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Caribbean Biosafety and Biotechnology Situation

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Report Highlights:

Updated Sections: I (Chapter 1, Parts A & B).

Biotech regulations have been virtually non-existent in the Caribbean. However, that may change in the years ahead as 12 Caribbean Community (CARICOM) countries move forward with a United Nations Environment Programme/Global Environment Facility (UNEP/GEF) Regional Project for Implementing National Biosafety Frameworks (NBFs) in the Caribbean. The project is expected to conclude in 2017, with its outcomes likely becoming the guideposts for future regulation of biotechnology within the participating CARICOM countries. Currently, the United States is the region's main supplier of food and agricultural products, and this trend is expected to continue.

Section I. Executive Summary:

Several institutions within the Caribbean Basin Agricultural Trade Office's (CBATO) region of coverage are conducting biotech research on crops such as sugarcane, cassava, papaya, rice, coconuts, cocoa, coffee, peppers, and spices and to a lesser extent on ornamentals and animals [1]. This research has yielded a number of advances, including developing transgenic papaya varieties resistant to devastating papaya viruses as well as the development of biochemical compounds suitable for use as bio-pesticides. However, the actual commercial production of genetically engineered (GE) products will take many years. The Caribbean region is also not yet at the stage where animal genetic engineering (or cloning of animals) is being developed.

The CBATO is not aware of any specific requirements related to the importation of GE products in its region. Currently, the United States is the region's main supplier of food and agricultural products. Nearly 95 percent of all corn, soybean, cotton and canola products are imported from the United States.

Suppliers may encounter greater regulation of GE products as well as increased consumer awareness in the years ahead. Over the past several years most of the countries within CARICOM have worked at developing their own draft NBF, a combination of policy, legal, administrative and technical instruments geared toward addressing safety for the environment and human health in relation to modern biotechnology [2]. These countries are now seeking to finalize and legislatively adopt their NBFs and implement them with the help of a $13 million UNEP/GEF project. The project is assisting 12 of the 13 CARICOM countries that are parties to the Cartagena Protocol on Biosafety (CPB) to implement effective, operable, transparent and sustainable NBFs, deliver global benefits that are compliant with the CPB in the Caribbean sub-region countries, and protect against potential risks from the introduction of living modified organisms (LMOs) into the environment [3]. To date, only St. Kitts and Nevis has enacted any biosafety legislation. While an important first step toward establishing its comprehensive NBF, regulations have yet to be finalized and thus the regulatory and institutional structures are not yet operational.

[1] The CBATO islands of coverage are: Anguilla, Antigua & Barbuda, Aruba, The Bahamas, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Cuba, Dominica, Guadeloupe, Martinique, Grenada, Montserrat, the former Netherlands Antilles (Curaçao, Bonaire, Sint Maarten, Saba & St. Eustatius), St. Kitts & Nevis, St. Lucia, Saint Martin, St. Barthélemy, St. Vincent & the Grenadines, Trinidad & Tobago, and Turks & Caicos Islands.

[2] CARICOM Member States are: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago (CARICOM Associate Members are: Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Turks and Caicos Islands).

[3] CARICOM Member States that are Parties to the CPB are: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago. It should be noted that Jamaica is not part of the UNEP/GEF Regional Project for Implementing NBFs in the Caribbean because it did not ratify the CPB until after the project was initiated. Instead Jamaica is carrying out its own NBF project.

Section II. Plant and Animal Biotechnology

Chapter 1: Plant Biotechnology

Part A: Production and Trade

Overall, agricultural production throughout the CBATO region is minimal, and most countries within the region must import the majority of their agricultural products. Total land area is 23,783 sq. km. (9,183 sq. miles), roughly the size of New Hampshire. Of this, only about seven percent of the land is arable and an even smaller percentage is actually utilized for farming. There is no known commercial production of GE products in the region. Several institutions in the CBATO region have engaged in biotech research, mainly on crops produced locally.

Currently, no country in the Caribbean region has an approved, fully-functioning biosafety legal framework in place to oversee the production or release of LMOs, which may represent an impediment to taking research to the next level of field trials and later commercialization.

On a regional level, research institutions throughout the Caribbean have recognized that the production of GE products could lead to an increase in yields, and reduced use of water in agriculture. These institutions have identified several local products (sugarcane, cotton, rice, coconuts, cocoa, coffee, peppers, and spices) that could be improved using biotechnology. Some of the institutions leading the way are: the University of the West Indies (UWI), the Caribbean Agriculture and Development Institution (CARDI), the Caribbean Industrial Research Institute (CARIRI) in Trinidad and Tobago, and the National Agriculture Research Institute (NARI) in Guyana.

Post is not aware of any specific requirements related to the importation of GE products in its region [1]. Nine of the countries in the CBATO region are parties to the CPB, and while they are all in the process of trying to meet their obligations under the protocol, none has fully implemented it to date [2]. Currently, the United States is the region's main supplier of food and agricultural products. Nearly 95 percent of all corn, soybean, cotton and canola products are imported from the United States.

Within the Caribbean region, CARICOM is focused on establishing the Caribbean Single Market and Economy (CSME) to facilitate the free movement of CARICOM-origin products between Member States. It remains to be seen whether CARICOM will develop regional rules affecting trade in GE products.

[1] Guadeloupe and Martinique, as overseas departments of France, may be exceptions to this statement.

[2] Antigua and Barbuda, The Bahamas, Barbados, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.

Part B: Policy

Most of the countries within CARICOM appear to want to address their plant biotechnology requirements through a NBF. To date, only St. Kitts and Nevis has enacted any biosafety legislation.

While an important first step toward establishing its comprehensive NBF, implementing regulations have yet to be finalized and thus the regulatory and institutional structures are not yet operational. None of the other CARICOM countries have enacted any biosafety legislation.

The Regional Project for Implementing NBFs

The $13 million UNEP/GEF Regional Project for Implementing NBFs in the Caribbean, which is being executed by UWI, is assisting the 12 CARICOM countries that are parties to the CPB with implementation of their obligations. This project is a continuation of previous UNEP/GEF biosafety capacity building efforts in the region.

The overall goal of the UNEP/GEF project is to implement effective, operable, transparent and sustainable NBFs, and deliver global benefits that are compliant with the CPB in the Caribbean sub-region countries while also protecting against any potential risks from the introduction of LMOs. The four project aims are to:

• *"Establish institutional (policy/legal) frameworks for biosafety at both the national and regional levels that will allow Parties to the CPB to utilize modern biotechnology in compliance with this Protocol;*

• *Facilitate the establishment, enhancement and operation of institutional capacities as well as technical and technological resources among the participating Caribbean Member States for the detection, assessment and management of potential risks from modern biotechnology (in combination with invasive alien species (IAS) where appropriate) at the national and regional levels;*

• *Develop and strengthen the human resource base and level of expertise in biosafety on a national and regional scale, in support of biosafety management and national biosafety systems in the Caribbean;*

• *Improve and consolidate biosafety information management within the Caribbean project countries in a way that can promote transparency, raise public awareness and facilitate biosafety decision making, and be up scaled to provide broader regional information services as needed, and if possible, establish links to information sources."*

The regional portion of the project aims to support the establishment of a region-wide mechanism for coordinating and supporting countries in biosafety management by providing them with training on biosafety risk assessment and the management of LMOs.

According to various sources, this may lead to a Regional Biosafety Clearing House (BCH) to support and coordinate exchange of information. The regional process also aims to strengthen institutional capacities, provide technical guidance on biosafety issues and assist with the implementation of NBFs.

National activities of the project will also support the establishment of the necessary legal and institutional frameworks, public education programs, and training necessary for effective and sustained

implementation of the CPB. Projected country-specific outcomes include establishing:

• Functional NBFs in line with the CPB and the national and regional needs of each country;

• Functional national systems able to detect LMOs and perform risk assessments;

• Functional systems to monitor the environment and enforce regulations;

• National systems for biosafety information management while stimulating public awareness, biosafety education, and participation in the decision-making process.

The project, which was started in November 2012, was originally scheduled to be completed by December 2015. However, due to various factors, the project deadline was postponed. According to UWI's project management, country level activities are coming to an end in 2016 and regional level activities are expected to wrap up by May 2017. In addition to the project's conclusion being pushed back, the realization that the timeline for enacting biosafety legislation in each country could not be fully controlled led to the redefinition of an important project output. Rather than countries being expected to enact biosafety legislation, the expectation is now that the draft legislation will be ready for Parliamentary approval in each country. To date, only St. Kitts and Nevis has passed its Biosafety Act while all others push forward to make their draft legislation "Parliament-ready." It is important to note that Barbados and The Bahamas never signed the project partnership agreement with UWI, and Suriname signed the agreement quite late into the project. This precluded these countries from drawing on any project funds for national level activities and thus fully participating in the project. These countries opted toward transferring their project country funds to the regional component of the project in order to reap some tangential benefits from the project.

UWI's project management intends to hire a consultant in January 2017 to develop a proposal to be presented to UNEP/GEF for a follow-up project to help participating countries enact their biosafety legislation. Once the legislative framework is in place, the expectation is that the Caribbean Agricultural Health and Food Safety Agency (CAHFSA), a CARICOM organization, would be charged with regional follow-up, harmonization, and sustainability of biosafety regulatory efforts.

At the regional level, progress is being made toward a Center of Excellence in Biosafety, which will serve as a virtual information hub. The Center will encompass three areas:

• A regional roster of experts to provide assistance to countries where expertise does not exist, and to harmonize risk assessment processes in the region by pooling existing resources. The list will include experts proposed by the participating project countries which will constitute the ad hoc Regional Advisory Panel for Risk Assessment.

• A regional network of laboratories to support the national regulatory agencies (Agricultural, Environmental and Food Safety agencies), as it relates to the implementation of those provisions within biosafety legislation being developed by countries to: (i) deal with the surveillance of LMOs and LMOs for Food, Feed and Processing (LMO-FFPs) entering or leaving the country; (ii) monitor the contained use of LMOs or LMO-FFPs, where necessary; and (iii) comply with any other provision relating to biosafety for which laboratory testing is required.

• A Master of Science (MSc) Program in Biosafety as a means of capacity building to support the biosafety efforts of project participants. In 2014, UWI initiated a graduate program in biosafety, offering a MSc and a Postgraduate Diploma in the field. The first cohort of students graduated from the program in 2015 and the second wave of students is currently in the program. This program will help to expand biosafety capacity in the region.

The following table shows the general biosafety regulatory status (as of August 2016) of the CBATO countries participating in the UNEP/GEF project as reported in a recent project document.

Country	Summary of Progress in GMO Regulation
Antigua & Barbuda	• A Policy that embraces Biotechnology & Biosafety • Production of a 3rd Draft of the Biosafety & Biotechnology Management Bill BIOSAFETY REGULATIONS (2nd draft) * The Biosafety (Environmental Release) Regulations * The Biosafety (Labeling) Regulations * The Biosafety (Import, Export and Transit) Regulations * The Biosafety (Contained Use) Regulations * Manual: "Guidance for the Detection and Identification of Genetically Modified Organisms"
The Bahamas	• Draft Bio-security Act and Biosafety Framework
Barbados	• Draft Biosafety Policy • Biosafety Clearing House Mechanism
Grenada	• Biosafety Policy • Biosafety Bill • Biosafety Regulations
St. Kitts & Nevis	• Biosafety Act 2012 • Biosafety Amendment Bill 2016 • Draft Biosafety Regulations 2016 • Biosafety Policy under review • Draft Biosafety Administrative System
St. Lucia	• National Biosafety Policy • Enactment of biosafety/biotechnology management legislation (or other key element of the regulatory system) to address safety in the field of transboundary movements of the products of modern Biotechnology is in progress • Establishment and effective operation of National Biosafety Authorities
St. Vincent & the Grenadines	• Draft Biosafety Policy • Draft Biosafety Bill • Draft Administrative Structure/System
Trinidad & Tobago	• Revised Biosafety Policy • Draft Biosafety Legislation • Draft Administrative System • Biosafety Clearing House

Source: "An Assessment of the Production and Trade of Genetically Modified Organisms in the Caribbean Region" by Noel D. Jacobs, August 2016 (http://caribbeanbiosafety.org/wp-content/uploads/2016/09/Report-Assessment-of-GMOs-in-the-Caribbean-Region-1.pdf), based on information from Biosafety Scanner/Genetic Rights Foundation).

As a general pragmatic approach to trade (in recognition of the large volume of food imports from the United States), project participants have reportedly agreed to implement voluntary rather than compulsory negative labeling requirements for foods containing GE ingredients.

Part C: Marketing

There are no significant marketing issues that currently affect U.S. agricultural products. However, Dominica, which exports organically grown crops to niche markets in Europe, may have concerns that coexistence with any biotech material introduced into their small island environment could jeopardize their exports to Europe. This concern may be a factor in shaping Dominica's regulatory environment and could possibly have a marketing impact on some U.S. products in the future.

Exporters of biotech commodities should also be aware that as part of the UNEP/GEF project, participating countries are undertaking "awareness raising activities" at the national level to educate the public on biosafety, biotechnology, bio-security and invasive species. The project is also supporting stakeholder consultations as part of the national processes to enact biosafety regulations.

Chapter 2. Animal Biotechnology:

Part D: Production and Trade

The Caribbean region is not yet developing animal genetic engineering or cloning of animals. Although there has been some biotech research in Barbados on Blackbelly sheep, the region is far from having the capability to engage on specific animal biotechnology projects. However, experts in the region believe that an expansion of animal breeding using conventional and new embryo techniques as well as DNA techniques to characterize regional species would be a positive development. The use of molecular techniques to identify genes for breeding purposes will be high on the research agendas of several countries in coming years.

Part E: Policy

Not applicable.

Part F: Marketing

Not applicable.