

Biodiversity Conservation in Sub-Saharan Africa: Policies, Laws and Institutions to Control/Prevent the Introduction of Alien Invasive Species

John Mugabe

Commission in Science and Technology for Africa's Development and the
New Partnership for Africa's Development (NEPAD)

Abstract

The policy and legal instruments as well as institutional arrangements for the regulation and/or control of the introduction of alien species in Sub-Saharan Africa are reviewed. Many countries in Sub-Saharan Africa have integrated measures to regulate the introduction of alien species into their environmental policies and laws as well as in sectoral instruments (for example, fisheries laws, forest laws) and national biodiversity strategies and action plans. The challenge that many of these countries face relates to the accumulation of national capabilities to monitor and scientifically assess impacts of alien species. Review of national policies, laws and agencies that have either implicit or explicit responsibilities and goals of regulating the introduction of alien invasive species into the environment indicate that countries are devoting considerable attention to issues and concerns associated with the introduction and control of alien species. An analysis of the nature of regional instruments and institutions for the control and/or regulation of the introduction of alien species shows that a body of policies and laws, as well as organizational arrangements, have been put in place to handle the trans-boundary introduction of alien species. The need to build national and regional scientific and technical expertise and infrastructure to monitor, assess, and regulate the introduction of alien invasive species, is emphasized.

Introduction

The past three decades have seen considerable concern about the depletion and loss of Africa's biological diversity. Conserving the region's biological diversity has become an important public policy issue at international, regional, and national levels. It is widely recognized that if the remaining biological diversity is left to disappear as a result of overexploitation and other socio-economic activities, the region's prospects of achieving economic recovery and political stability will be eroded. This is because biological diversity, and more specifically, biological resources, is the basis for regional and national economic development, ecological security, and socio-political stability.

Many African countries have formulated policies, enacted laws, and established agencies to conserve biological diversity. These regimes—the policies, laws and agencies—address different components and issues of biological diversity and its management. While some of them focus on ecosystem management as a whole, others are

devoted to the regulation of specific activities and conservation of specific components.

This paper focuses on policy and legal instruments as well as institutional arrangements for the regulation and/or control of the introduction of alien species.

National Measures

National environmental plans, policies, and laws as well as seed, quarantine, and agricultural laws of many African countries recognize that alien species may pose problems to the environment in general and to biological diversity in particular. National biodiversity strategies and action plans of several African countries have also identified the need and urgency of implementing Article 8(h) of the Convention on Biological Diversity which states that “each Contracting Party shall, as far as possible and appropriate, prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.” However, many of the existing measures are implicit are not deliberately instituted to

address issues and threats associated with the introduction of alien species (Mugabe et al. 1997).

National Environmental Action Plans (NEAPs) make reference to the importance of regulating the introduction of alien species. Uganda's NEAP devotes attention to issues associated with the introduction of alien species, particularly within and for trans-boundary ecosystems. It commits the National Environment Management Authority (NEMA) to conduct monitoring activities and coordinate the implementation of measures aimed at preventing the introduction of alien invasive species into Uganda's natural environment.

Most countries have national quarantine laws to regulate the importation and prevent the spread of diseases and pests in animals and plants. These laws contain provisions that can be invoked to prevent the introduction of alien invasive species. For example, Mauritius' Plant Act No. 12 of 1976 restricts the importation of any seed and/or plant material without the approval of relevant quarantine authorities. Section 15(2) states that "No person shall plant sugar cane of any variety other than those specified in an Order under subsection (1) except on an experimental scale, with a written authority of the Committee and subject to such conditions as the Committee thinks fit to impose." These provisions of the law can be invoked to control the introduction of alien species of sugar into the country.

Countries have various trade regulations that are implicit instruments for preventing the introduction of alien invasive species. For example, Uganda's agricultural trade and marketing policies stipulate that no person and/or institution shall export and/or import seeds of agricultural crops, for example coffee without a permit from a recognized authority. Customs administration at all borders of the country are required by law to inspect and determine all goods being taken into and out of the country, and to control export and import of seeds without permits.

Measures to regulate the introduction of alien species are also contained in or articulated by fisheries legislation of some of the countries. Kenya's fisheries legislation, The Fisheries Act (Chapter 378 of the laws of Kenya), has implicit provisions on the control of the introduction of alien species. Part II section 5(1) states: "The Director may with the approval of the Minister, by notice in the Gazette, impose.....the following

measures that are necessary for the proper management of any fishery.....control of the introduction into, or harvesting or removal from any Kenya fishery waters of any aquatic plant." Some national fisheries laws tend to contain explicit provisions to regulate the introduction of alien species. Malawi's Fisheries Act No. 25 of 1997 has explicit reference to the introduction of alien species. Part XI section 41(1) c provides that, "No person shall, without a permit granted by the Director introduce into any water any fish not indigenous thereto."

A few African countries have taken deliberate steps to revise their environmental policies and laws to integrate provisions of Article 8(h) and other articles of the Convention on Biological Diversity. These countries include Gambia and the Seychelles. The Seychelles's Biological Diversity and Conservation Areas Act is a consolidation of various sectoral laws. It outlines fundamental principles and policies to conserve and sustainably use the country's biological diversity. The law establishes the Coastal and Marine Biodiversity Authority whose functions include monitoring and ensuring the prevention of the introduction of alien invasive species that may threaten coastal and marine ecosystems. Article 53 of the law provides explicit measures to prevent the introduction of alien invasive species.

The Gambian National Environment Management Act of 1994 has explicit measures to prevent the introduction of alien invasive species. It creates a Council that is mandated to develop specific guidelines and regulations on the prevention of the introduction of alien species. The Council has, however, not yet taken up this responsibility to institute guidelines and regulations on alien invasive species.

There are a variety of institutions responsible for issues or matters pertaining to the prevention of the introduction of alien invasive species. These include ministries/departments of agriculture, environment, trade, fisheries, immigration and national security. In many countries of Africa, the challenges are not about the establishment of new agencies to deal with matters of alien invasive species, but those of how to ensure synergy between and coordination of various sectoral institutions. In many countries, sectoral agencies do not communicate, share information, and coordinate their activities. This has often resulted in poor or bad decision making.

Some of the African countries have started making major investments in the development of risk management instruments that include policies, regulations, guidelines, and laws. These instruments (commonly referred to as biosafety frameworks) are being established to address, regulate and manage risks associated with the introduction of living modified organisms (LMOs). Kenya's biosafety guidelines are founded on the desire "to benefit from the development and use of modern biotechnology given that none of the existing regulations and acts are geared towards addressing specifically biosafety in the development and use of biotechnology products" (National Council for Science and Technology 1998). The proposed framework describes national biotechnology R&D efforts and states that risk assessment and management regimes should aim at promoting these efforts in such ways as to ensure that they generate products and processes that are safe for the environment and human health.

Zambia's draft bill on biosafety is largely regulatory. It places emphasis on the creation of an institutional framework to regulate the application of modern biotechnology through inspection of R&D facilities and restriction of importation of Living Modified Organisms (LMOs). For example, Part V section 14.1 states that "users shall ensure that all appropriate measures are taken to avoid adverse impacts to the environment and human health, which might arise from the use of genetically modified organisms." Section 14.2 requires users "to carry out a prior assessment of the uses as regards the risk to the environment in accordance with protocols approved by the Board."

Mauritius biosafety framework focuses on measures for the safe development and introduction of genetically modified organisms. For example, the country applied modern biotechnology to generate herbicide-resistant traits in sugar cane. The framework articulates the country's aspiration to extend the application of the technology to other sectors such as aquaculture. The framework largely recommends practices and procedures for the safe use of modern biotechnology in Mauritius.

Regional Instruments and Institutions

Invasive species do not recognize geopolitical boundaries and thus regional and sub-regional cooperation is vital for the effective regulation and/

or control. Such cooperation is required between and within countries. It needs the participation of various national and regional agencies, as well as the commitment of politicians, scientists and policymakers across sectors. It is about the involvement and cooperation of ministries of wildlife, environment, trade, agriculture, and education. The regulation and control of the introduction of alien invasive species also require synergies between conventions on trade, agriculture, and environment.

There are a number of sub-regional and regional instruments that can be used to regulate and/or control the introduction and use of alien species in Africa. These are mainly conventions dealing with the environment, agriculture, and trade. The Treaty for the Establishment of the East African Community, the Southern Africa Development Community Treaty, and the treaty establishing the Common Market for Eastern and Southern Africa (COMESA) provide measures to regulate and/or control the introduction of alien species, particularly invasive ones. In Article 8 of the Memorandum of Understanding between the partner states of the East African Community (EAC), Partner States agree to "regulate, control and, where necessary, prohibit the introduction of alien genetic materials including exotic species of flora and fauna" in Lake Victoria.

African countries have adopted regional environmental treaties that set out regional and national action plans to implement agreed goals, including the control or regulation of the introduction of alien species. One of the earliest regional treaties was the 1900 London Convention for the Protection of Wild Animals, Birds and Fish in Africa that was adopted by Great Britain, Italy, Portugal, Spain, and France. The aim of the treaty was to "prevent the uncontrollable massacre and to ensure the conservation of diverse wild species in their African possessions" which are useful to man or inoffensive (cited in Sands 1995). This treaty was replaced in 1933 by the London Convention Relative to the Preservation of Flora and Fauna in their Natural State. These early treaties provided measures to control the movement and introduction of alien invasive species of flora and fauna. The London Convention was replaced by the African Convention on the Conservation of Nature and Natural Resources negotiated under the auspices of the Organization of African Unity (OAU) and adopted in Algiers in 1968. The Algiers Convention aims to "ensure conservation, utilization and development of soil, water,

flora and faunal resources in accordance with the scientific principles and with due regard to the best interests of the people (cited in Sands 1995). This treaty has explicit provisions on the introduction of alien species.

Other regional treaties that can be invoked to regulate the introduction of alien species and control threats of such species on ecosystems include the 1985 Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region adopted as a protocol to the 1985 Nairobi Convention for the Protection, Management and Development of Marine and Coastal Environment of the Eastern African Region. The protocol commits its parties to “take all appropriate measures to maintain essential ecological processes and life support systems, to preserve genetic diversity, and to ensure the sustainable utilization of harvested natural resources under their jurisdiction (cited in Sands 1995). The protocol provides for meetings of the parties to review the implementation of the protocol, assess the need for further measures and adopt or amend annexes.

The Lusaka Agreement entered into in 1996 aims at controlling illegal trade in endangered species. It has six members. One of its attributes is that it empowers authorities to monitor and regulate the introduction of alien species that may pose a threat to fauna. Other regional agreements, such as the one establishing the Lake Victoria Fisheries Organization, have provisions on the regulation and/or control of alien species. The effectiveness of these treaties as instruments for regulating the introduction of alien species has been hampered by inadequate policy frameworks for implementation, constraints on financial resources, lack of qualified personnel, and poor knowledge or lack of awareness of the content of the agreements (UNEP 1999).

Capacity Building Considerations

While most African countries have created institutions to deal with issues of alien invasive species, these institutions are poorly funded, coordinated and organized to engage in the activities and process of monitoring, conducting scientific studies and regulating the introduction of alien invasive species.

Most African countries have not established programs that are deliberately aimed at studying and assessing problems associated with

alien invasive species. Where some research is conducted, it is often an add-on to other activities whose goals are not necessarily about the prevention of introduction of alien species. Thus many of the countries have tended to make decisions on the basis of very scanty, and in many cases, no scientific knowledge and information.

Article 15(1) of the Cartagena Protocol on Biosafety requires that risk assessments “undertaken pursuant to this Protocol shall be carried out in a scientifically sound manner, ...taking into account recognized risk assessment techniques...”. Paragraph 2 requires that the “Party of import shall ensure that risk assessments are carried out for decisions taken under Article 10”. This means that even in the absence of scientific knowledge and information on the LMO and its potential impacts on biological diversity and human health, countries importing must either undertake risk assessments by themselves or require that the exporter undertakes the assessment. Key questions that arise in the case where the exporter’s risk assessments are the only ones that form the basis for the importer’s decision making are: (i) how transparent and rigorous are the exporter’s assessment to inform the importer’s decisions given that the exporter has or may have a commercial interest to export? (ii) what technological opportunity costs is the importer foregoing by not undertaking the assessments? and (iii) in case where the importer allows importation on the basis of the exporter’s assessment, how will redress and liability be handled if and when the imported LMOs cause environmental and human health risks in the importing countries?

The effectiveness of existing policies, laws and agencies lies in the capacity of countries to engage in scientific analysis of the nature of LMOs and related biotechnology processes. The monitoring and assessment of impacts of alien species will require scientific infrastructure and other capacity components that are absent in many African countries. Few countries have the necessary scientific and technical capacity to engage in risk assessment. Those countries that are building capacity in biotechnology R&D also possess risk assessment infrastructure. It is not the mere formulation and adoption of policies, guidelines and laws that constitute national competency to handle risks from LMOs. Countries will require expertise in a variety of scientific areas, for example biochemistry, molecular genetics, biochemical engineering, and plant breeding

to successfully assess and manage risks, even to prevent the introduction of alien species. In many countries where this expertise exists, it is locked away in isolated agencies, many of which may not be engaged in research on alien species. Many of the countries lack the necessary institutional arrangements to mobilize the scientists and direct their skills towards the assessment of risks, leave alone towards the development and application of biotechnology. Indeed, where existing expertise does reside in the institution that is charged with the respective responsibilities of R&D, it is often not drawn upon and utilized. Addressing this problem will require institutional reforms that enlarge administrative space and organizational outreach to recognize, mobilize, and utilize the expertise.

The effectiveness of national efforts to implement provisions of Article 8(h) and the Protocol will largely depend on the nature (including clarity) of institutional arrangements and regulations that countries will establish. It is crucial that African countries carefully determine the most appropriate institutional arrangement(s) for handling matters associated with it. Because of the costs associated with the creation and sustaining several institutions, the countries may wish to consider designating a single competent agency to handle all matters associated with the introduction of alien invasive species. Countries may wish to designate focal points or coordinating agencies. Such focal points will monitor and conduct assessments or mobilize expertise for doing so.

Some of the countries (for example Mauritius and Namibia) have already designated national biosafety focal points to handle biosafety issues.

Others such as Kenya have not yet adopted a clear institutional arrangement. The countries will now need to review their institutional options in light of the Protocol and establish or designate institutions. These arrangements should have explicit responsibilities of handling issues and problems of alien invasive species.

In addition to the institutional issues, the countries will require explicit regulations and strategies. The regulations and strategies that would enable the countries to effectively prevent the introduction of alien invasive species are those that:

- (i) Focus on the development of national scientific and technological competence in relevant fields of monitoring, assessment and analysis;
- (ii) Contain as much clarity as possible on such issues as liability and redress; and
- (iii) Build upon such existing measures as those related to food and drugs importation and quarantine.

References

- Mugabe, J. et. al. (eds.) 1997. Access to genetic resources: strategies for sharing benefits. African Centre for Technology Studies (ACTS) Press, Nairobi.
- National Council for Science and Technology (NCST). 1998. Biosafety framework for Kenya. Prepared under the UNEP/GEF Pilot Biosafety Enabling Activity Project.
- Sands, P. 1995. Principles of international environmental law: frameworks, standards and implementation. Manchester University Press, Manchester, UK.
- UNEP. 1992. Convention on Biological Diversity. United Nations Environment Programme, Nairobi.
- UNEP. 1999. Global environment outlook, 2000. Earthscan Publishers, London.