

Precaution and invasive alien species: challenges at the interface of the trade and environment regimes

Rosie Cooney

*The Precautionary Principle Project (a partnership of IUCN, Fauna & Flora International,
TRAFFIC and ResourceAfrica,
prepared with inputs from:
IUCN Policy, Biodiversity and International Agreements Unit,
IUCN Environmental Law Centre
Email: rosie.cooney@fauna-flora.org*

Abstract

Management of invasive alien species provides a clear illustration of the tension between growing international recognition of major, poorly understood environmental threats and trade liberalisation. It is generally agreed within the environmental community that a precautionary approach in relation to preventing the introduction of invasive alien species is both useful and necessary, and this is reflected in many environmental agreements. The use of trade measures based on precaution is, however, highly controversial. Within the trade regime, precaution has been a highly contested notion and this controversy has spilled over recently into a number of environmental policy-making arenas concerned with invasive alien species. A great deal of confusion typically surrounds discussion about precaution and the potential compatibility or conflict of precautionary trade-restrictive measures taken for the purpose of biodiversity conservation with World Trade Organisation (WTO) disciplines. This paper attempts to shed some light on this issue and highlight challenges for the future. It begins by surveying the incorporation of precaution into multilateral environmental agreements related to invasive alien species, goes on to assess the compatibility of such an approach with relevant WTO agreement provisions, and makes a series of preliminary comments suggested by this analysis.

Introduction

Sustaining the planet's ecosystems to support human and other life poses a series of major, interlinked challenges. These have been recognised widely by the world's nations in a wide variety of treaties, declarations and national laws and policies. One challenge is conserving biodiversity – the diversity of genes, species and ecosystems on earth.

Another (often overriding) priority for many of the world's leaders is increasing the volume of, and decreasing barriers to, international trade. Since the conclusion of the Uruguay Round agreements in 1994, the potential for such expansion to damage the environment has led to a decade of concern about the environmental impacts of trade liberalisation in general, and the WTO in particular. A threat that has received comparatively little attention is the increase in the spread of invasive alien species that can be caused by increased trade. Alien species can be moved deliberately, in the form of horticultural, agricultural or forestry commodities, for example; or can be introduced unintentionally through pathways such as packaging, ballast water, or on the commodities themselves. Preventing introductions of invasive alien species through trade, including, where necessary, through trade restrictions, is viewed widely as a vital element in management of the threats posed by invasive alien species (McNeely et al. 2001).

However, a major challenge faced in such efforts is the level of scientific uncertainty involved surrounding the risks of entry, invasiveness, and environmental, economic or social damage posed by particular species or pathways. Providing clear scientific

evidence in advance of the invasive potential of a specific alien species, or of the range of species which could enter unintentionally, will often be unfeasible. Our underlying knowledge of species identity is fragmentary: we do not know to the nearest ten million how many species exist. Identification even of known species is often difficult, and often impossible at some (easily transportable) life stages like insect eggs or larvae. While invasiveness is related partly to attributes of the species itself, it is also related intimately to the ecology of the 'receiving' area. For obvious reasons, once there is empirical information available on the invasiveness of an organism in a particular country or area, it will usually be too late to prevent invasion. Prediction of the impacts of introducing a new organism (often poorly understood itself) into an ecosystem is inherently problematic: uncertainty derives not just from incomplete, inaccurate or missing data but also from the inherently unpredictable behaviour of complex systems such as ecosystems. While research has focussed for some decades on seeking to understand the biology of invasiveness, currently, this is not a reliably predictive science, and is unlikely to be in the foreseeable future. Recognition of this uncertainty, and the serious and often irreversible impacts of invasion, has led to a widespread emphasis in management tools and policy on precaution: the precautionary principle, or precautionary approach.

Precaution is an environmental policy principle that allows or mandates a risk-averse strategy in the face of potential environmental threats, especially serious or irreversible threats, despite lack of scientific certainty of the exact nature, severity, or likelihood of the harm. The most widely cited version of the precautionary principle is Principle 15 of the Rio Declaration (1992), which reads:

"In order to protect the environment, the Precautionary Approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation".

There are many different versions of precaution. Formulations may impose obligations, involve general exhortations, or confer a right to take precautionary measures. Formulations vary from 'hard' to 'soft', and may include a range of qualifications including cost-effectiveness and proportionality. In general, unless precaution is operationalised through more specific obligations, applying precaution will not determine the outcome of a decision. Rather, it forces attention to uncertainties surrounding scientific and other information, and argues in favour of taking action to avert potential, uncertain environmental damage. In a strong form, it reverses the burden of proof, requiring proponents of potentially harmful activities to demonstrate that such activities are unlikely to cause damage, rather than requiring opponents to demonstrate the likelihood of harm. From its first reflection in international environmental law in the late 1980s, it has now been explicitly incorporated into a very wide range of environmental instruments across a great diversity of areas, including marine pollution, control of hazardous chemicals in trade, persistent organic pollutants, biodiversity conservation, wildlife trade biosafety, and fisheries management and conservation (for discussion in relation to biodiversity conservation see Cooney, 2004). It is reflected increasingly in national level environmental law.

Despite (or perhaps due to) its meteoric rise to prominence as an environmental policy principle, precaution remains a highly controversial notion, and particularly controversial within the international trade arena. The wide scope that precaution provides decision-makers raises concern about conflict with the science and risk-assessment based approach of WTO disciplines, and the fear that it could provide a cover for trade-protectionist measures. Those promoting a precautionary approach to ensure biodiversity conservation tend to deal with these concerns in two general ways, which may generally be termed the pessimistic and the optimistic. The pessimistic approach highlights the WTO's general failure to provide for effective biodiversity conservation, and calls for amendment of WTO agreements or affirming the right to take precautionary measures despite them. The optimistic perspective argues that precaution is reflected already in relevant trade agreements, which the WTO agreements must and will be interpreted in the light of emerging norms of environmental law, providing a foundation for valid precautionary measures. This is likely to be a long controversy which will be played out

through evolving practice, policy and politics, with perhaps the welcome or unwelcome intervention of WTO jurisprudence. This paper seeks to inform that debate by examining, in more detail, the situation with respect to trade measures to prevent the introduction and spread of invasive alien species.

Precaution in the Multilateral Environmental Regime on Invasives

The Convention on Biological Diversity (1992) is the only global agreement dealing with the gamut of threats to biodiversity. Under Article 8(h) Parties are required to prevent introduction, control or eradicate those alien species which threaten ecosystems, habitats or species. This must be read in the light of the pre-ambular provision that 'where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.' The CBD has developed non-binding Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats Or Species ('The Guiding Principles'; Annex, Decision VI/23). The first Guiding Principle is the 'Precautionary Approach', which states, *inter alia*, that lack of scientific certainty about the environmental, social and economic risk posed by a potentially invasive alien species or by a potential pathway should not be used as a reason to delay or avoid taking preventative action against the introduction of potentially invasive alien species. In addition, with respect to intentional introductions (Guiding Principle 10): '[s]tates should make all efforts to permit only those species that are unlikely to threaten biological diversity. The burden of proof that a proposed introduction is unlikely to threaten biological diversity should be with the proposer of the introduction or be assigned as appropriate by the recipient State.' Decisions concerning intentional introductions should be based on the precautionary approach, including within a risk analysis framework.

However, the adoption of these Guiding Principles has been marked by controversy. Initially, these controversies led to irreconcilable debates over the Guiding Principles' specific language on the precautionary approach. Subsequently, the controversy has proven to be much broader. By COP-VII, the original contesting parties had indicated that a rather wide spectrum of trade issues and implications underlie their continuing decision to block consensus on adoption of the Guidelines. The same dispute has spilled over into the Ramsar Convention, which removed references to precaution and to the CBD's Guiding Principles in pre-COP discussions on a Resolution on Invasive Species and Wetlands (Res. VIII/18).

The CBD 'Jakarta Mandate' on marine and coastal biodiversity contains specific guidance on introductions to marine and coastal ecosystems: 'because of the difficulties of complete containment, introduction of alien species, products of selective breeding, and LMOs [living modified organisms] resulting from modern biotechnology that may have adverse effects on the conservation and SU of marine and coastal biodiversity should be responsibly conducted, using the precautionary principle/approach' (Dec II/10 1995).

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1982) have developed guidelines on introductions of alien species that incorporate the precautionary approach (see Bern Convention: Standing Committee No 57 (1997) and No 77 (1999). The African-Eurasian Waterbird Agreement (AEWA), an independent Agreement developed within the framework of the Convention on Migratory Species (CMS, 1979) has also developed interim guidelines on avoiding the introduction of non-native waterbirds, which presume the application the precautionary approach (MOP Resolution 2.3), apparently in a form similar to that of the CBD Guidelines¹.

¹ The interim Guidelines on Avoidance of Introductions of Non-Native Waterbird Species, found at <http://www.unep-wcmc.org/AEWA/eng/MOP2.htm> (click Meeting Document 2.13) were prepared by Just Ecology at the request of the AEWA Secretariat, and presented to and noted by the MOP on 26 September 2002. Regarding precaution they specifically note that "Apart from hybridisation, the effects of invasive non-

In the fisheries context, the FAO Code of Conduct for Responsible Fisheries² includes obligations regarding introduction of alien species and genetically altered stocks into aquatic systems (Art. 9.2.3, 9.3.1). These obligations should be interpreted in the context of a general obligation within the Code of Conduct to apply a precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment, taking account of the best scientific evidence available. The absence of adequate scientific information should not be used as a reason for postponing or failing to take measures to conserve target species, associated or dependent species and non-target species and their environment (Art. 6.5).

With respect to genetically modified organisms, which can be seen as a special case of an alien species, the Cartagena Protocol on Biosafety (2000) to the CBD affirms the precautionary approach as a basis for its provisions on managing the risks of living modified organisms (LMOs). Key requirements include an Advance Informed Agreement procedure for trans-boundary movements of LMOs, and risk assessments by importing States. It is reaffirmed that lack of scientific certainty shall not prevent import States from making decisions to minimise potential adverse effects.³

In summary, there is wide endorsement in a range of relevant multilateral environmental agreements of various versions of the precautionary approach to management of the risks of invasives, and specifically with respect to their introduction.

Uncertainty, Science and Precaution in the Trade Regime on Invasives

This analysis first considers relevant WTO agreements and then comments on the International Plant Protection Convention (IPPC)⁴. Regional or bilateral trade agreements are not discussed.

native species on native flora and fauna in the Agreement area are not well studied. However, evidence from other areas and circumstantial evidence here suggest that they do exist and there is a general consensus that, according to the precautionary principle, wherever possible, such species should be controlled (see e.g. SSC 2000.)" (At p.4), and later that "considering the precautionary principle the wisest policy is to prohibit any intentional releases of non-native waterbirds." (at p.12) on 26 September 2002. Regarding precaution they specifically note that "Apart from hybridization, the effects of invasive non-native species on native flora and fauna in the Agreement area are not well studied. However, evidence from other areas and circumstantial evidence here suggest that they do exist and there is a general consensus that, according to the precautionary principle, wherever possible, such species should be controlled (see e.g. SSC 2000.)" (At p.4), and later that "considering the precautionary principle the wisest policy is to prohibit any intentional releases of non-native waterbirds" (at p.12).

2 The Code of Responsible Fisheries can be found online at www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/005/v9878e/v9878e00.htm.

3 The entire protocol is intended to operate "in accordance with Principle 15 [precautionary principle] of the Rio Declaration (Article 1, Objective.) In specific operative provisions, however, different precautionary terminology is used. For example, in Article 10, para. 6, regarding the primary decision-making processes, it notes that "Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from taking a decision, as appropriate, with regard to the import of the living modified organism in question as referred to in paragraph 3 above, in order to avoid or minimize such potential adverse effects." In article 11, para 8, it provides identical language regarding organisms intended as food or feed. In annex II (Risk Assessment) section 8(f), it provides more specific guidance, noting that "Where there is uncertainty regarding the level of risk, it may be addressed by requesting further information on the specific issues of concern or by implementing appropriate risk management strategies and/or monitoring the living modified organism in the receiving environment."

4 The IPPC can be found online at www.ippc.int

The two WTO agreements most relevant to invasive species are the General Agreement on Tariffs and Trade⁵ (GATT 1947, as adopted in to GATT 1994) itself, and the Agreement on Sanitary and Phytosanitary Measures⁶ (the SPS Agreement, 1994).

The GATT

The GATT contains a range of general and specific obligations reflecting the basic principles of free trade, non-discrimination, predictability and competition. It provides for a number of exceptions to these obligations in Article XX, including exceptions for measures necessary to protect exhaustible natural resources (Art. XX(g) and human, animal or plant life or health (Art. XX(b)⁷). It is unclear whether it may be possible for a country to justify trade-restrictive measures to prevent introduction of alien species under Article XX exceptions, and specifically Article XX(g). There is no reference to scientific uncertainty or precaution, and it remains unclear how attempts to rely on these provisions to justify precautionary measures would be adjudicated. It is worth noting, however, that Annex I to the WTO Agreement specifically provides that, "[i]n the event of conflict between a provision of the GATT and a provision of another agreement in Annex 1A to the WTO Agreement, the provision of the other agreement shall prevail to the extent of the conflict."

The SPS Agreement

Sanitary and phytosanitary (SPS) measures cover a range of measures developed with the primary aim of protecting human, animal and plant life and health from the entry, establishment or spread of diseases and pests. While these measures have developed with a primary focus on threats to human health and agriculture, measures against invasives for the purpose of biodiversity conservation are generally considered SPS measures. The SPS Agreement is designed to ensure that such measures are not a disguised restriction on international trade, and can be seen as an elaboration of the exception set out in GATT Article XX(b).

The SPS Agreement provides for members to adopt measures 'necessary to protect human, animal or plant life or health' (Art. 2.1), subject to the general requirement that these measures are not applied in a manner which constitutes arbitrary or unjustifiable discrimination or a disguised restriction on international trade. It establishes seven different obligations. With respect to the uncertainty surrounding the threats posed by alien species, the most important obligation is what may be called the 'science' test. Article 2.2 provides that 'any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence' (except as a provisional measure: see below).

SPS measures based on international standards, guidelines or recommendations, where these exist, are presumed to be necessary for protection of human, animal or plant life or health and therefore SPS-compatible (Art. 3.2.). The (non-exhaustive) list of relevant organisations mentioned as standard-setting bodies in the agreement are the Codex Alimentarius (which deals with food safety), the International Office of Epizootics (dealing with animal diseases), and the International Plant Protection Convention (which deals with pests to plants, and is the most relevant for invasives). However, a member may determine that its appropriate level of SPS protection is higher than is provided by international standards (Art. 3.3) or, as is the case for many invasives, there may be no relevant standard.

SPS measures must be 'based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health' (Art. 5.1). Where relevant scientific

⁵ The GATT can be found online at www.wto.org/english/docs_e/legal_e/gatt47_01_e.htm

⁶ The SPS can be found at www.wto.org/english/docs_e/legal_e/15sps_01_e.htm

⁷ The relevant text of Article XX provides that "Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: (b) necessary to protect human, animal or plant life or health (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption."

information is insufficient, provisional measures can be taken, subject to certain conditions (Art. 5.7). There is no explicit reference to precaution.

Three disputes under the SPS Agreement have turned on questions of scientific uncertainty: *EC Measures Concerning Meat and Meat Products (Hormones)*⁸ (*Beef hormone*), *Australia – Measures Affecting Importation of Salmon*⁹ (*Australia-salmon*), and *Japan-Measures Affecting Agricultural Products*¹⁰ (*Japan-varietals*), and provide some further guidance on the measures that are likely to be considered compatible with the SPS.

i. Burden of proof

Precaution, at least when operationalised in a strong form, operates to shift the burden of proof to proponents of activities that raise threats of environmental harm. It is clear that under the SPS Agreement the burden of proof is not so shifted, but remains squarely on those seeking to justify environmental measures. Complainants must raise only a *prima facie* case that a measure is inconsistent with relevant provisions. As set out in the *Japan varietals* case, this may be done by, for instance, asking a panel of experts, or submitting opinions of experts consulted. Once such a presumption is raised it falls to the defender of the provision to rebut the inconsistency. This means that in order to avoid an erroneous judgement, the standard of proof required from the defender of the measure will be much higher than from the complainant (Christoforou 2000). If we view the SPS Agreement as functioning, in the IAS context, to strike a balance between trade concerns and environmental concerns, this suggests that trade concerns are accorded more relative importance than environmental, and indicates an important constraint on the degree of precaution provided for.

ii. 'Sufficient scientific evidence'

Precaution is founded on the recognition that some harm is serious or irreversible and yet cannot be reliably predicted in advance, and urges action *before* there is clear evidence of harm. On the face of it, this approach is in direct tension with the SPS's requirement that measures are not maintained without sufficient scientific evidence. What constitutes 'sufficient scientific evidence?' This is not further defined in the SPS Agreement.

iii. Risk assessment

Valid risk assessment under the SPS Agreement, as interpreted in the *Australia-Salmon* case, consists of three mandatory elements: the identification of a pest or disease and its potential biological and economic consequences; evaluation of the likelihood of its entry, establishment or spread and associated biological and economic consequences; and evaluation of likelihood of entry, establishment or spread according to SPS measures which might be applied.

The requirement for measures to be based on a risk assessment does leave some room for a precautionary approach, both in terms of risk assessment design and methodology and with respect to the decision-making process once a risk assessment is carried out. It is clear that members can establish their own standard of SPS protection, which may even be set at 'zero risk', and it will be decided on a case-by-case basis whether there is the required 'rational' or 'objective' relationship between the scientific evidence/risk assessment and the SPS measure. Measures do not have to reflect a scientific consensus, but can be based on divergent opinion from a qualified and respected source. As to the risk assessment methodology itself, valid

⁸ Adopted 13 February 1998, WT/DS26/AB/R, WT/DS48/AB/R

⁹ Adopted 6 November 1998, WT/DS18/AB/R

¹⁰ Adopted 22 February 1999, WT/DS76/AB/R

assessments do not require quantitative evaluations of risk, which, typically, will not be possible for alien species, but can rely on qualitative evaluation.

However, some aspects of the requirements for a valid risk assessment, as developed through dispute resolution, are highly problematic for invasives. The major problem is the level of specificity that a valid risk assessment appears to require, both as to identification of specific pests or pathogens, and to likelihood of their entry, establishment or spread and associated potential biological and economic consequences, both without and with application of particular SPS measures. It is clear that this requires an actual determination of probability to the likelihood of entry and impacts: 'some' evaluation has been rejected as inadequate. The mere finding that there is a possibility of entry is likewise inadequate. It is stated in *Australia-salmon*, reiterating *Beef-hormone*, that "the 'risk' evaluated in a risk assessment must be an ascertainable risk; theoretical uncertainty is 'not the kind of risk which, under Article 5.1, is to be assessed'"¹¹. Assessments, which emphasised uncertainties (and as such were more cautious), have been explicitly rejected.

These tests set the bar extremely high for risk assessments to be valid, in view of the vast numbers of potentially invasive species, the level of information surrounding them, and the resources available to carry out risk assessments. Particular hurdles are faced where countries cannot present positive evidence in support of a measure, but seek to rely on more theoretical long-term concerns. This may pose particular problems for regulating pathways rather than intentional introductions. In many cases, assessment of likelihood of potential for invasiveness, and consequent biological and economic consequences, may not be able to go much beyond 'possible', without making highly subjective judgements, and increasing the possibility of admitting a species that eventually becomes invasive.

iv. Provisional measures

The 'provisional measures' provided for under Article 5.7 of the SPS Agreement appear to address most squarely the problem of scientific uncertainty surrounding the risks posed by alien species. It offers a qualified exemption to the Article 2.2 requirement not to maintain SPS measures without sufficient scientific evidence. However, there are two requirements for maintaining provisional measures that potentially constrain their use. First, in order for provisional measures to be maintained Members must seek to obtain the additional information necessary for a more objective assessment of risk. This may be interpreted restrictively: in one case (*Japan-varietals*) it was found the information collected did not adequately examine the appropriateness of the relevant SPS measures adopted. Second, in order to maintain the measure Members must review the sanitary or phytosanitary measure within a reasonable period of time. While what constitutes a 'reasonable period of time' must be determined on a case-by-case basis, including difficulty of obtaining additional information for review and the characteristics of the SPS measure (*Japan-varietals*), provisional measures have been found to be invalid on this basis.

The requirement to seek further information relevant for evaluation of the likelihood of entry, establishment or spread of pests, and associated costs, including the likelihood according to SPS measures imposed, may involve an onerous financial burden. For many alien species such information is not readily forthcoming, and cannot be gained by experimental means. Where it is a pathway that is being regulated this may be particularly burdensome. Likewise, the requirement for review within a reasonable period of time may

¹¹ *Australia-salmon*, *supra* n 9 para 125.

involve substantial ongoing costs, depending on what is considered reasonable.

v. International standards

As set out above, measures in conformity to international standards are presumed consistent with the SPS Agreement. Of those referenced explicitly in the SPS Agreement, the international standards of most relevance to invasive aliens are those developed under the International Plant Protection Convention (the IPPC)¹². The IPPC aims to secure action to prevent the spread and introduction of pests of plants and plant products, where 'pest' is defined as 'any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products.' While the IPPC has a strong historical focus on agricultural plants, it has been clarified recently that the range of pests covered by the IPPC extends to organisms which have indirect effects on cultivated plants (e.g. through competition), and those which have effects on wild (uncultivated/unmanaged) plants (International Standard for Phytosanitary Management (ISPM) on Pest Risk Assessment Annex 1).

With respect to issues of scientific uncertainty and risk assessment, the IPPC adopts an approach broadly similar to the SPS Agreement. In this respect key provisions are that phytosanitary measures are limited to what is necessary to protect plant health and/or safeguard the intended use, can be 'technically justified' by the contracting party concerned and are consistent with the pest risk involved (Art. VI(1)(b); Art. VII(2(a)). 'Technically justified' is defined as justified on the basis of pest risk analysis (PRA) or a comparable examination and evaluation of available scientific information (Art. II). Members must not require phytosanitary measures for non-regulated pests (Art. VI(2)). Overall, therefore, all phytosanitary measures must be justified technically through a PRA or equivalent.

While many of the same concerns arise in this respect as to the scientific justification and risk assessment requirements of the SPS Agreement, recent revisions to the Pest Risk Assessment standard developed under the IPPC provide substantially improved scope for precautionary action. Recently added text indicates that where there is insufficient evidence that a species is a pest it may nevertheless be appropriate to assess whether they are potentially injurious in the relevant area by using a clearly documented, consistently applied and transparent system. While raising the question of what level of evidence might be required to support a finding of 'potentially injurious', this appears to provide some scope for application of a precautionary approach to decisions where uncertainty is an issue, providing this is done within the context of a carefully designed and documented system.

However, the list of international standards referenced in the SPS Agreement is non-exhaustive. This provides scope for agreements and guidance concerning management of invasive species for the purposes of biodiversity conservation, such as the CBD Guiding Principles, to be accepted as valid 'international standards' under the SPS Agreement. In this case measures consistent with such standards are presumed compatible with the SPS Agreement.

vi. Precaution

As stated above, there is no explicit mention of precaution, or the precautionary principle, in the SPS Agreement. In the *Beef hormone* case the precautionary principle was argued to provide a justification for a trade-restrictive measure. The Appellate Body gave some somewhat ambiguous guidance on how the principle may relate to the SPS Agreement, stating that

¹² The following discussion refers to the IPPC as amended in 1997 (not yet in force).

it finds reflection in the provisional measures of Article 5.7, but that this reflection does not exhaust the relevance of the principle. While declining to comment as to whether the provision had become customary international law, the Appellate Body found that the principle, whatever its status, could not overrule explicit requirements of the SPS Agreement, including the requirement for risk assessments. In other judgements the Appellate Body has stated that WTO Agreements could not be interpreted in isolation from broader international law, and there is, at least, a narrowly open window of opportunity for a broader role for precaution in interpretation of the SPS Agreement.

Comments

While the relationship between the emerging norm of precaution for the management of the threats to biodiversity posed by invasive alien species and trade disciplines is complex and evolving, several comments can be made on the basis of this comparison of the approach to the risks to biodiversity posed by invasive species in conservation instruments and in major trade-related agreements.

- First, most obviously, the emphasis on and exhortation to adopt a precautionary approach, widely reflected in multilateral environmental agreements (even if in non-binding instruments), is not reflected in relevant WTO agreements or in the IPPC.
- Second, the trade-related agreements, which should function to balance the competing legitimate objectives of facilitating trade and protecting the environment, appear to be weighted strongly in favour of trade facilitation. This is evidenced by the uneven standard of proof in dispute resolution; the requirement that measures for environmental protection must be justified scientifically or technically; the extensive requirements for valid risk assessments; and the requirement that in case of lack of evidence to determine likelihood of damage, provisional measures to protect the environment are accompanied by the burden of gaining extra information. This is perhaps not surprising, as trade is a major priority of powerful interest groups in virtually all countries, and the long term economic, environmental and social costs of environmental degradation in general, and invasive alien species in particular, are just beginning to be understood.
- Third, despite this weighting in favour of trade facilitation there is some scope for precautionary measures under both the SPS Agreement and the IPPC. A country may determine its own level of SPS protection, measures can be based on minority scientific opinions, and where scientific evidence is lacking, provisional measures may be taken.
- Fourth, however, currently it appears that making use of the scope for precautionary action under trade disciplines involves a heavy procedural burden, particularly with respect to highly specific and comprehensive risk assessment requirements and the obligations accompanying the taking of provisional measures. Constraints on applying a precautionary approach may stem not from legal conflict but the formidable burden of justification they entail, involving major financial, technical and administrative resources. This has very significant implications for biodiversity conservation in and by the developing countries, which hold the great majority of the world's biodiversity. In the USA, the largest economy in the world, the agency responsible for SPS measures has an extensive backlog of risk assessments waiting to be completed to comply with SPS obligations. Most developing countries facing urgent immediate priorities of poverty alleviation may be unwilling or unable to commit the resources necessary to justify precautionary measures. Widespread emergence and acceptance of precaution as a valid basis for decision-making may therefore offer major benefits to developing countries in particular, through easing this burden of justification for SPS measures.

One approach to this problem is by adjusting upon *whom* the burden of conducting risk assessments falls. The CBD Guiding Principles provide that the burden of proof that a proposed introduction is unlikely to threaten biological diversity should be with the proposer of the introduction or be assigned as appropriate by the recipient State. This echoes provisions under the Biosafety Protocol to the CBD, whereby those seeking to export Living Modified Organisms into a country may be required to meet the cost of relevant risk assessment. While there is no text in the trade-related agreements analysed here, which would appear to invalidate such an approach, it is unclear how this might be treated if challenged.

- Fifth, the treatment of science and uncertainty in the trade agreements discussed here, and as interpreted through dispute resolution, tends to reflect a view of science as yielding reliable and definitive answers, and scientific uncertainty as a temporary problem which can be solved with further investigation. This is reflected in a view of pest species as generally identifiable in advance, the assumption that a definite evaluation of likelihood of introduction, spread and establishment, and associated biological and economic costs, can be made, and the suggestion that measures in the face of scientific uncertainty will be temporary and can be resolved through gathering more information. This may reflect the historical focus of these instruments on managing pests and diseases of humans and agriculture. As compared to potentially invasive alien species, such pests and diseases constitute a much more restricted and better known class of organisms, the nature and effects of which may be more susceptible to investigation through quantitative, experimental, laboratory-based techniques. Challenging this view of scientific uncertainty and supplanting it with a more realistic understanding of the complex and unpredictable nature of biological systems, and the time-scales over which damage and disturbance become evident, is a major challenge for building broad acceptance of precaution in trade measures.
- Finally, the controversy over precaution stems in part from lack of clarity about the meaning and implications of the precautionary principle, or precautionary approach, itself. Clearly, where issues as important to most countries as trade flows are at stake an entirely unfettered right to take precautionary measures, immune to challenge, is unlikely to win widespread support. For precaution to move from an abstract and controversial environmental principle to wide, practical application through management and decision-making frameworks requires the development of shared understanding of how precaution will be implemented, including the principles which will discipline its use and constrain possible abuse. Such considerations led the European Commission, for instance, to develop a Communication on the Precautionary Principle in 2000¹³, which emphasises, *inter alia*, transparency, participation of interested parties, and proportionality in precautionary decision-making. Developing, among the broad environmental constituency, a clearer conception of the meaning of precaution and how it should be implemented in biodiversity conservation poses a vital challenge for building its strength and utility as an operational tool for management of the risks of invasives.

References

Christoforou, T. 2000. Settlement of Science-based Trade Disputes in the WTO: A Critical Review of the Developing Case Law in the Face of Scientific Uncertainty. *New York University Environmental Law Journal* 8 (3): 622-649

Cooney, R. 2004. *The Precautionary Principle in Biodiversity Conservation and Natural Resource Management*. IUCN, Gland, Switzerland and Cambridge, UK.

McNeely, J.A., H.A. Mooney, L.E. Neville, P. Schei, Waage, J.K. (eds.) 2001. *A Global Strategy on Invasive Alien Species*. Gland, Switzerland and Cambridge, UK: IUCN in collaboration with the Global Invasive Species Programme.

¹³ COM 2000 (1)