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SESSION I: TOWARDS A CARIBBEAN BASIN INVASIVE SPECIES SAFEGUARDING STRATEGY FRAMEWORK: FROM GRENADA 2003 TO MIAMI 2008

REVIEW AND UPDATE: THE CARIBBEAN INVASIVE SPECIES WORKING GROUP (CISWG)

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ABSTRACT: The Caribbean Invasive Species Working Group (CISWG) was formed following an initiative of the Caribbean Food Crops Society when it held a special 1 day symposium on invasive species at the 39th Annual Meeting in Grenada in 2003. At this session scientists, policy makers and trade specialists from throughout the Greater Caribbean Region discussed the issues caused by introduced pests and pathogens.

CISWG is a networking and information sharing facility chaired by CARDI, which has been officially recognised by the CARICOM Council for Trade and Economic Development (COTED). CISWG has also been officially recognised by the non CARICOM member governments of Costa Rica, Dominican Republic, France and the United States of America. The major purposes of CISWG are outlined. The geographical area of interest is all countries in the Caribbean Sea, all countries with borders on the Caribbean Sea, as well as countries in northern South America and the United States of America. Apart from CARDI the other formal members of CISWG are (in no particular order), CARICOM Secretariat, CABI, CIRAD (France), France - Service de la Protection des Végétaux, Direction de l'Agriculture et de la Forêt, Costa Rica Ministry of Agriculture, IDIAF (Dominican Republic), The Nature Conservancy (USA), FAO, IICA, PAHO, USDA/APHIS, University of the West Indies, Florida A&M University, University of Florida, and the University of Puerto Rico. In addition all governments in the Region belonging to the Organisation of American States have been invited to have an official representative for CISWG and many of these have nominated a representative.

The first major activity undertaken by CISWG was a workshop held in Trinidad in June 2004 entitled "Facilitating Safer US-Caribbean Trade: Invasive Species Issues." This meeting identified the key issues which were outlined in a document prepared by CISWG entitled "Caribbean Regional Invasive Species Intervention Strategy" - the "CRISIS Document".

The CISWG members have developed a project proposal entitled "Caribbean Invasive Species Surveillance and Information Programme" (CISSIP), which consists of four major components and a number of minor components. The major components are (i) Pest Survey and Inspection Programme (PSIP), (ii) Caribbean Regional Diagnostic Network (CRDN), (iii) Invasive Species Information System (ISIS), and (iv) Public Education Programme (PEP).

Other current activities underway by CISWG include the coordination of regional efforts to control the Red Palm Mite *(Raoiella indica);* a Caribbean Pathway Analysis which is examining the pathways taken by invasive species into and within the Region, support for the Caribbean Plant Health Directors Forum, and also support to an invasive species project pertaining mostly to marine environments, being executed by CABI, and funded by the Global

Environment Facility of the World Bank and the United Nations Environment Programme.

KEY WORDS: Regional Invasive Species Intervention Strategy, coordination, pest survey

INTRODUCTION

Invasive species have probably been a threat to natural ecosystems for millions of years, but the problem has become especially acute in recent decades as humans and their goods rapidly and continuously criss-cross the planet by means of intercontinental aircraft, and ocean-going vessels.

In the 19th century, many of the invasions were caused by careless or thoughtless actions. For example the introduction of the mongoose to the Caribbean to control rats and snakes. In more recent years accidental invasions have become more frequent and more damaging. In the 1990s, the Pink Hibiscus Mealy Bug (*Maconellicoccus hirsutus* – Green) arrived in Grenada and quickly spread to many other islands and to North and South America with devastating effects on the preferred host plants. In this decade the Red Palm Mite (*Raoiella indica* Hirst) seems to be destroying the region's coconut trees after having first arrived in the French Caribbean.

The above examples were almost certainly caused by human activity rather than any natural process such as wind, sea or bird transport. In attempting to control or reduce this undesirable traffic most countries have legislation in place which can regulate trade in commodities from countries which have pests not present in the importing countries. However, countries must abide by the Sanitary and Phytosanitary Agreement and the rules of the World Trade Organization.

Thus control of invasive species is necessary for a country or region to protect its trade in agricultural commodities. In 2003, the Caribbean Food Crops Society (CFCS) at its 39th Annual Meeting in Grenada took the initiative to develop a full one day plenary symposium entitled "Challenges and opportunities in protecting the Caribbean, Latin America and the United States from invasive species". Nineteen presentations were made and a special volume of the proceedings was published (Klassen *et al.,* 2003).

OUTCOME OF THE GRENADA CFCS MEETING

During the 39th CFCS meeting in Grenada, some of the scientists, policy makers and trade specialists who attended the one-day plenary session on invasive species held a number of breakout sessions. These sessions led to the formation of a group of scientists from different institutions who agreed to work together on the invasive species issues.

The first actions of this group were to develop a list of proposed invasive species projects and also to develop a number of invasive species policies and recommendations. These proposals and recommendations were developed, after the meeting, in electronic communications between the group of scientists and are detailed in the above mentioned special volume of proceedings (Klassen *et al.,* 2003).

Perhaps the most important outcome of the Grenada symposium was the initial drafting of the 'Caribbean Regional Invasive Species Strategy (CRISIS)'. This initial draft was done by Edward "Gilly" Evans of the University of Florida, Everton Ambrose of IICA and Moses Kairo of CABI and was based on the policy recommendations developed during and after the meeting.

WORKSHOP IN TRINIDAD, JUNE 2004

The working group of scientists formed after the CFCS meeting in Grenada was instrumental in an important workshop, which took place in Port of Spain, Trinidad in June 2004. This workshop was entitled 'Facilitating Safer US-Caribbean Trade: Invasive Species Issues'. The sponsoring organizations were (in alphabetical order) CAB International (CABI), Caribbean Agricultural Research and Development Institution (CARDI), Caribbean Development Bank (CDB), Food and Agriculture Organisation of the United Nations (FAO), Inter-American Institute for Cooperation on Agriculture (IICA), Ministry of Agriculture, Land and Marine Resources (MALMR) of Trinidad and Tobago, University of Florida (UF) and University of the West Indies (UWI). The proceedings of this meeting (Klassen *et al* 2004) are available from CARDI and the University of Florida.

FINALISATION OF CRISIS DOCUMENT

The symposium in Trinidad identified the need to complete and finalise the CRISIS document and following further work by Everton Ambrose, Martha Roberts and others, the draft document was presented to the 19th meeting of the CARICOM Council for Trade and Economic Development (COTED) held in Guyana in May 2005. COTED noted the strategy and mandated CARDI to circulate the document to CARICOM member states for review and comments. This was done and the Caribbean Regional Invasive Species Intervention Strategy was adopted at the 21st COTED meeting held in Trinidad in May 2006 as a regional strategy.

The goals of the CRISIS strategy are:

- Prevent the introduction of new invasive species
- Reduce the impact and further spread of invasive species already present
- Develop harmonised policies and regional cooperative frameworks
- Develop and maintain effective coordinated networks of information
- Build the management and research capacity
- Raise awareness of the dangers posed by invasive species with economic interests (operating in agriculture, fisheries, forestry, environment, public health, export/import, banking), military, local non-government organisations, policy makers and the general public
- Facilitate access to and retention of markets
- Promote interaction among all stakeholders including the private sector, local, national, regional and international entities.
- Develop technical capacities to identify, prevent, monitor and manage potential invasive species and major pathways of introduction

OFFICIAL RECOGNITION OF CISWG

Following the above events and the mandate from COTED for CARDI to circulate the CRISIS strategy document, meetings of the group of scientists were chaired by CARDI. The scientists proposed the name 'Caribbean Invasive Species Working Group' (CISWG) and the group was recognised by COTED. The COTED also 'endorsed CARDI as the lead agency in building the necessary strategic partnerships for the control and management of invasive species in the region'

The current members of CISWG (July 2008) are:

- CARDI (Chair)
- CAB International
- CARICOM Secretariat
- CIRAD (French Agricultural Research Centre for Agricultural Development)
- Costa Rica, Ministry of Agriculture
- FAO
- Florida A&M University
- France, Service de la Protection des Végétaux, Direction de l'Agriculture et de la Forêt, Ministère de l'Agriculture, de l'Alimentation et de la Pêche,
- IDIAF (Dominican Republic Institute for Agriculture and Forestry Research)
- IICA
- The Nature Conservancy
- PAHO (Pan American Health Organisation)
- University of Florida
- University of Puerto Rico
- University of the West Indies
- USDA/APHIS

As can be seen from the list of current members, CISWG is not restricted to CARICOM countries and agencies. By their very nature, invasive species do not recognise political and national divisions. Therefore, CISWG is a network covering the wider Caribbean (English, Spanish, Dutch and French speaking). From the outset of these activities (i.e., the Grenada CFCS meeting) the United States has also been very prominent; chiefly through institutions and agencies operating in the State of Florida, which is a major pathway for invasives entering from and traveling to the Caribbean.

It is important to realise that CISWG is not a Board or an Institute with formal terms of reference, but a mechanism for networking, policy development and programme development. Countries in the region of operation (the wider Caribbean) have been invited to name a person as an official liaison agent with CISWG. These countries are also invited to attend CISWG meetings. Many countries have named a representative to liaise with CISWG, but even those that have not are invited to attend meetings and attempts are made to keep them informed of developments and activities of CISWG.

Countries who have named a representative include Costa Rica, Dominican RepublicFrance and the USA who are not members of CARICOM. This emphasises the policy of CISWG to include all countries in or near the Caribbean whatever political grouping they may or may not belong to.

CISWG holds a formal meeting at least once per year and an electronic maiking list (listserv) is maintained.

The purposes of CISWG can be summarised as follows:

- To develop strategies which safeguard the Caribbean against attacks by invasive alien species.
- To prevent as far as possible, the introduction of invasive alien species.
- To develop management, containment or eradication strategies, as appropriate, for those invasive alien species which succeed to enter the region.
- To share information on invasive species, both alien and indigenous, and on attempts to control them.
- To focus primarily on invasive species which present a threat to agriculture and trade in agricultural commodities and products.

CARIBBEAN INVASIVE SPECIES SURVEILLANCE AND INFORMATION PROGRAMME (CISSIP)

After the completion of the CRISIS strategy it was obviously necessary to determine how CISWG could assist to operationalise the strategy. In an attempt to do this, CISWG has developed a proposed programme known as CISSIP (Caribbean Invasive Species Surveillance and Information Programme) which, if funded and established, will partly implement the CRISIS strategy.

CISSIP will facilitate rapid diagnosis and timely collection, analysis and dissemination of information on pests and disease threats throughout the Caribbean. There will be four major components supported by a number of auxiliary components. The major components are described below:

1. Pest survey and inspection programme (PSIP). This will establish a regional target pest list that will be the basis for regional pest surveys and provide focus to port of entry inspection activities on commodities moving into or within the region.
2. Caribbean Regional Diagnostic Network (CRDN). This will use web-based distance diagnostic technology to link strengthened diagnostic capabilities in the region. This will assure rapid and proper diagnosis, communication, decision-making and implementation of emergency measures. An effort is underway to construct the CRDN with available resources. Thus Florida, Puerto Rico, the Dominican Republic and Haiti have implemented the use of the Distance Diagnostic and Identification System (DDIS), which was pioneered by the University of Florida Cooperative Extension Service. A secure server dedicated to facilitate the work of this network is provisionally located on the campus of the University of Florida. The latter with funding from the USDA T-STAR Programme has been providing training to scientists and technicians in the Dominican Republic, while USAID has funded the diagnostic laboratory and training in Haiti. USDA/APHIS has procured microscopes and software for one web-connected diagnostic laboratory in each of five countries, and the CARICOM secretariat is in process of facilitating the allocation of these resources to appropriate CARICOM countries.
3. Invasive species information system (ISIS). This will link to existing information systems in the wider Caribbean and provide detailed current information on pest/pathogen threats both external and internal to the region. The system will contain

target priority lists of invasive alien species for each country and the region. Other information will be available subject to the authority of the participating country; this will include real-time pathway status updates, invasive alien species interception data from ports of entry and reports of new pests. The system will also include a global reference database on important pests to the region and invasive species alerts to facilitate timely initiation of protective and mitigation measures.

4. Public education programme (PEP). The education programme will disseminate accurate information for use by governments, media, agencies, industries and the public concerning invasive species and best practices for prevention, eradication, control and management.

The auxiliary components of CISSIP will provide project management, in-service training to conduct the major components and advanced graduate training to develop professionals to continue the programme in the future.

The proposed total budget for CISSIP is nearly US$16M over 5 years. CARICOM submitted the proposal to the Agricultural Donors Conference, which was held in Port of Spain in June 2007. This was followed up with a formal proposal to the Inter-American Development Bank for funding. However, to date, funding has not been secured. It remains a major task of CISWG to obtain funds. This may have to be done in several parts as few funders are likely to have resources to cover the whole budget. There is also the problem that, notwithstanding the environmental, economic and social damage being caused, the urgency of the need to mitigate against invasive species needs to be more widely appreciated.

SOME OTHER CISWG ACTIVITIES

CISWG's networking attempts to ensure awareness of and participation in all invasive species activities in the Caribbean which present a threat to agriculture and trade in agricultural commodities and products. There has been an emphasis on crops rather than livestock, because the chief veterinary officers and CARIBVET (Caribbean Animal Health Network) are very active in the mitigation and control of alien species which threaten livestock production.

Three activities in which CISWG is participating are briefly described below:

1. Control of Red Palm Mite (*Raoiella indica* Hirst). This mite entered the Caribbean in 2004 and was first reported in Martinique. It then spread to St. Lucia (2005), Dominica (2005) and Trinidad (2006). It continued to spread rapidly throughout the region and into south Florida where it is now well established along the Atlantic.

Yield losses at some major coconut estates in Trinidad are reported to be well over 50% (probably about 70%) which is having a very profound effect on the coconut industry including coconut beverages and coconut ice cream. In addition to this the impending loss of coconut palms from Caribbean beaches will be a severe environmental blow to the tourist industry.

A Red Palm Mite Working Group was set up, coordinated by CARDI as chair of CISWG. Moreover, at the April 2008 meeting of Caribbean Plant Health Directors, Red Palm Mite and Giant African Snail (*Achatina fluica* Ferussac) were identified as priority major threats and

CARDI (as chair of CISWG) was asked to facilitate networks of scientists working with both these pests. This new network for Red Palm Mite has been formed as an electronic group with a workspace on the internet and will continue the work of the previous red palm mite working group.

Control programmes for the red palm mite are underway by CABI (with funding from USDA/APHIS), University of Florida and the governments of St. Lucia, Dominica, Grenada, Jamaica and Trinidad and Tobago. CARDI is seeking help from countries where the red palm mite is native to identify a biological control agent(s) which can be utilised in the Caribbean. The coordination by CARDI/CISWG is aimed at information sharing between all these various efforts, avoiding duplication of resources and trying to ensure that findings by one party are quickly known by others as control of this very damaging pest is crucial.

2. CISWG Caribbean Pathway Analysis. This is being executed on behalf of CISWG by USDA/APHIS at the Plant Epidemiology and Risk Analysis Laboratory, Raleigh N.C., and is attempting to determine the paths taken by invasive species within the Caribbean and into and out of the Caribbean into other countries with emphasis on the USA. Some components are:

- Quantitative analysis of risk posed by airline passengers
- Quantitative analysis of mail and express courier pathways
- Natural spread of pests in the Caribbean
- Characterisation of tourism/movement of people in the Caribbean
- Characterisation of trade in the Caribbean

This analysis has been in progress for some months and is producing some interesting results. A drawback is the quality of information available to determine some of the components; unfortunately, the Caribbean is a region where information is not always available and, if it is, it can be difficult to obtain.

3. GEF Invasive Alien Species Project. The Global Environmental Fund (GEF) has a project entitled 'Mitigating the Threats of Invasive Alien Species in the Caribbean. The main executing agency is the United Nations Environment Programme with many other executing agencies including CABI. The components are:

a. Development of national invasive alien species strategies
b. Establishment of Caribbean-wide cooperation and strategy
c. Information and knowledge generation, management and dissemination
d. Prevention of new invasive alien species introductions in terrestrial, freshwater and marine systems
e. Early detection, rapid response and control of invasive alien species in terrestrial, freshwater and marine systems

These components are very similar to the objectives of CISWG, but do not have the emphasis on agriculture and trade in agricultural products. Component b is utilising CRISIS as a strategy to be built on to envelop the other areas of interest (apart from agriculture) in terrestrial, freshwater and marine systems. CISWG is participating in fora organized by this project and has been recognized as a co-financing partner.

CONCLUSIONS

CISWG has been successful in developing a strategy for invasive species and a proposal to execute much of strategy. It has also managed to bring together, diverse partners in a region where networking can be difficult to accomplish.

Another success has been the fact that different agencies and governments are no longer ignorant about the work of others.

There remains the challenge of obtaining funding for the governments and institutions to be able to control the threats of invasive species; there is also some way to go to convince everybody of the need to put considerable effort into the prevention of entry of invasive alien species into the Greater Caribbean Region and into the eradication or control of those harmful species that do become established in the Region.

REFERENCES

Klassen W., W. Colon and W.I. Lugo (2003). Caribbean Food Crops Society. Thirty Ninth Annual Meeting 2003. Grenada. Volume 39, Number 1. Published by Caribbean Food Crops Society.

Klassen W., C.G Davis, E.A. Evans, B. Lauckner, H. Adams and M.T.K Kairo (2004). Facilitating Safer US-Caribbean Trade: Invasive Species Issues Workshop. Port of Spain, Trinidad and Tobago, West Indies. 2-4 June 2004. Published by University of Florida, Gainesville, Florida.