

Assessment of Grenada's capacity to implement the Biosafety Protocol

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Grenada's capacity to manage risks posed by living modified organisms (LMOs) is augmented through an Organization of American States funded project called "Biosafety Regulations in Latin America and the Caribbean under the International Biosafety Protocol". The Project is implemented in six countries in Central America and the Caribbean is designed to identify the weaknesses and needs of participating countries in managing of risks posed by LMOs, while also developing a trusting environment for maximizing the benefits of the modern biotechnology industry. The results of the study indicated that the Grenada's legal and institutional framework is not fully conducive for the implementation of the Biosafety Protocol. Specifically, a number of constraints exists which included, limited competencies in risk assessment and management; inadequate legal framework; lack of an established administrative arrangement for risk management; lack of coherence in policies and programs among key implementing agencies; lack of, and/or insignificant awareness among the populace of the implications of biotechnology and inadequate systems of information exchange. To augment national capacity to successfully implement the Cartagena Protocol, training would be needed in the developing relevant legal instruments; conducting risk assessments and developing more effective platforms for information exchange.

Biotechnology has immense potential for improving the quality of life for human beings, particularly through advancement in agriculture and health care. Notwithstanding these significant contributions to social and economic development, genetic engineering and

its resultant Living Modified Organisms (LMOs) can adversely affect biodiversity and pose major risks to human health. These issues are particularly important to Small Island Developing States (SIDS) like Grenada that are vulnerable to a range of ecological, ^[i] social and economic ^[ii] hazards that damage them at rates and intensities above those found elsewhere around the globe (Kaly et al. 2002). In fact, these vulnerabilities and constraints confer greater impediments to SIDS in their quest to attain sustainable development (Kaly et al. 2002). If genetic engineering is expected to enhance the capacity of SIDS to ensure sustainable use of natural and human capital, a framework for assessing and managing the risks of the technology should be prioritized.

The Cartagena Protocol on Biosafety provides an international regulatory framework to address the concerns emanating from the rapidly growing global biotechnology industry. Implementing the Protocol, and therefore maximizing the benefits of the technology and minimizing the risks to the environment and human health is becoming a challenging endeavour for developing nations. In particular, these nations lack the scientific and technical skills needed to competently assess and manage risks associated with genetic engineering, especially over a long term period. In addition, the capacity to negotiate equitably in the international market is also compromised, further threatening the ability of these nations to monitor the transboundary movement of LMOs within their territories.

The Organization of American States responds to the concerns of inadequate capacity to promote biosafe nations through its Project, "Biosafety Regulations in Latin America and the Caribbean under the International

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Biosafety Protocol” The principal objective of the Project is to strengthen national skills for the assessment and management of risks of biotechnology food products, and to enhance public awareness about their benefits and risks in participating countries, with the goal of promoting their safe and sustainable use within a protective and trusting environment for the public (Verastegui et al, no date). The Project will be instrumental in identifying the weaknesses and needs regarding the implementation of the Biosafety Protocol in each participating country. It will also allow for collaboration and sharing of experiences within the sub-region, promoting more successful implementation of the Protocol at the regional level.

METHODOLOGY

A qualitative research paradigm governed the implementation of this study. Selected local consultants evaluated the existing legal and institutional infrastructure to ensure compliance with the provisions and regulations of the international Biosafety Protocol. In addition, an assessment of the training needs of the respective stakeholders involved in implementing the Protocol was conducted. The subsequent section outlines the specific activities undertaken to fulfill the requirements of the two aforementioned objectives.

Evaluation of legal and institutional structure

The consultants collected secondary data based on previously prepared national studies related to the diagnosis of the country’s legal and institutional infrastructure relating to biosafety. Added to this, the institutions involved in biosafety related issues were identified. Interviews were conducted with senior officers in each of the key departments and/or organizations to understand their capacity for managing the impacts of LMOs. Consultation was conducted with experts and those responsible for using the precautionary principle to evaluate the feasibility of its implementation locally.

Training needs for implementing the Biosafety Protocol

Interviews conducted with the key institutions responsible for biosafety related issues sought to understand the training needs involved in the activities relating to:

- i. The implementation of biosafety regulations systems in GMOs and their by-products;
- ii. The evaluation and management of risks derived from GMOs and their by-products;
- iii. The services of technical and scientific assistance on evaluation and risk management in the use of GMOs and their by-products; and

iv. The systems of exchange and dissemination of information and public awareness in the biosafety of GMO derived products.

RESULTS

Evaluation of the institutional framework

The principal agencies involved in biosafety related matters in Grenada are the Ministry of Agriculture, Lands, Forestry and Fisheries; the Ministry of Health and the Environment; the Grenada Bureau of Standards and the National Biosafety Committees. The section below describes the biosafety infrastructure in each of the above organizations and Ministries.

a. Ministry of Agriculture, Lands, Forestry and Fisheries.

Biotechnology laboratory. The Biotechnology laboratory of the above Ministry has been designated by government to implement and research priorities and policies regarding the application of biotechnology. Presently, the programmes of this institution are limited to plant tissue culture which is focused on producing high quality planting materials for the banana and horticultural industries, for both local and regional markets. The effectiveness of the Laboratory is constraint by space and availability of specialized equipment. There are plans, however, by the government to improve the laboratory facilities in the near future.

A qualified biotechnologist directs the work programme of the Laboratory. In spite of this, very limited capacity exists within this scientific centre to competently assess and manage risks relating to genetically modified products.

Pest management unit. The Pest Management Unit of the Ministry of Agriculture, Lands, Forestry and Fisheries administers the Plant Protection Act, 1986 which confers responsibility for managing indigenous and exotic pest and diseases. The Unit is therefore central to assessing and managing risks posed to the local flora.

Officials of this Unit are not trained to identify LMOs or assess the risks posed by these organisms. Decision making regarding the genetic make up of a product is based solely on labelling information.

b. The national biosafety committees

Two biosafety committees appointed by government are presently operating in Grenada. The first nominated in 2002 was responsible for making recommendations to government regarding the ratification of the Cartagena Protocol on Biosafety. The committee is the lead administrative body for developing the National Biosafety Framework (NBF), a Project funded by the United Nations

Environment Program, the Global Environment Facility and participating governments. These Frameworks on completion would confer the capacity for dealing with the transboundary movement, transit, handling and use of LMOs. A public awareness strategy on LMOs and the NBF has been developed by the Committee and plans are currently undertaken for its execution. The work of this committee should culminate on completion of the NBF, which is expected to occur during 2004.

The second biosafety committee established in 2002 is in the process of preparing legislation to address the issues of the Cartagena Protocol. Most of the members of the biosafety committees lack competence in risk assessment and management. It is interesting to note though that both committees share a significant number of the same members.

c. The Grenada Bureau of Standards

The Grenada Bureau of Standards (GBS) was established by a Standards Act of 1989 as the sole entity responsible for the development of national standards in Grenada.

The Bureau is the national contact point for the Codex Alimentarius Commission of the FAO/WHO (CAC). The CAC was formed in 1962 to implement the joint FAO/WHO standards programme, the purpose of which is to protect the health of consumers and ensure fair practices in the food trade. Codex standards, guidelines and other recommendations are explicitly recognized under the WTO Agreement on the Application of Sanitary Phytosanitary Measures (SPS Agreement), and also qualifies as international standards under the Agreement on Technical Barriers to Trade (TBT Agreement). The CAC is considering the development of a general standard which would apply basic food safety and food control disciplines to food derived from biotechnology. The GBS is planning to adopt and implement this standard as well as all other guidelines on risk assessment/management that are developed under the CAC as national standards (Collins, 2003).

d. Ministry of Health and the Environment

The Ministry of Health and the Environment is responsible for administration of the Food and Drug Law, 1986 and the Public Health Ordinance, 1958. Effectiveness of the Ministry in carrying out the functions of these regulations are compromised by weak enforcement and outdated laws which does not incorporate current biotechnology issues.

Environmental Health Officers who have not being trained in risk assessment and management conduct routine inspection of imported foods at the points of entry. Inspection is based primarily on observation. No scientific testing is done to verify assumptions made.

e. Organizational culture for resource and environmental management

Resource and environmental management in Grenada is characterized by uncoordinated and sectoral management. Roberts (2003a) identifies eight features that best exemplifies the organizational culture for national environmental management. These include informal interagency networking; turfism; sectoral and fragmented management; lack of coherence in national policy and programming; inadequate mechanisms for coordination; new focus on participatory resource and environmental management[[iii](#)]; insufficient research emphasis and limited employment of the precautionary principle. This management framework has resulted in conflicting priorities, redundancies and reactive management. According to the NSTC (1994), this piecemeal approach to environmental management has accelerated some environmental problems and hindered solutions to identified problems.

The government of Grenada with funding assistance from the Organization of Eastern Caribbean States Environment and Sustainable Development Unit (OECS ESDU) has responded to the above limitations by initiating the development of an Environmental Management Policy and Strategy. An administrative structure nominated by Cabinet is working to complete both assignments during 2004.

Implementation of the precautionary principle

Very limited use is made of the precautionary principle in decision making. The Department of Fisheries, Ministry of Agriculture, has made some use of this principle in their effort to ensuring sustainable use of local fisheries stock. Utilization of this principle by other key stakeholder agencies, and consistent use by the above department is hindered by a number of factors including, inadequate understanding of the principle by key stakeholders; the challenges of reconciling the conflict between the need for environmental sustainability and economic growth; and the lack of incentives for encouraging use and wider application. It is widely believed by local conservationists that inadequate implementation of the precautionary principle has created a number of environmental problems, resulting from implementation of major development projects aimed at enhancing the national economic climate. Documentation of the impacts of these projects though is almost non existent.

Evaluation of the legal framework

An assessment of the legal framework reveals a number of laws that are significant to the implementation of the Cartagena Protocol. These include the Agricultural Small Tenancies Act Cap 9, 1990; the Animals Act, Cap 14, 15, and 16, 1990; the Banana (protection and quality) Act, Cap 24, 1990; the Fisheries Act, 1986; the Food and Drugs Act; the Noxious Weeds Act, Cap 213, 1990; the Pesticides Control Act; the Plant Protection Act, 1986; the Public Health Act and the Science and Technology Council Act, 1982.

The effectiveness of the legislature is compromised by the scope of protection that the law affords, and the weak enforcement capabilities of the implementing agencies. It is believed though that the discretionary powers provided to the relevant government ministers to amend the legislation must be considered as a facilitating condition for improving the legal framework (Francis, 2003). Similarly, alliances with regional organizations such as CARICOM can be used as stepping stones to improve the legal framework.

Biosafety training needs

This section summarizes the training needs of Grenada to ensure effective implementation of the Biosafety Protocol. Training is subdivided into four areas namely, implementation of biosafety regulation systems; evaluation and management of risks and exchange and dissemination of information and public education.

a. Implementation of biosafety regulation systems

As previously stated the current legal framework is inadequate to address the concerns posed by modern biotechnology, and must therefore be amended. Training of legal officers would therefore be needed on issues pertaining to genetic engineering and the Cartagena Protocol to enhance their capacity for drafting the required legislation.

There is no programme in place for the inspection of LMOs that might enter the country. This would significantly restrict enforcement of the legal framework. It is therefore crucial that stakeholders that are responsible for inspecting goods entering the country be adequately trained to decipher the genetic status of a product.

b. Evaluation and management of risks

According to Verastegui (no date), the capacity of countries to carry out risk assessments based on scientific knowledge is a key factor to determine the effect of LMOs and associated products on the consumer and the environment, without imposing unfair limitations on international trade. Based on this argument, Grenada's capacity to implement the Biosafety Protocol is seriously impaired. Very little competences exist nationally in this area as previously stated. Training therefore is needed by all personnel responsible for implementing the Protocol or the group of competent individuals designated by the government.

Evaluation and management of risks require specialized laboratory equipment to conduct accurate scientific testing. This area is seriously lacking locally. The Ministry of Agriculture Lands, Forestry and Fisheries has access to two laboratories (the Biotechnology and the Produce Chemist Laboratories) that can be used for research in the aforementioned area. However, prior to been used in this capacity, the platforms for scientific experimentation must be secured, and the laboratory technicians trained.

c. Exchange and dissemination of information and public education

A wealth of information and expertise exists nationally, regionally and internationally on the issue of biosafety. Yet, this resource is not maximized by local implementing agencies. It is therefore proposed that a national database be created listing national, regional and international experts in fields relevant to risk assessment and management of LMOs and make use of their publications on these issues. A system of biosafety information exchange and interpretation to support scientific and environmental biosafety assessment should also be developed (Collins, 2003). Some aspects of this should be addressed by the National Biosafety Framework.

The general public including policy makers need to be more aware of the potential benefits and risks of biotechnology. The initial Biosafety Committee developed a public awareness strategy in partial fulfilment of Article 23 of the Cartagena Protocol during its work programme for 2003. It would be prudent to establish a system that would ensure continual public education on the issues under study.

Implementation of any public awareness and education campaign on biotechnology locally could be challenged by the following factors as described below (Roberts, 2003b).

High science. The issue of LMOs is highly scientific and can be very complex and forbidding to the public. Explaining the key messages to the public can be difficult particularly if the presenters are not mindful of their audience. This can pose major problems in ensuring public understanding of the issue, and subsequently facilitating public participation in decision making that pertains to transboundary movement of LMOs.

Polarized views. A number of diametrically opposed views exist among technocrats regarding the usefulness and overall impact of genetic engineering on society. It is possible for these biased perspectives to be transferred to the public, complicating their ability to make independent decisions. This can definitely mask public opinion and willingness to participate in decision making pertaining to LMOs if not properly addressed.

Sustained public education. Considering the economic environment of most Small Island Developing States, the cost for sustaining public awareness and participation is a major concern. The issue is determining who would be responsible for continued public education in light that biotechnology is a dynamic field of study.

Voluntary media promotion. Decision making in the communication business is fuelled not so much on issues that can result in long term national development, rather on events and/or activities perceived to be dramatic and/or will secure public interest. In recognition of this, it is possible that the media might not deem biosafety as an important

issue resulting in minimal or no promotion of the issue. This can place greater burdens on limited resources available to implement media based public service announcements and other informative programs.

Apathetic public. Decision making regarding the importation of LMOs can be complicated by international trading agreements that Grenada is signatory to. Specifically, these trading arrangements can override decisions made at the domestic level regarding the importation of LMOs. Cognizant of this political and economic control, the public can become apathetic to the education initiative, deeming their contribution as futile in altering current global cultures. This can lead to a public who is apathetic to the education strategy, seriously impeding public participation.

Effort must be made therefore to incorporate strategies to minimize the impact of these factors on the effectiveness of planned educational programmes.

DISCUSSION

a. Legal and Institutional Framework: It is apparent that some aspects of the organizational setting for resource and environmental management could hinder progress towards biosafety management. The steps taken by the government though through its development of an environmental policy and strategy can significantly improve the management of the environment. This would impact positively on Grenada's capacity to implement the Biosafety Protocol, thus ensuring greater benefits from the biotechnology industry.

b. The limited capacity in risk assessment and management could be considered as the single greatest hindrance to fostering effective management of LMOs on the environment and human health. Critically needed therefore would be training of a cadre of professionals assigned to the implementing agencies in risk assessment and management. In addition, improving the laboratory infrastructure would be necessary. In light of the limited technical and financial resources available to SIDS like Grenada, the focus on regional partnership and cooperation should be emphasized.

c. Implementing the public education programme developed could contribute immensely to public awareness and participation in the issues, critical aspects for successful biosafety management.

CONCLUDING REMARKS

It is apparent that the legal and institutional framework of Grenada is not fully conducive for the implementation of the Biosafety Protocol. The following constraints are presently limiting progress towards effective implementation of the Cartagena Protocol.

- Inadequate legal framework;

- Lack of an established administrative arrangement for assessing and managing the risk of LMOs;
- Lack of coherence in policies and programs among key implementing agencies;
- Lack of, and/or insignificant awareness among the populace of the implications of biotechnology;
- Limited and/or no training on risk assessment and management among implementing agencies;
- Inadequate scientific apparatus to conduct required assessments;
- Inadequate systems for exchange of information.

Grenada's capacity to maximize the benefits of genetic engineering while significantly reducing the negative impacts of the technology on the environment and human health can be further developed if the challenges listed above are addressed.

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[i] Features that contribute to ecological vulnerability include the following: geographic isolation, ecological uniqueness and environmental fragility, rapid human population growth, limited land resources, high dependence on marine resources, exposure to extremely damaging diversification and exposure to external and global changes in climate (UNEP 1999).

[ii] SIDS are dependent upon the vagaries of international trade, lack economies of scale and have high transportation and communication costs.

[iii] Participatory management is implemented through co-management arrangements exemplified in particular by the Forestry Department and the Fisheries Division of the Ministry of Agriculture, Lands, Forestry and Fisheries.