1.08 The MNIB and GDBS also face specific capacity challenges in delivering their mandates to support the development of fresh produce exports in Grenada. The National Agricultural Plan (2015), the National Sustainable Development Plan (2020–2035), consultations with key stakeholders and independent audits have identified the following as major challenges to the Fresh Fruits and Vegetables sector:

(a) Non-compliance with modern FSMS. A CDB International Trade Centre (ITC) report–supported independent audit of Grenada's FSMS conducted in 2015, and an inspection by the US Food and Drug Administration conducted in April 2016, revealed shortcomings in Grenada's FSMS.

(b) High level of rejected products which is a direct reflection of inadequate production, post-harvest handling and export controls.

(c) Inefficient production practices and vulnerability to weather extremes, which hampered ability for MNIB to enter into supply contracts with farmers.

[6/] A food safety management system is a systematic approach to controlling food safety hazards within a food business in order to ensure that food is safe to consume. A food safety program goes beyond measures like HACCP. To be effective, prerequisite programs such as pest control, traceability and recall, hygiene and sanitation need to be developed and implemented. Moreover, suppliers and distributors require training to have a food safety programme that addresses ingredient specifications and a vendor assurance system.

[7/] A conformity assessment involves testing, inspection, and certification of products or services.

(d) Inconsistent production and seasonality, which involves gluts followed by shortages due to a lack of technology such as irrigation and protected agriculture.

(e) Limited farmer access to investment capital and financial services—notwithstanding high liquidity in the financial sector.

1.09 With funding from the 10th EDF CARIFORUM - EPA Standby Facility, GOGR refurbished the MNIB packhouse, and through a loan from CDB in 2017 undertook the following:

(a) The development, validation and piloting of gender responsive training programmes for capacity-building of key stakeholders in the fresh fruit and vegetable value-chain within the Caribbean context—including producers, processors, exporters, service providers and regulators— with a view to ensuring compliance with modern FSMS.

(b) Energy efficiency improvements across MNIB facilities, and electrical, plumbing and associated infrastructure works in support of MNIB pack house FSMS equipment upgrade.

(c) The procurement of equipment and associated systems for the MNIB pack house with a view to ensuring the effective processing, packaging and storage of fresh fruits and vegetables in compliance with internationally recognised FSMS.

1.10 As a result, the MNIB was able to achieve the internationally recognised Hazard Analysis Critical Control Point (HACCP) certification and partial compliance with the United States Department of Agriculture (USDA) Federal Information Security Modernisation Act (FISMA), which deals with management and security of information technology resources and sharing of stakeholders' information. Notwithstanding, the above-mentioned interventions, the following major constraints still remain:

(a) Absence of a cold chain for fresh produce. While MNIB has been able to improve cold storage capacity at the packing house, non-refrigerated trucks transport fresh produce to various distribution points. The cold chain is not maintained, and this leads to increased respiration rates, water loss, reduced weight, and decreased quality. This results in spoilage, food loss/waste (which can be as much as one third of production) and higher incidence of rejects. Lack of comprehensive data prevents an exhaustive analysis of losses, but a sample experiment conducted by the Quality Assurance Manager of MNIB, observed a 5% weight loss difference between fresh produce departing MNIB in Grenada and the weight on arrival at the market in the USA. This represented thousands of dollars in losses each year for both MNIB and producers.

(b) Absence of HACCP inspectors. GDBS is required to provide HACCP training to producers and aggregators to support the development and implementation of FSMS at MNIB and private packhouses. In addition, HACCP inspectors are required to certify pack-houses and prepare documentation for the production of export certificates, enabling them to verify that the requisite control systems are in place. Without trained inspectors the certification work of GDBS is constrained and exporters like MNIB and other agro-processors face additional scrutiny in the importing countries.

(c) Poor post-harvest handling techniques affect product quality and grading, resulting in revenue losses.

2. OBJECTIVE OF THE CONSULTANCY

2.01 The objective of this consultancy is to increase knowledge and inform participants on the fundamentals of post-harvest technology, to increase skills in post-harvest handling techniques, and to demonstrate best practices of post-harvest handling systems applicable to Grenada through practical examples.

3. SCOPE OF CONSULTANCY SERVICES

3.01 The assignment is both field and home-based (online). The tasks to be completed will include, but not be limited to:

(a) Attend a virtual briefing with GDBS.

(b) Submit a workplan and for undertaking the assignment and training outline for review.

(c) Develop training content for two training workshops on, namely:

(i) Train-the-trainers course for MNIB, Ministry of Agriculture and agro-produce aggregators (online) (10 days); and

(ii) Practical and field-based training course for MNIB, Ministry of Agriculture and agro-producers (in-person) (10 days).

(d) Course content will include *inter alia* modules on the following with relevant reading materials:

(i) Introduction to port harvest biology and technology in horticultural crops.
(ii) Scope of preservation in Grenada.
(iii) Maturity, maturity indices and ripening.
(iv) Pre-harvest factors affecting quality on post-harvest shelf life of fruits and vegetables.
(v) Causes of deterioration of harvested fruits and vegetables.
(vi) Pre-cooling and pre-storage treatments.
(vii) Methods of storage and artificial ripening, facilities and equipment, management of environmental conditions, including, controlled atmospheres.
(viii) Packaging methods, materials, and technology.
(ix) Site selection and unit layout for fruit and vegetable processing unit.
(x) Site hygiene/sanitation, insect and pest control.
(xi) Principles of food preservation and fermentation.
(xii) Canning, bottling, drying and dehydration.
(xiii) Chemical preservation, heat and cold preservation and processing.
(xiv) Enzymes in food industry.
(xv) Food spoilage.
(xvi) Quality control in food processing.
(xvii) Transportation of horticulture products.
(xviii) Food safety assurance, standardisation, inspection, quality evaluation and control.

(e) Deliver two training sessions for general (introductory and online) and intermediate (in-person). Sessions will be recorded.

(f) Upon completion of this course participants will be able to identify, understand and implement critical post-harvest technology and handling issues.

(g) Administer graded evaluation/examinations as necessary to provide certification of course completion at the end of each training session.

(h) Conduct post-training evaluation and a provide feedback report and recommendations to GDBS and MNIB for future training.

4. DELIVERABLES AND REPORTING REQUIREMENTS

4.01 GDBS and MNIB will facilitate the work of the consulting firm. The Consulting firm will report to the Project Coordinator, GDBS, and will be required to submit/deliver the following:

Deliverables	**When**
Work plan and training outline	Within one week after commencement of assignment
Training modules and reading materials	Within one week after commencement of assignment
Deliver online training (10 days)	Within three weeks after commencement of assignment
Deliver in person training (10 days)	Within 12 weeks after completion of online training
Evaluation, course completion certificates	Upon completion of each training session
Training feedback report	Within one week of completion of each training session

5. QUALIFICATIONS AND EXPERIENCE

5.01 The Consulting firm shall be a recognised training institution with specialised knowledge of horticulture. The designated consultant(s) shall possess:

(a) An advanced University degree in Agriculture or related area.

(b) At least ten years' experience as a trainer in Horticulture and Post-harvest technologies and handling.

(c) Familiarity horticulture and post-harvest issues in small island states and developing countries.

(d) Experience working in the Caribbean/CARICOM Member Countries or Small Island Developing States would be an advantage.

(e) Excellent presentation and communication skills in English.

6. SUPERVISION OF THE CONSULTANT

6.01 The Consulting firm will report the Project Coordinator. GDBS will facilitate the work of the consultant and make available all studies, reports, and data relevant to the Project.

6.02 This assignment shall be implemented within thirty (30) workdays over a period of four calendar months.