

# ***Bringing Social Analysis Into a Multilateral Environmental Agreement: Social Impact Assessment and the Biosafety Protocol***

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*Negotiations under the UN Convention on Biological Diversity have recently concluded on a protocol governing the safe handling, transport, and use of living modified organisms (LMOs)—the Cartagena Protocol on Biosafety. One of the most contentious issues in these negotiations was the inclusion of socioeconomic considerations in the evaluation for import of an LMO. Many countries wanted the protocol to include provisions that enable an import ban or other trade-related measure to be taken if negative socioeconomic impacts are predicted that would have downstream consequences for the conservation and/or sustainable use of biological diversity. Other countries, principally the United States, believed such measures would run counter to national obligations under the World Trade Organization (WTO) agreements. The author considers the rationale for inclusion of socioeconomic considerations in evaluation of LMOs for import and evaluates the arguments that such provisions would not be WTO legal.*

Graham Smith (1993) argued that social, economic, physical, environmental are so interconnected that impact assessment should not treat them separately but should link them. (Barrow, 1997, p. 226)

International environmental agreements have among their goals and purposes the management of the impact of humans on their environment. The implicit assumption made, of course, is that we can both assess and manage such impact through a process that includes environmental impact assessment (EIA). EIAs are not generally an explicit part of a multilateral environmental agreement (MEA) but implicit to the process of predicting and managing risks. Often included as part of the environmental assessment process in most national and international impact assessment practice is social impact assessment (SIA) of projects or developments.

In situations where an environmental impact assessment is proscribed in a multilateral environmental agreement, is there a need for also incorporating social impact assessment as part of the proscribed procedures? What about the situation in which the social impact of an enterprise—for example, displacement of a population for dam building into a previously



uninhabited wilderness area—could have downstream effects (governed by the MEA) on the environment?

The UN Convention on Biological Diversity (CBD) has as its goals the conservation and sustainable use of biological diversity and the equitable sharing of benefits deriving from the use of biodiversity. To the extent that the social and economic impact may affect a community's ability to conserve biological diversity, we argue here that these impacts should be considered by states in the implementation of the convention.

Parties to the CBD have recently concluded negotiations on a protocol to the convention, pursuant to Article 19(3), which calls on parties to

consider the need for, and modalities of, a protocol setting out appropriate procedures, including, in particular, advance informed agreement, in the field of the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity. (UN Environment Programme, 1994, p. 16)

Central to the protocol is a procedure for advance informed agreement, whereby countries importing a living modified organism (LMO) would provide explicit consent to import that LMO based primarily on a risk assessment. Many developing countries, nongovernmental organizations (NGOs), and a small number of developed countries have argued that the risk assessment procedure should include consideration of social and economic impacts and their effects on a community's ability to conserve biological diversity.

This article reviews arguments for including SIA along with environmental risk assessment in the procedures of protocol. After a brief introduction to the protocol negotiations, we begin by addressing potential socioeconomic effects of the handling, transfer, and use of LMOs, particularly from the developing country perspective. We then outline how socioeconomic effects are dealt with in various national laws. We look at how the socioeconomic impact of LMO introduction has been addressed in international law in the Biosafety (Cartagena) Protocol. We conclude by considering the relevance of arguments that inclusion of such considerations for decisions on import of LMOs would be a violation of a country's obligations under the World Trade Organization (WTO).

### *A Brief History of Protocol Negotiations*

An open-ended ad hoc group of experts, established by the first Conference of the Parties (COP) to the CBD, met in Madrid in July of 1995, to

consider whether a protocol was in fact necessary, as requested by Article 19(3). Though consensus was not reached, the vast majority of country representatives present did, in fact, consider a biosafety protocol necessary. The second COP, in its decision II/5, established a working group, the Open-Ended Ad Hoc Working Group on Biosafety, to negotiate a protocol. Negotiations commenced in July 1996 in Aarhus, Denmark, and concluded in Montréal, Canada, in the early hours of January 29, 2000, a year after the unexpected collapse of the talks at what was to be the final negotiating session in February 1999 in Cartagena, Colombia.

At the deliberations in Madrid, countries outlined a broad array of components to be included in the protocol. These included a procedure for advance informed agreement (AIA) and 12 additional items. Of the 12, 3 were nonconsensus items, desired primarily by developing countries: consideration of socioeconomic impact of LMOs, liability and compensation for damage caused by LMOs, and a financial mechanism. After six negotiating sessions, all of the nonconsensus items were still on the table and unresolved, although only socioeconomic considerations were the subject of an article in the final text.

### *Socioeconomic Concerns Related to Biotechnology*

[Negative] social and economic impacts often greatly overshadow hoped-for development benefits . . . Social and poverty issues are as often as not at the core of environmental impacts in developing countries. (Barrow, 1997, pp. 230, 241)

Many of the concerns about genetically engineered organisms, or LMOs as they are referred to in the CBD and protocol, involve those organisms destined for large-scale release into the environment, that is, genetically engineered crop plants that will be planted on a commercial scale. Crops are currently being engineered for three general purposes: alteration of production characteristics (e.g., herbicide, insect, or disease tolerance), alteration of downstream processing characteristics (e.g., to increase starch content in potatoes so they absorb less oil when being fried), and production of specialty, often nonfood, chemicals for use as industrial feedstocks (e.g., canola that produces lauric acid for use in shampoos and as a food additive).

Environmental concerns are many and include the following: escape of an engineered plant that eventually becomes a weed; escape of the transgene (the gene that was engineered into the plant) through pollen transfer to related varieties, with resulting impacts on the accidentally pollinated population, or impacts on populations of other plants that are

outcompeted by the new hybrids; poisoning of nontarget insects by pollen or leaf material from genetically engineered plants; generation of new types of plant viruses through recombination with viral material engineered into the crops. All these concerns clearly fit under the mandate of the CBD, to conserve biological diversity.

No less important to many developing countries are concerns about socioeconomic impacts that might then have downstream effects on the conservation and sustainable use of biodiversity. Negative impacts to biodiversity can be the result of a chain of consequences, direct and indirect, intentional or accidental. Impacts that must be considered in the context of biosafety, therefore, include indirect harm (e.g., harm through economic or social consequences that lead to changes in forestry or agriculture, etc., and thus have an impact on local biota) or harm whereby an effect of an LMO release crosses a boundary (say by altering climatic conditions, or affecting migratory species, or by causing social or economic impacts on human populations that lead to refugees' crossing borders and harming—perhaps by numbers alone—new ecosystems).<sup>1</sup>

There are many ways that social and economic impacts could influence a community's ability to conserve and sustainably use their biological diversity. For example, genetic engineering of traditional crops may allow them to be grown, or allow products to be produced from their growing their cells outside of the agroclimatic zones where they are normally cultivated. This would have an impact on producers who normally grow that crop—and affect their ability to conserve or sustainably use it. A number of firms in the biotechnology industry are engineering plants or tissue culture cells that can produce, in Northern climates, many products that are now imported from developing countries. Tissue culture cells are being engineered to produce vanilla, which can be sold as real, not artificial, vanilla. Plants also can be engineered to produce compounds not naturally found in them. A canola plant has been engineered to produce lauric acid, a compound presently derived from coconut and palm kernel oils. Small-scale producers in both Madagascar and the Philippines will feel the effects of these crop substitutions.

The Rural Advancement Foundation International (RAFI) has been warning of these types of socioeconomic impacts of the new biotechnologies for more than 10 years. Some other impacts they note regard the following: coffee,

Coffee is now a smallholder crop in most areas of the world. Biotechnologies will facilitate shift to large-scale production which will become concentrated in fewer countries (Rural Advancement Foundation International [RAFI], 1989, p. 1);

1. I am indebted to Professor Philip Bereano for elaboration of this point.

cacao,

Development of high-yielding cacao varieties could lead to overproduction and jeopardize price and stability of cacao-producing countries while shifting production from small-scale producers to large-scale plantations; the use of biotechnology to convert low-priced oils into cacao butter could drastically reduce the demand and price for cacao beans. (RAFI, 1987, p. 1);

and pyrethrins,

U.S. is the world's largest importer of natural pyrethrins. Development of "bio-pyrethrin" substitute could displace over 200,000 small farmers who grow pyrethrum flowers in Kenya, Tanzania, Rwanda, and Ecuador. (RAFI, 1992, p. 1)

Certainly one key concern of NGOs and others regarding the potential impacts of new genetically engineered crops is the impact that structural change in agriculture brought about by their introduction may have on food security. As RAFI notes, their introduction may facilitate a transition to large-scale monoculture or encourage a switch from planting food crops to cash crops, or to planting genetically engineered food crops that peasants cannot afford to grow.

Changes in the structure of agriculture are certainly significant for both food security and biodiversity conservation. It is important to emphasize here, though, that of these impacts, the CBD only covers those specific to the conservation and sustainable use of biodiversity; for socioeconomic considerations to be part of a legal instrument under the convention, harm to biodiversity must be demonstrated or shown to be possible. Therefore, it is necessary to be able to link socioeconomic impacts with their downstream effects on biodiversity. We detail below three general ways in which socioeconomic impacts may have such downstream effects.

### *The Green Revolution and the New Biotechnologies*

One well-studied example of the social impact of a particular set of technologies is the impact of the introduction of Green Revolution high-yielding varieties in traditional agricultural systems. Researchers have documented socioeconomic impacts from the introduction of these varieties. In a social impact assessment of the Green Revolution, Bowonder (1979) found an uneven distribution of benefits and consequences—poor farmers were made poorer and rich farmers richer. Numerous researchers before and since then have come to the same conclusions

regarding the impacts of the introduction of high-yielding varieties on different socioeconomic classes of agriculturists (see, for example, Bray, 1994; Cleaver, 1972; Griffin, 1974; Hewitt de Alcántara, 1976; Shiva, 1991; Wright, 1990). These impacts on small farmers include employment changes, debt, loss of land, marginalization, social changes, regional economic disparity, dependency for inputs and credits, unrest, and migration (Barrow, 1997).

In terms of the potential for socioeconomic impacts on traditional agricultural systems, there appears to be little difference between impacts seen from the introduction of the high-yielding products of the Green Revolution and the products that will be offered by the plant biotechnology industry. New technologies tend to reflect and reinforce existing social structures, and there is no indication that the products of genetic engineering will be any different.

Much of the planet's biological diversity is stewarded by small farmers, local communities, and indigenous peoples. A small farm is a reservoir for agricultural biological diversity; it is also a socioeconomic entity. To the extent that the introduction of any new technology or product is detrimental to the socioeconomic status of agriculturists, these technologies will also alter their ability to conserve biological diversity. In the eyes of most developing nations party to the protocol negotiations, changes in the socioeconomic conditions of their small farmers and other custodians of biological diversity may have significant impacts on their ability to conserve that diversity.

### *Cultural Impact*

The CBD itself defines harm to biodiversity very broadly and includes in its mandate for protection, in addition to ecosystems and habitats, sociocultural aspects of biodiversity:<sup>2</sup> For example, Article 8(j) calls on parties to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity" (UN Environment Programme, 1994, p. 9).

Different cultures within and between countries have differing spiritual and religious traditions and will place different values on land, biological diversity, and the integrity of living organisms. Cultural and religious traditions may reject altogether the genetic engineering of certain types of organisms. In a recent declaration, the Indigenous Peoples of the Western Hemisphere state,

2. I would like to thank Mark Winfield of the Canadian Institute for Environmental Law and Policy for pointing this out to me.

The principle of harmony requires that we do not violate the principles of Creation by manipulating and changing the natural order. . . . Genetic technologies which manipulate and change the fundamental core and identity of any life form are an absolute violation of these principles. . . . Therefore, we . . . reject all programs involving genetic technology. (Indigenous Peoples of the Western Hemisphere, 1995, p. 63)

Importation of genetically engineered organisms may influence the value a particular culture places on aspects of its biological environment, altering its ability to conserve biological diversity. This could happen in two ways. If genetically engineered organisms alter the natural environment and totems on which particular peoples base their material and spiritual well-being, people could be profoundly depressed. Consider, for example, the U'wa people, who are currently threatening mass suicide because the Colombian government has just granted a permit to Occidental Petroleum for oil drilling on their ancestral lands. A group might also gradually lose or abandon cultural or spiritual values because of a degradation of the environment. Both of these sociocultural impacts could negatively influence the ability of a group to conserve biological diversity.

### *Impacts on Traditional Practices*

Traditional communities depend greatly on the biological diversity that surrounds them. Environmental impacts on the biological diversity on which the community depends could make it difficult for the community to continue to support itself. For example, in Thailand, practitioners of traditional medicine are worried about the potential for cross-pollination by genetically engineered cotton of 16 different species in the cotton family (Malvaceae). According to the practitioners, they would be unable to continue to use those contaminated plants for medicinal purposes (Bhatiasevi, 1997). The inability to sustain use of the traditional medicines, and the impact that may have on the practitioners' ability to support themselves using those medicines, would have a further impact on their ability to conserve that valuable biological diversity.

In summary, there are valid reasons that indirect effects on the conservation and sustainable use of biodiversity, resulting from socioeconomic impacts, should be considered in biosafety assessment. SIA is a means to recognize and manage these impacts.

## *Introduction to SIA*

Many countries take socioeconomic concerns into account in domestic planning decisions through their EIA process. It was in the United States that this means of assessing and incorporating consideration of social impacts first came into use, through implementation of the National Environmental Policy Act of 1970 (NEPA). Since that time, a great deal of rigorous social science research has been carried out to develop methodologies for such assessment, and a large scientific literature exists on the practice of SIA (see, for example, Finsterbusch, Ingersoll, & Llewellyn, 1990; Finsterbusch, Llewellyn, & Wolf, 1983; Freudenburg, 1986; Rickson, Hundloe, McDonald, & Burdge, 1990; Stoffle, 1990; Taylor, Bryan, & Goodrich, 1990). Data derived from SIA are in wide use in decision-making procedures throughout the world, including the World Bank's social assessment procedures and impact assessment procedures under the U.S. NEPA.

## *Definition of SIA*

Burdge and Vanclay (1995, p. 32) define SIA as "the process of assessing or estimating, in advance, the social consequences that are likely to follow from specific policy actions or project development, particularly in the context of appropriate national, state, or provincial environmental policy legislation." Assessment consists of identifying the impacts and the social groups on which the impacts fall, evaluating them as to the probability of their occurrence and their magnitude, and investigating the equity aspects of their distribution because costs, risks, and benefits typically affect different segments of society (Lee & Bereano, 1981). Impact assessments measure both social impacts—"social and cultural consequences to populations that alter ways in which people: live, work, play, relate to one another, organize to meet their needs, cope as members of society" (p. 32)—and cultural impacts—"changes to norms, values, beliefs of individuals that guide and rationalize their cognition of themselves and their society" (Burdge & Vanclay, 1995, p. 32).

As noted above, an action may have impacts that are direct or indirect (sometimes the latter are called second or higher order impacts), intended or unintentional. Impacts often exist as chains of consequences in which one impact acts in turn to itself to cause higher order effects. For

example, the use of certain insecticidal genes in genetically engineered plants could affect the lifespans of honeybees, which in turn could decrease the number of plants pollinated (Pham-Delègue, 1997).

### *Scope of Analysis*

Current methodology of SIA is based on “identifying likely future impacts based on reconstructing social impacts of past events” (Burdge & Vanclay, 1995, p. 43). Reasoning by analogy is one of the most common analytic techniques.

The basic SIA model is comparative and based on studying the course of events in communities where planned environmental change has occurred, and extrapolating from that analysis to predict what is likely to happen in another community where a similar developmental event or policy change is planned. (Burdge & Vanclay, 1995, p. 38)

(Although in carrying out such a procedure, one must bear in mind that analogies compare two situations that have differences as well as similarities; central to the validity of such an analysis is whether the differences are sufficiently small so that we may reason from the one situation we know to that which is unknown.)

### *Data and Variables Measured in SIA Analysis*

Analysis of impact is based on a variety of social science data. “Such data range from the highly quantitative—such as demographic data—to more qualitative data on local traditions and beliefs” (Rickson & Rickson, 1990, p. 106). Sources of data for an ex post facto impact study on social and psychological impacts of the Exxon Valdez oil spill included

(1) interviews with key community leaders, municipal department heads, and other citizens regarding impacts and responses; (2) interviews with psychological and social service providers regarding impacts; (3) compiled statistics regarding psychosocial impacts; and (4) a survey of about 596 households in 12 affected and 2 control communities. (Impact Assessment, Inc., 1990, p. 16)

In the United States, different agencies will analyze social impact based on a differing mix of social variables, depending on their statutory

mandate. The categories of impact studied also will necessarily vary internationally. The following list is a summary of some of the major variables considered in impact assessment by the cited researchers and institutions:

- population change, community and institutional structures, political and social resources, individual and family changes, and community resources (Interorganizational Committee, 1995);
- population change; lifestyle; attitudes, beliefs, and values; and social organization (Taylor et al., 1990, as well as the U.S. Forest Service manual);
- demographic factors, socioeconomic determinants, social organization, sociopolitical context, needs and values (World Bank Environment Department, 1995); and
- unequal distribution of benefits and consequences of a particular action, changing power structures, family disruption, impacts on racial and cultural diversity, and disintegration of community cohesion (Burdge & Vanclay, 1995).

### *Characteristics of SIA Relevant to an MEA*

A few characteristics of SIA need to be highlighted prior to our discussion of how it may be incorporated into a multilateral environmental agreement. First, it is important to note the wide array of techniques and variables used in impact assessment. Procedures between countries are likely to vary widely, as they do even between agencies within a single country. It is unlikely, and the Cartagena Protocol negotiations bear this out, that in negotiating legal text countries will agree to the proscription of actual procedures. Rather, in the protocol, the parameters to be taken into consideration during a risk assessment are relegated to an annex (Annex III), the text of which is not legally binding.

Furthermore, it is also important to note that both qualitative and quantitative data are used in impact analysis. As such, who carries out the assessment, and who is consulted during the assessment, will clearly have a bearing on the results of the assessment. In short, assessments will not be "objectively" duplicable. In fact, the subjective nature of impact assessments, as noted below, was seen as problematic by a number of countries during the Protocol negotiations. Any SIA is likely to be highly contested, in particular when the benefits and the costs of the impacts are not evenly distributed, and a finding goes against the interests of either the major beneficiaries or those bearing the largest burdens of impact. This, of course, does not mean that SIA should not be carried out, for they are important tools for predicting and possibly avoiding

negative social impacts of technology. However, within the international legal arena, the subjectivity of the results will make them easy targets for challenge at the WTO. This point will be explored further below.

### *SIA and Genetic Engineering: Examples from Norway and New Zealand*

What might national legislation look like that mandates consideration of the social impacts of LMOs in their approval process? Norway's genetic engineering law, the Gene Technology Act, states that its purpose is "to ensure that the production and use of genetically modified organisms takes place in an ethically and socially justifiable way" (Norway Ministry of Environment, 1993, p. 1). With respect to approval for environmental release of an LMO in Norway, the law states that "significant emphasis shall also be placed on whether the deliberate release represents a benefit to the community and a contribution to sustainable development" (Norway Ministry of Environment, 1993, p. 5).

New Zealand's Environmental Risk Management Authority has proposed procedures for the introduction of LMOs under the Hazardous Substances and New Organisms Act (New Zealand Environmental Risk Management Authority [ERMA], 1997, pp. 8-9). Under the act itself, *environment* is defined to include the following:

1. ecosystems and their constituent parts, including people and communities;
2. all natural and physical resources;
3. amenity values; and
4. the social, economic, aesthetic, and cultural conditions that affect the matters stated in paragraphs (a) to (c) of this definition or that are affected by those matters.

Included in the information that is to be supplied to the government for review and approval of a release of an LMO is information with particular regard for

- the maintenance and enhancement of the capacity of people and communities to provide for their own economic, social, and cultural well-being and for the reasonably foreseeable needs of future generations; and
- the relationships of Maori and their culture and traditions with their ancestral lands, sites, *waahi tapu*, valued flora and fauna, and other *taonga* (New Zealand ERMA, 1997).

Although Norway and New Zealand have not defined exact impact assessment procedures in their regulatory statutes, important

socioeconomic and cultural variables have been identified that should be taken into consideration during impact assessment. Apparently, decisions on import and release of LMOs will be made based to some extent on the predicted socioeconomic and cultural impacts of those LMOs.

### *Proposals for Mechanisms to Include Socioeconomic Considerations in the Biosafety Protocol*

SIA is an internationally accepted component of EIA, and has a set of coherent methodologies that could be referenced in international law. The key question for our analysis is the following: How might SIA be integrated into a protocol on biosafety?

As mentioned above, the central element of the biosafety protocol is a procedure called advance informed agreement (AIA). Under the AIA procedure, importing countries must explicitly agree to an importation of an LMO before export can proceed. The decisions taken under an AIA are based on information provided to, or generated by, the importing country, including the results of a risk assessment.

The initial African and Malaysian proposals for legal text provide clear examples of how social and economic impact assessments might figure in the language and procedures of the protocol. Their proposals had three primary mechanisms for incorporating socioeconomic considerations into a review of the risks posed by an LMO:

- mandatory inclusion of socioeconomic parameters, such as those data and variables noted in the earlier section on SIA, in the points to consider during the risk assessment;<sup>3</sup>

3. The original African position on the risk assessment article (Article 15) included the following clause:

1. Each Party shall ensure that, in accordance with the provisions of this Protocol, assessments prior to the use, transfer and release of living modified organisms or products thereof are undertaken as regards the risks or possible adverse impacts in their respective territories as well as in the territories of States of import, including the transboundary effects to human and animal health, the environment, biological diversity and *the socio-economic welfare of societies* [italics added]. (Federal Democratic Republic of Ethiopia, 1996, p. 7)

It also added the following parameters for risk assessment in what is now Annex III:

7. Socio-economic considerations:
- (a) Anticipated changes in the existing social and economic patterns resulting from the introduction of the living modified organism or product thereof;
  - (b) Possible threats to biological diversity, traditional crops or other products and, in particular, farmers' varieties and sustainable agriculture;

- development of an early warning system for countries whose exports might be affected by development of genetically engineered substitutes, such as Malagasy vanilla;<sup>4</sup> and
- mandatory risk management of socioeconomic risks.<sup>5</sup>

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(c) Impacts likely to be posed by the possibility of substituting traditional crops, products and indigenous technologies through modern biotechnology outside of their agro-climatic zones;

(d) Anticipated social and economic costs due to loss of genetic diversity, employment, market opportunities and, in general, means of livelihood of the communities likely to be affected by the introduction of the living modified organisms or products thereof;

(e) Possible countries and/or communities to be affected in terms of disruptions to their social and economic welfare;

(f) Possible effects which are contrary to the social, cultural, ethical and religious values of communities arising from the use or release of the living modified organism or the product thereof. (Federal Democratic Republic of Ethiopia, 1996, p. 17)

The Malaysian submission of legal text included the following text for a stand-alone article on socioeconomic considerations:

1. The Parties hereby agree that socio-economic imperatives must be taken into account at all levels during the transfer, handling or use of LMOs [living modified organisms]. To this end, the intending country Party shall ensure that the risk assessment prepared by it or person or entity under its jurisdiction under Article 6 [Risk Assessment, Article 15] shall incorporate specific assessments on the *socio-economic effects and impacts* of the transfer, handling or use of the LMO to or within the receiving country and its environment, in particular *to the conservation and sustainable use of biological diversity*, taking into account its human health, agriculture and welfare. (UN Environment Programme, 1997b, p. 3, italics added)

2. The risk assessment shall in particular include an assessment of whether introduction of LMOs in the environment of the receiving country may entail a *displacement of a particular agricultural and resource use system* or the *culture and livelihood of the local people*. (UN Environment Programme, 1997b, p. 3, italics added)

4. In addition to their proposals for the risk assessment article and annex, the African Group submission contained wording for a stand-alone article, which included the following clause describing an "early warning system" for commodities that would lose their market:

2. A Party that intends to produce, using a living modified organism, a hitherto imported commodity, shall notify the other Party or Parties whose export is to be affected long enough, and in no case less than seven years in advance so as to enable them to diversify their production and to implement measures concerning the biodiversity that would be reduced following the disruption of production of the commodity in question. The Party substituting its import in such an unnatural way shall, when the affected Party is a developing country, provide financial and technical assistance to the affected Party. (Federal Democratic Republic of Ethiopia, 1996, pp. 7-8)

5. From the Malaysian submission for a stand-alone article on socioeconomic considerations:

3. The intending Party shall ensure that the risk management strategies and measures proposed to be implemented by the receiving Party under Article 7 [Risk Management, Article 16] shall incorporate strategies and measures that will minimize, prevent or mitigate the potential socio-economic effects and impacts within the receiving country Party, in particular where the introduction of LMOs in the environment of the receiving country Party may entail a displacement of a particular agricultural or resource use system of the culture and livelihood of the local people. (UN Environment Programme, 1997b, p. 3)

These mechanisms were detailed in several places throughout the protocol: in the risk assessment article, in a stand-alone article on socioeconomic considerations, and in the annex detailing risk assessment parameters.

### *Results of the Cartagena Protocol Negotiations*

The three elements listed above—an article on risk assessment, an annex on risk assessment parameters, and a stand-alone article on socioeconomic considerations—formed a solid framework for incorporating socioeconomic impact assessment into the language and procedures of the Protocol. However, a number of countries voiced strong opposition to including socioeconomic considerations under the procedures of the protocol at all. Arguments against including socioeconomic considerations in the risk assessment process, or as other legitimate criteria for decision making, included the nonquantifiable, nonscientific nature of the SIA, and as such, noncompatibility with provisions of the WTO agreements.

At the Cartagena negotiating session in January 1999, a delegate from Australia noted the subjectivity of socioeconomic considerations and argued against use of such nonobjective criteria in the risk assessment process. He suggested that these considerations are best dealt with domestically, taking into consideration a country's international obligations (anonymous delegate, official intervention, February 14, 1999). Japan used a more general argument, citing the extreme variability of relevant assessment parameters: "1. (Socio-Economic conditions vary too much from state to state to be measured by a standardized scale. Therefore, this item should not be dealt with in the Protocol.)" (UN Environment Programme, 1997b, p. 3). Both the United States and the European Union held that decisions should be "science-based."<sup>6</sup>

Early on in the negotiations, as names of articles were being decided on and working groups were established, a few important separations of topics occurred. The risk assessment article was assigned to Sub-Working Group 1 (SWG 1), the annex with risk assessment parameters was assigned to a contact group that reported to SWG 1, and the article on socioeconomic considerations was assigned to Sub-Working Group 2. This effectively precluded consideration of the environmental and social

6. Text for the risk assessment article submitted by the United States in 1997 required that "(d)ecisions shall be based on scientific principles . . ." (UN Environment Programme, 1997a, p. 41). The official position put forward by the European Commission at the Cartagena negotiating session was essentially the same: "Risk assessment should be science-based" (representative of the European Commission, personal communication, February 14, 1999).

impact assessment in a unified way, and it diluted the efforts that could be made by the African group and other members of what was to become the Like-Minded Group.<sup>7</sup> The group was minimally represented in many meetings, as most of the delegations were one-person delegations, and by separating the topics, it meant there were fewer delegates in the room at a time to argue for the Like-Minded Group position.

There was not just a physical separation of the discussion but also a philosophical one. The contact group discussing risk assessment parameters was also the group discussing definitions of terms such as *recombinant DNA*. Many of the diplomats in the room were also scientists. In a setting in which science is given priority, making the argument for including social science in risk assessment is difficult.

This emphasis on scientific assessment and quantifiability of risks by the majority of developed nations (Norway stood alone as a developed country supporting the position of the Like-Minded Group on socioeconomic considerations) was made stronger by a continued reference to the WTO and its requirements for “science-based” decision making under the Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement).

The final Cartagena Protocol contains the following article as the only reference to socioeconomic considerations (reference was removed from both the risk assessment article—Article 15—and the annex on risk assessment):

Article 26 (Socioeconomic Considerations)

1. The Parties, in reaching a decision on import under this Protocol or under its domestic measures implementing the Protocol, may take into account, consistent with their international obligations, socioeconomic considerations arising from the impact of living modified organisms on the conservation and sustainable use of biological diversity, especially with regard to the value of biological diversity to indigenous and local communities.
2. The Parties are encouraged to cooperate on research and information exchange on any socioeconomic impacts of living modified organisms, especially on indigenous and local communities. (UN Environment Programme, 2000)

7. The Like-Minded Group, which coalesced during the Cartagena meeting, is formed by most members of the G77 and China, with the notable exceptions of Argentina, Chile, and Uruguay. These three South American nations joined with Australia, Canada, and the United States as the “Miami Group,” of LMO-exporting (or soon-to-be exporting) nations. One other important extraregional grouping formed during the final meeting, the “Compromise Group,” whose members include Japan, South Korea, Mexico, Norway, and Switzerland.

It should be noted that countries already have the ability to take domestic decisions regarding criteria for evaluation of imports. What the Like-Minded Group and Norway would have preferred in the Cartagena Protocol is an enabling provision that included SIA in internationally recognized criteria for decision making on LMO importation without the qualification regarding international obligations. Such a provision would have established a right under international law to ban an LMO based solely on socioeconomic considerations, if the downstream effects of socioeconomic impacts could be shown to be harmful to biological diversity. The Miami Group, composed of the United States, Canada, Australia, Argentina, Chile, and Uruguay,<sup>8</sup> argued such a right would be inconsistent with WTO obligations. What are those obligations, and why do they matter so much to the developed countries, the Miami Group in particular? Is a decision to restrict the importation of an LMO based on socioeconomic considerations a barrier to trade? What legal threats might there be against a country that decided to use information from an SIA in the risk assessment and decision-making process?

### *Is SIA Consistent With WTO Obligations?*

The WTO agreements, including inter alia the General Agreement on Tariffs and Trade 1994 (the GATT 1994), the SPS Agreement, and the Agreement on Technical Barriers to Trade (the TBT Agreement), govern trade between member states. Three provisions of the GATT form its core obligations: Articles I, III, and XI. Articles I and III

obligate parties to treat imports from any GATT party no less favorably than they treat any other imports . . . and no less favorably . . . then (*sic*) domestically produced "like products." Under Article XI, GATT parties also are obligated to convert all trade barriers to tariffs. (Nissen, 1997, p. 904)

This last provision prohibits trade measures such as quotas, embargoes, or bans.

Under the GATT, all barriers to trade are illegal unless they fit under a set of exceptions. The SPS Agreement and the TBT Agreement discuss particular types of exceptions allowed and the conditions under which

8. The Miami Group of LMO-exporting and potentially exporting countries was formed prior to the fourth negotiating session, at a meeting hosted by the United States in Miami.

those exceptions may be made. In the case of the SPS agreement, which describes allowable regulations to protect plant, animal, and human health, standards must be established based on “sound science.” The agreement is very narrowly written and appears to apply only to protection from pests, diseases, disease-carrying organisms, or disease-causing organisms.<sup>9</sup> The TBT Agreement covers technical standards (voluntary) and regulations (mandatory) in relation to product characteristics or related processes and production methods.<sup>10</sup>

The Miami Group has asserted that any trade measures taken under the Biosafety Protocol would be governed by the SPS Agreement, and they argue that only those measures taken to protect animal, plant, and human health are WTO legal. This interpretation does not appear to be correct in light of the narrow definition of a sanitary or phytosanitary measure. Consider the introgression, or movement, of genes from genetically engineered varieties into populations of landraces by wind transfer of pollen. The impact of this occurrence on the conservation of genetic diversity could be very serious indeed but would not be covered under the narrow definition of “phytosanitary risks” of the SPS Agreement—genetically altered pollen is generally not considered a pest, disease, or disease-causing organism.

The TBT Agreement, which governs technical regulations in relation to product characteristics or related processes and production methods, does not appear to be relevant in this situation either. The TBT would perhaps cover the regulations that require a SIA to be carried out, that is, the establishment of potential parameters to be covered during a risk

9. Note the following definition of a sanitary or phytosanitary (SPS) measure under the SPS Agreement:

Sanitary or phytosanitary measure—Any measure applied:

- (a) to protect animal or plant life or health within the territory of the Member *from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms* [emphasis added];
- (b) to protect human or animal life or health within the territory of the Member from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs;
- (c) to protect human life or health within the territory of the Member from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests; or
- (d) to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests. (World Trade Organization [WTO], 1994, p. 77)

10. In the agreement, a technical regulation is defined as the following:

Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labeling requirements as they apply to a product, process or production method. (WTO, 1994, p. 132)

assessment, but it would have nothing to say about any actual trade measures implemented. The agreement is concerned with import restrictions based on the characteristics of the product itself, whereas in the case of biosafety, regulators are concerned with the downstream effects of the importation of a particular product. Under the TBT, if international standards were developed, such as the designation of risk assessment parameters to be taken into consideration during the review for importation of an LMO, such “international standards” would be assumed to be WTO legal. The final text of the protocol did not establish such a standard regarding assessment of social impacts.<sup>11</sup> However, the TBT considers that one of the legitimate objectives of such standards is protection of the environment. Arguably, a basic international standard has already been established by the CBD itself, namely the conservation and sustainable use of biological diversity, and procedures developed under the protocol would be in accordance with the TBT Agreement.

Let us consider a specific example: Country A decides to ban or in some other way restrict trade in an LMO because of a determination of second-order negative impacts to biological diversity based on an SIA. The country’s regulators came to the conclusion, through SIA, that the introduction of genetically engineered *Bt* corn (a corn engineered with a bacterial gene so that it becomes toxic to various Lepidopteran insects such as the European and Asian corn borers) into its agricultural system would cause a number of unwanted effects, including changes in the structure of agriculture. Country A determined that those changes in the land ownership and mix of crops grown would be significant for the conservation of biological diversity by smallholders.

If the country (a) banned the importation of *Bt* corn from all exporters, (b) did not allow its local biotechnology industry to develop *Bt* corn, and (c) the trade measure is not a disguised restriction on international trade, it would satisfy most of the major criteria of the WTO agreements. The country’s moves, however, would not pass the test of Article XI, which forbids the use of bans or other types of quantitative restrictions. But if the government can demonstrate that such socioeconomic impacts have an impact on the conservation of biological diversity, it may be argued that the general exceptions article of the GATT 1994, Article XX, would allow trade-related measures, such as a ban, to be taken. The particular subclause of Article XX relevant in this case is Article XX (g).

11. The protocol would have established an international standard in this regard, if socioeconomic parameters had been included in the risk assessment annex.

### *Article XX (g)*

The chapeau and relevant subclause of Article XX, both of which would have to be satisfied for such a ban to be legal, state 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 . . . (g) relating to the conservation of exhaustible natural resources *if such measures are made effective in conjunction with restrictions on domestic production or consumption.* (WTO, 1994)

The conditions noted by the three italicized provisions would have to be met to justify a ban. Significantly, it appears that measures taken related to the conservation of biological diversity would clearly qualify under the exemption for measures relating to the conservation of exhaustible natural resources. If a country could demonstrate higher order links between socioeconomic impacts and impacts on the conservation of biodiversity, actions taken should be WTO legal.

The question then becomes, Was a specific enabling clause in the Biosafety Protocol necessary to legitimize trade measures taken based on the results of a socioeconomic impact assessment? The final version of the protocol merely states the status quo: that a country has the sovereign right to implement such measures, albeit under threat of a WTO challenge. An unqualified enabling provision would have given greater legitimacy to a country's actions and would bolster its defense in the face of a WTO complaint. As mentioned above, if the risk assessment standards are developed in the context of an international agreement, the TBT Agreement assumes that those standards are acceptable under the WTO. Given that risk assessment is a part of the current proposed protocol, that SIA is an accepted component of risk assessment around the world, and that social impacts can have a significant effect on a country's ability to conserve biological diversity, there seems no reason not to have included SIA parameters in the risk assessment annex and an enabling clause within the protocol saying that decisions based on SIA are legitimate. However, with strong opposition from the Miami Group and the European Union, this was not an outcome of the protocol negotiations.

## *Conclusions*

Concurrent with the formation of the Miami Group came its demand that genetically engineered commodities—that is, LMOs used for food, feed, or processing rather than for direct planting into the environment—should not be subject to the AIA procedure.<sup>12</sup> One of the U.S. heads of delegation, Rafe Pomerance, was quoted as accusing the Like-Minded Group of being irresponsible, and in a raised voice during a late night closed-door session in Cartagena, informing negotiators that the protocol could have a negative impact on the United States's \$40 billion agricultural export industry. The negotiator for the Like-Minded Group at that time, Tewolde Berhan Gebre Egziabher of Ethiopia, apparently calmly replied to Mr. Pomerance that the protocol was about the environment, not trade. Vandana Shiva of the Research Foundation for Science, Technology and Natural Resource Policy in India made an insightful intervention on this topic at one of the earlier negotiating sessions when she noted that the Miami Group's concern over subjecting commodities to the AIA procedure was a socioeconomic concern of the developed world and that their socioeconomic concerns always seemed to take precedence over those of the Third World.

Even with the qualified enabling clause contained in the protocol, it is likely that any country basing an LMO ban on the results of an SIA will face a challenge in the WTO. The United States (with the most advanced biotechnology industry and the world's largest LMO exporter) is unlikely to find acceptable a trade measure based on information derived from an SIA. As the United States will not likely be a party to the CBD, and hence the protocol as well, any time soon, it will not be bound to the dispute settlement provisions of the convention, and its only forum for lodging a complaint about a trade measure will be the WTO. It is difficult to predict the outcome of such a challenge, the merits of the case notwithstanding. However, the dispute resolution panels to this date have been quite successful at finding fault with every national environmental law that has been challenged to date, albeit often through legal technicalities rather than finding the environmental exceptions invalid.

If jurisprudence on Article XX(g) is an indication of how a dispute would be resolved, there is reason to think that the challenge of such a

12. The scientific rationale behind this is incredibly shaky. Corn imported into Mexico from the United States to be processed into tortillas will still germinate if it falls off the truck on the way to the processing plant, and will still have the ability to cause genetic pollution of the local landraces so important to world agriculture.

ban would be successful. Even though the text of XX(g) indicates that exceptions are allowed for measures “relating to the conservation of exhaustible natural resources,” dispute panels have interpreted this to mean that the measures must be “primarily aimed at” conservation of the resource (Nissen, 1997). This is a high, and perhaps insurmountable, hurdle for a measure that aims to prevent second-order, rather than direct, impacts on the conservation of biological diversity.<sup>13</sup> Moreover, under GATT jurisprudence, the standard of justification for trade measures under Article XX(g) is a least restrictive means test, meaning the defending party must prove that there are no other potential measures that could be taken to prevent harm that are less trade restrictive than, say, the ban (Nissen, 1997).

There has yet to be a challenge of a trade-related environmental measure (TREM) taken pursuant to an MEA. The European Union and others have been putting forward proposals in the Committee for Trade and the Environment of the WTO for how to deal with potential conflicts between the WTO and MEAs. Among these proposals is the creation of what has been called an “environmental window,” whereby TREMs taken pursuant to an MEA are automatically considered exempted under Article XX, provided that the MEA has met a certain set of procedural criteria.<sup>14</sup> Nissen (1997) suggests a new subclause (k) under Article XX: “(k) undertaken in pursuance of obligations under a multilateral environmental agreement listed in Annex 5, provided the measure is

13. The text of the risk assessment and risk management articles (UN Environment Programme, 2000, Articles 15 and 16, also provide some indication of the criteria that the dispute resolution panels will use (*italics added*):

Article 15 (Risk Assessment)

1. Risk assessments undertaken pursuant to this Protocol shall be carried out in a *scientifically* sound manner, in accordance with Annex III and taking into account recognized risk assessment techniques. Such risk assessments shall be based, at a minimum, on information provided in accordance with Article 8 and other available *scientific* evidence in order to identify and evaluate the possible adverse effects of living modified organisms on the conservation and sustainable use of biological diversity, taking also into account risks to human health.

Article 16 (Risk Management)

1. The Parties shall, taking into account Article 8 (g) of the Convention, establish and maintain appropriate mechanisms, measures and strategies to regulate, manage and control risks identified in the risk assessment provisions of this Protocol associated with the use, handling and transboundary movement of living modified organisms.  
2. Measures based on risk assessment shall be imposed *to the extent necessary* to prevent adverse effects of the living modified organism on the conservation and sustainable use of biological diversity, taking also into account risks to human health, within the territory of the Party of import.

14. Potential criteria include “whether the MEA was open to participation by all parties concerned with the environmental objectives of the MEA, and reflected, through adequate participation, their interests, including significant trade and economic interests” (WTO, 1996, endnote 19).

proportional to the environmental harm. If the measure is not proportional, then the party may bring a dispute" (p. 926). She includes the concept of proportionality to avoid the present problem of the least restrictive means test.

Ironically for our story about SIA, it is the developing countries that have fought the move to establish an environmental window, citing the potential for the developed world to use TREMs as disguised protectionism. Also ironic is the nonpaper tabled by the United States in 1996, which noted that "WTO rules should not hamper the ability of MEAs to achieve their environmental objectives" and that "trade measures have been and will continue to be an important tool for achieving important environmental objectives" (WTO, 1996, paragraph 22).

It is interesting to note that the WTO itself claims that the exceptions clauses contained in Article XX of the GATT "subject to certain important conditions . . . allow a WTO member legitimately to place its . . . national environmental goals ahead of its general obligation not to raise trade restrictions or to apply discriminatory trade measures" (WTO, 1997). If countries include in their national environmental goals the conservation of various aspects of society and culture, trade-related measures based on results of SIA should be considered legitimate components of MEAs. Clearly, the proposals of the African Group and Malaysia to include socioeconomic considerations in the protocol would have been preferable to the present protocol text and arguably would have been consistent with international obligations as provided for by the WTO exceptions clauses. Given the likelihood of a WTO challenge, it is now up to countries to decide whether the exercise of their sovereign right to exclude LMOs based on predicted socioeconomic and downstream biodiversity impacts is worth the price they will pay.

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