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Given the lack of any biotech regulatory system throughout the Caribbean Basin, biotech products can be traded, consumed, and utilized for research and production without any significant restriction in most islands. However, the Caribbean is beginning to address the need for a regulatory regime for biosafety. Many islands are developing comprehensive biosafety policies while CARICOM is gearing up to harmonize these policies and strike a balance between biosafety and biotechnology development and trade. CARICOM hopes to finalize a harmonized policy proposal by year's end and full implementation is expected to be completed by the end of 2011.

Section I. Executive Summary:

Biotechnology is a relatively new endeavor for the Caribbean. As such, there is no regulatory system in place yet to govern the use of modern biotechnology and safeguard public health, animal

health, or the environment. Because the region has very limited agricultural production, and research is limited to a small number of crops and animals in select islands, farm applications of biotechnology have been relatively few. The lack of any regulation on the matter has also meant unrestricted trade for biotech products as well. While consumer awareness of biotech issues is growing, it is still limited. The region relies on the United States as its main supplier of food and agricultural products.

Change may be just around the corner, however. As a whole the region is beginning to address the need for a regulatory regime for biosafety, and many islands are developing comprehensive policies in this regard. However, several steps still need to be taken before any regulatory changes become reality. These include enacting legislation, development of specific implementing regulations, setting up the appropriate institutional structures, and capacity building in areas such as inspection, risk assessment, and laboratory testing.

While much of the policy formulation work to date has been done at the individual island level, CARICOM is now heading a serious effort to harmonize the region's biotech policies to ensure an adequate balance between biosafety and biotechnology development and trade. Momentum is beginning to build toward this end and a much awaited unified, region-wide policy proposal could become a reality as early as 2009 and full implementation is expected by 2011.

Section II. Biotechnology Trade and Production:

Farm activity is generally quite small in the Caribbean Basin Agricultural Trade Office (CBATO) islands of coverage^{1/} due mainly to very limited land, water and labor resources. Even within this context, production of biotech crops in the region is limited. Most production is really in the form of tissue culture research done at the laboratory level with very limited intentional introduction into the field. At their St. Augustine campus in Trinidad, the University of the West Indies (UWI) conducts tissue culture research on anturiums. The Ministry of Agriculture in Barbados also conducts sweet potato germplasm maintenance, and they occasionally carry out field trials. With the help of the Caribbean Agricultural Research and Development Institute's (CARDI) research station in St. Vincent and the Grenadines, the Ministry of Agriculture in Barbados is also engaged in cassava tissue culture with the aim of introducing improved varieties into Barbados. Similarly, the Ministry of Agriculture in St. Lucia carries out tissue culture research on bananas. The West Indies Sugarcane Breeding Station in Barbados also does some germplasm research on sugarcane. No data are available on actual crop area.

From a trade standpoint, several islands import genetically modified corn and soybeans which are channeled mostly into animal feed production. Most if not all of these imports are of U.S. origin.

Section III. New Technologies:

Most of the biotech work that is being conducted with animals is related to Barbados Blackbelly sheep. CARDI, in collaboration with the UWI, is conducting work to identify micro satellite markers for fingerprinting the breed to help conserve and improve it. The Ministry of Agriculture in Barbados and the UWI in Trinidad are also working to improve the effectiveness of artificial insemination of the breed.

However, the Caribbean is not yet at the stage where genetic engineering and/or cloning of animals are being conducted. As outlined in the following section, individual islands are still in the initial stages of broad policy development which is being followed by a policy harmonization effort led by CARICOM. At this point, there are no specific animal biotechnology issues being addressed in the policy formulation process, and the region is not really engaged in any specific animal biotechnology discussions in international fora either. Mandatory labeling/traceability of biotech products as whole (not necessarily specific to animal products) is something which is being set forth in the draft legislation of some islands. However, with many of the policies still being shaped and harmonized, it remains to be seen if labeling of biotech products will become compulsory or not. From the consumer standpoint, there is growing awareness of biotechnology as a whole. While there is no market rejection of genetically engineered or cloned animals, consumer perception in this regard has not been truly tested.

1/ - The CBATO islands of coverage include: Anguilla, Antigua & Barbuda, Aruba, The Bahamas, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Guadeloupe, Martinique, Grenada, Montserrat, 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.

Section IV. Biotechnology Policy:

Biotech policy development is still something new to the Caribbean. Less than half of the CBATO's islands of coverage are parties to the Cartagena Biosafety Protocol. Moreover, many islands have no laws or regulations specifically addressing Living Modified Organisms (LMO's) in terms of their use, their release into the environment, marketing, or trade. Where no policy exists, there has been no restriction on trade or tracking of biotech products. As a whole, the region is very open to U.S. trade.

However, some islands, particularly those in the eastern Caribbean, have made some important strides in recent years in terms of setting forth new biosafety policies. With the help and funding from the United Nations Environment Programme-Global Environment Facility (UNEP-GEF), several Caribbean countries have been working toward establishing their own National Biosafety Framework (NBF). Individual island NBFs are at different stages of development, but at a minimum several countries now have a "draft" regulatory policy (covering food, biosafety and co-existence). NBF's need to be approved by the Cabinet of each country, which is then followed by the drafting of legislation, which later needs to be approved by the legislature before any implementation can begin. To date, no country has enacted any biosafety legislation quite yet. However, UNEP is undertaking a biosafety implementation project to assist countries in this regard (including getting them to enact their individual biosafety laws) and subsequently coordinating implementation at the regional level. UNEP expects full implementation, which will include having all the institutional structures in place and functioning, by the end of 2011. The following table shows the CBATO islands of coverage which are parties to the Cartagena Protocol on Biosafety and their different stages of policy development.

Country	Cartagena Protocol on Biosafety in Effect	National Biosafety Framework (NBF) in Place	Biosafety Legislation in Place (Draft)	Biosafety Implementation
Antigua & Barbuda	2003	Yes	Yes	No
The Bahamas	2004	Draft	No	No
Barbados	2003	Draft	No	No
Dominica	2004	Yes	Yes	No
Grenada	2004	Yes	Yes	No
St. Kitts & Nevis	2003	Yes	No	No
St. Lucia	2005	Yes	Yes	No
St. Vincent & The Grenadines	2003	Yes	No	No
Trinidad & Tobago	2003	Draft	No	No

Harmonization of Regional Policies

Much of the work to develop the NBFs in the islands listed above was done separately and with only limited collaboration. Thus, with each new NBF being developed the need for harmonization quickly began to become evident. Enter the Caribbean Community (CARICOM), which is made up of 15 member states and four associate members throughout the region, and is the strongest regional organization in the Caribbean. CARICOM established a committee, chaired by CARDI, to address the issue of harmonization and coordinate efforts between member states. To date, the committee has commissioned a review of all the individual island biotech policies being developed. Later this year a regional consultation process will begin to review the findings and begin exploring ways of unifying positions toward a harmonized regional policy, which is to be presented to CARICOM by late 2009.

Further to this harmonization effort, all 15 CARICOM members are reportedly establishing a National Agricultural & Food Safety Agency (NAFSA) in their own countries. In most cases the NAFSA is composed of the agencies responsible for food safety and plant and animal health. CARICOM has approved the establishment of a Caribbean Agricultural & Food Safety Agency (CAFSA) which will act as a coordinating umbrella organization. However, the NAFSA's are mostly at the conceptual stage, which means that CAFSA, while approved, has yet to be implemented either.

Intellectual property right (IPR) protection in relation to biotechnology is another issue being considered by CARICOM in its attempt to harmonize biotech policies. Intellectual property legislation also varies among the islands and not all countries have modernized their IPR laws and policies.

In essence, until biosafety/biotech policies and regulations are fully developed and enacted (and

hopefully harmonized) and the institutional structures are put in place, no regulatory implementation can take place. In such an environment, governments are generally following the guidance of international organizations, the UWI, CARDI, and similar institutions when it comes to dealing with any biosafety issues that may arise.

Labeling

As mentioned earlier, one of the issues which will need to be ironed out is that of labeling of biotech products. While some countries such as Trinidad & Tobago prefer a voluntary approach to labeling, some eastern Caribbean countries favor making labeling of biotech products mandatory.

Enforcement of mandatory labeling will likely be disruptive to trade. On the one hand, most of the islands source a large share if not the majority of their food from the United States, where biotech labeling is not mandatory. Moreover, some intra-regional food trade also takes place and would surely be affected as well. This is an important element which will need to be harmonized through CARICOM's leadership.

Structure and Organizations

The institutional framework being developed for the different organizations involved with biosafety varies by island. In general, however, each island where a biosafety policy is under development would eventually have a National Biosafety Authority or equivalent organization overseeing all matters pertaining to biotechnology and biosafety. Each island would also have a BioSafety Committee comprised of representatives from all relevant Ministries and organizations. In fact, practically all of the countries engaged in biotech policy formulation have already appointed a BioSafety Committee. In Trinidad and Tobago, for instance, the current Biosafety Committee is comprised of six members from the Ministries of Agriculture, Health, Trade and Consumer Affairs, NAFSA, the Environmental Management Authority, and the UWI. In Trinidad and Tobago the Biosafety Committee acts as the national biosafety clearinghouse but in others countries this function may be assigned to another entity.

Section V. Marketing:

As biotech is relatively new to the Caribbean, overall awareness of the subject tends to be low but growing. Some producers which might be aware of the benefits of biotechnology are more inclined to be in favor of adopting biotechnology. However, as one moves to importers, retailers, and eventually to consumers, the level of awareness drops considerably. Given this situation and the lack of any biotech-specific policy implementation to date, there are no real marketing issues which affect U.S. trade at this point.

Some countries, particularly some eastern Caribbean islands that export organically grown crops to niche markets in Europe, are concerned with biodiversity issues. With the islands being so small, they are specifically concerned with containment of and coexistence with any biotech material introduced into the islands that would jeopardize their exports to Europe. This concern may be a factor in shaping the regulatory environment in the region.

Section VI. Capacity Building and Outreach:

Practically all policy documents being developed in the region recognize the limitations that exist in

terms of institutional structures and human resource capacity. Within the CBATO region of coverage, much of the current expertise lies in Trinidad and Tobago and to some extent in Barbados. Part of the reason for this is that the UWI, which is one of the leading research institutions in the region, has campuses in both countries. Moreover, Trinidad is also home to CARDI, a regional research institution which as mentioned earlier is also engaged with biotech policy harmonization efforts. Trinidad also has greater laboratory capability than many of its neighbors.

As several Caribbean islands gear up to begin implementing their new policies in the near future, capacity building is viewed as a critical element to the success of the region's biosafety efforts. More specifically, the region is in need of training for their inspection services. Another area of need is risk assessment, for purposes of controlling the introduction of new plant varieties into the environment. Improved laboratory capability rounds out the top three areas of capacity building needs for the region.

A Caribbean workshop on biotechnology is being planned for September 2009 in Barbados. The event will be organized by the Inter-American Institute for Cooperation on Agriculture (IICA) and is supported by FAS' Emerging Market Program (EMP). The workshop will target non-technical decision makers/regulators and will focus on fundamental scientific principles and the need for transparent, science-based regulation of agricultural biotechnology in the Caribbean.