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OPERATIONALIZING CRISIS AS A REGIONAL INVASIVE SPECIES SAFEGUARDING
MODEL: EXPLORING MULTIPLE PLATFORM INITIATIVES

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REGULATORY/COORDINATION CONSIDERATIONS FACING THE IMPLEMENTATION OF A CARIBBEAN INVASIVE SPECIES STRATEGY FROM THE FAO PERSPECTIVE

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ABSTRACT. The issue of invasive alien species (IAS) has long been on the agenda of the Food and Agriculture Organization of the United Nations (FAO) when the International Plant Protection Convention (IPPC) initially entered into force with the major purpose of preventing the introduction and spread of pests of plants and plant products. Today, invasive alien species (IAS) are considered under the broader umbrella of biosecurity and, for the IPPC Secretariat, interest in IAS is from the perspective of plant pests as species that may be invasive and that directly or indirectly affect plants or plant products and should be assessed, monitored and managed, if necessary, according to IPPC provisions. Several reports have indicated the threat of IAS as in the Caribbean region; recent plant pest invasives include the hibiscus mealybug, black Sigatoka disease and lethal yellowing of coconuts. FAO has recognised the disjointed and incomplete approach to the international policy and regulatory framework for biosecurity in food and agriculture and has suggested several regional and national actions to overcome the several shortcomings such as the development of common methodologies, particularly for risk-analysis, international standard-setting (including, where appropriate, environmental-related standards), and integrated management and monitoring. Further, it was recognised that broadly similar situations exist in national policy and regulatory frameworks where controls and national authority for biosecurity matters tend to be scattered over several ministries or departments. The limited resources of the several small island states in this Region militate against any individual effective action. However, collaborative and harmonized actions can certainly have an impact.

KEY WORDS: FAO, invasive alien species, IPPC, plant pests, harmonized actions

INTRODUCTION

The issue of invasive alien species (IAS) has been on the agenda of the Food and Agriculture Organization of the United Nations (FAO) since 1952 when the International Plant Protection Convention (IPPC) initially entered into force. The IPPC has, as its main purpose ... securing common and effective action to prevent the spread and introduction of pests of plants and plant products, and to promote appropriate measures for their control ... (FAO, 1999). While there was no specific reference, at that time, to invasive species, per se, today such introduced pest organisms may be categorised as invasive alien species. In a paper - Biosecurity in Food and Agriculture - presented to the Sixteenth Session of the Committee on Agriculture held in Rome in March 2001a, it was suggested that - Biosecurity has direct relevance to food safety, the conservation of the environment (including biodiversity), and sustainability of agriculture and, further, that it ... encompasses all policy and regulatory frameworks (including instruments and activities) to manage risks associated with food and agriculture (including relevant environmental risks), including fisheries and forestry. Further, FAO views biosecurity as a key

requirement for achieving the goals set out in its Strategic Framework by promoting, developing and re-enforcing policy and regulatory frameworks for food, agriculture, fisheries and forestry (FAO, 2001a). In this same discussion paper, biosecurity was viewed as comprising food safety and plant and animal life and health and these three sectors included ... food production in relation to food safety, the introduction of plant pests, animal pests and diseases, and zoonoses, the introduction and release of Genetically Modified Organisms (GMOs) and their products, and the introduction and safe management of invasive alien species and genotypes.

For the IPPC Secretariat, interest in IAS is from the perspective of plant pests. In 2001, following the recommendations of a working group, the Interim Commission on Phytosanitary Measures (ICPM) agreed that species that may be invasive and that directly or indirectly affect plants or plant products should be assessed, monitored and managed, if necessary, according to IPPC provisions; further, invasive alien species that are plant pests and that are not present (if present then of limited distribution and under official control) should be considered quarantine pests and should be subjected to measures according to IPPC provisions (FAO, 2001b). To achieve this, in part, in 2003 the ICPM adopted the international standard on phytosanitary measures - ISPM 11 Rev.1: Pest risk analysis for quarantine pests including analysis of environmental risks. Not only does this standard provide details for the conduct of pest risk analysis (PRA) to determine if pests are quarantine pests, but it also includes details regarding the analysis of risks of plant pests to the environment and biological diversity, including those risks affecting uncultivated/unmanaged plants, wild flora, habitats and ecosystems contained in the PRA area (FAO, 2003). These decisions served to bring in line the concepts of quarantine pest and invasive alien species.

SOME INVASIVE ALIEN SPECIES THREATS TO THE CARIBBEAN REGION

The problem of IAS in the Caribbean, particularly with respect to issues of safer US-Caribbean trade, was the theme of a regional workshop held in Trinidad in June 2004. Representatives of 20 different countries and some 73 delegates attended this workshop. One major outcome was the ... bringing together, prioritizing, and rationalizing the essential components of an effective AIS (alien invasive species) strategy. One major component of this strategy was the recognition of the need for a “Greater Caribbean Basin-wide” approach to deal with issues of invasive alien species in the Region (Klassen et al., 2004).

With respect to major invasive pests of agricultural significance which threaten the wider Caribbean sub-region, Pollard and Pegram (2004) and Pollard (2005) have outlined some of the more important. For example, the hibiscus mealy bug, carambola fruit fly, coconut lethal yellowing, black Sigatoka of banana and plantain, giant African snail, chilli thrips are all recent introductions which have caused or, have the potential to cause major losses; the *Amblyomma* tick can be equally devastating to livestock. Kairo et al. (2003) have produced a comprehensive report of invasive species threats in the Caribbean region. This preliminary report lists 552 species reported as alien to the Caribbean region and notes that the majority have established themselves outside of agricultural systems. In fact, out of the 552 species, these authors distilled a listing of 23 species (1 aquatic plant, 5 tree species and 13 vertebrate species) which they considered to be posing major invasive threats to the Caribbean. Comparing this with Florida, for example, Shannon (2003) reported that over the past two decades, approximately 55 percent of the harmful alien species that established in Florida were of neotropical origin with about 40 percent from Asia but which had become established in the Caribbean, before being introduced

into Florida. As of 2004 in Florida, there were at least 100 non-native aquatic and terrestrial plant species that were aggressively invading and spreading through the wild lands of the state (<http://aquat1.ifas.ufl.edu/guide/invplant.html>). This makes Florida one of the states with the most severe exotic pest plant problem in the USA. Approximately 1.5 million acres have been invaded by exotic pest plants in Florida. Interestingly, about 45 percent of the invading plants were originally imported for ornamental landscape use (McAvoy, undated). This is not surprising as Shannon (1999) indicated that 80 percent of all propagative plant material and 70 percent of all cut flowers imported into the United States come through Florida. Similar concerns also exist elsewhere. A recent report on interceptions of non-indigenous species for Europe over the period 1995-2004 indicates that most species were intercepted on cut flowers (22.3%), plants for planting (19.1%) and vegetables (18.7%). Not surprisingly, two-thirds of the interceptions of these alien species (were found on commodities imported for consumption (flowers, fruits, stored products, vegetables, wood) while propagative material (live plants and seeds) only accounted for 34% (Roques and Auger-Rozenberg, 2006).

Two recent invasive species into the Region which have caused serious crop losses are black Sigatoka disease of plantains and bananas and the hibiscus mealybug. Black Sigatoka disease, caused by the fungus *Mycosphaella fijiensis* Morelet, is one of the most damaging and costly pests of banana and plantain worldwide (Marín et al. (2003). This pest was first identified in the Latin American and Caribbean region in 1972 in Honduras from where it then spread to several neighbouring countries in Central and South America before arriving in the Caribbean sub-region and in South Florida (Ploetz, 1998). Trinidad was the most recent country to report this pest in November 2003. Marín et al. (2003) indicated that losses of over 38 percent in plantain have been reported; also, control activities could account for 27 percent of total production costs. Significant losses have also been reported for Brasil (Cavalcante, et al., 2004) and Cuba (Pérez Vincente, 1998).

The hibiscus mealy bug, *Maconellicoccus hirsutus*, first reported in Grenada in 1994 (and which, incidentally, was the first report of the establishment of this pest in the Western Hemisphere), has since spread throughout the wider Caribbean including parts of the USA, Mexico and Central America. One early impact assessment study for the United States of America had predicted that should this pest become established, potential annual losses would be US\$750M (Moffit, 1999) while, more recently, Ranjan (2004) indicated that the total expected annual average damage to crops in Florida was \$163 million and, in the USA, generally, \$1,581 million.

Citrus canker is another fairly recent invasive to the region. In Florida, the estimated total cost of the eradication program since 1995 was \$477 million, inclusive of the destruction of infected/exposed trees and compensation to homeowners for lost trees; the economic loss, if citrus canker were to become endemic in Florida, was estimated at \$2.5 billion (Woods, 2005).

These three examples serve to indicate the problem of invasive species in the Caribbean and Latin America and their impact on agriculture.

NEED AND OPPORTUNITIES FOR COORDINATION AND HARMONISATION

In a discussion paper, FAO (2001a) recognised that the international policy and regulatory framework for biosecurity in food and agriculture is ... disjointed and as yet incomplete; further, programmes related to biosecurity (both FAO and those of other relevant International Organizations and secretariats of International Instruments) needed to develop

common methodologies, particularly for risk-analysis, international standard-setting (including, where appropriate, environmental-related standards), and integrated management and monitoring. There was also the need to promote common regional/sub-regional actions and to enhance the ability of countries to participate in the development and implementation of common methodologies. It was further recognised that broadly similar situations exist in national policy and regulatory frameworks where controls and national authority for biosecurity matters tend to be scattered over a variety of ministries, e.g., Health, Agriculture, Forestry, Environment, Fisheries, Labour, Trade and Industry.

In this same discussion paper the following regional and national actions were suggested to overcome these shortcomings and included as appropriate:

- the coordination and cooperation among the relevant authorities and ministries in relation to national policy and action and participation in the definition of common international actions
- harmonisation and integration of national legislation
- modernisation and harmonisation of regulations, with the aim to rationalise sanitary, phytosanitary and zoosanitary measures, while protecting human health and the environment;
- establishment, rationalisation and optimisation of national capacity with the aim of avoiding duplication, inconsistency and disputes among the relevant national agencies
- make optimal use of regional resources and capacities; and
- cooperate in the exchange of relevant official information among states

One of the major constraints to many countries in the Caribbean sub-region, as identified above, is inadequate legislation to deal with these new and emerging issues related to the threat of invasive species. That is not to say that there is not existing legislation in place; in fact, there are several relevant legislative instruments. Kairo et al., (2003) listed several of these which included both agriculture related legislation (e.g., plant and animal protection acts) as well as legislation pertaining to environmental management. However, many of these pieces of legislation are outdated and are no longer sufficiently relevant to the modern needs and concerns regarding the issue of IAS. For example, the plant protection legislation and regulations in most of the English-speaking countries date back to the early half of the 20th century. As would be expected, such existing legislation does not ... reflect either modern phytosanitary concepts or agreed-upon international norms as was recognised by FAO's Legal Officer who was responsible for preparing the model draft Plant Protection Legislation for CARICOM Member Countries under an FAO regional project. This draft legislation was developed in 2002. However, to date, only one or two countries have passed new and updated Plant protection legislation. It is clear that there needs to be greater commitment on the part of countries themselves.

In order to effectively manage the IAS problem in the Caribbean sub-region, several actions are necessary. However, all countries may not have the capacity to deal with this ever-growing problem and assistance will have to be provided to the region in order to implement these actions, such as:

- implementation of relevant international conventions and frameworks such as the IPPC, for example
- development of required legislative and regulatory frameworks
- strengthening of national capacity (human and physical)
- development of national plans vis a vis international obligations

- development/implementation of a regional strategy
- relevant and timely information exchange
- management of IAS as plant pests

These areas of assistance are similar to those identified by Kairo et al, (2003) who modified, for a regional perspective, several actions from the Global Invasive Species Programme (GISP) tool kit. These included:

- building management capacity
- building research capacity
- promotion of national and regional cooperation and sharing of information
- compilation of national lists of biota, identified IAS, projects on invasive species
- instituting a system of environmental risk analysis
- building of public awareness and engagement
- preparation of national strategies and plans
- building of IAS issues into national /regional change initiatives

In order to achieve these objectives, at least two major initiatives have been initiated. One is the Caribbean Regional Invasive Species Strategy (CRISIS) which, through the Caribbean Invasive Species Working Group, has developed the Caribbean Invasive Species Surveillance and Information Program (CISSIP) proposal. The other is the CAB International proposal to the Global Environment Fund on Mitigating the Threats of Invasive Alien Species in the Insular Caribbean. Both these initiatives aim to facilitate a regional response to the threats of IAS in the Caribbean sub-region.

CONCLUSIONS

The ever-increasing threat of IAS is a growing problem in the Caribbean sub-region. The potential and real environmental and economic impacts of IAS can be exemplified by the recent introductions of several agricultural invasive pest species such as the hibiscus mealy bug, black Sigatoka or citrus canker. The limited resources of the several small island states in this region militate against any individual effective action. However, collaborative and harmonized actions can certainly have an impact. There is also the need for assistance to the Region and several areas for assistance have been identified above.

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