INTERNATIONAL REGIME CONFLICT IN TRADE AND ENVIRONMENT: THE BIOSAFETY PROTOCOL AND THE WTO*

GILBERT R. WINHAM**

I. Introduction

On April 15, 1994, at Marrakesh, some 111 countries and regional organizations signed the Results of the Uruguay Round of Multilateral Trade Negotiations, which among other things created the World Trade Organization (WTO) on January 1, 1995. The WTO includes an Agreement on the Application of Sanitary and Phytosanitary Measures (WTO, 1994), which is designed to ensure that measures taken to protect life or health, especially food safety, are not carried out in a trade discriminatory manner, or otherwise constitute a "disguised restriction on international trade"(Preamble). Like other trade agreements (eg, NAFTA), the Sanitary and Phytosanitary (SPS)

* Forthcoming in World Trade Review (2003), 2:2, 1-24. The author wishes to acknowledge numerous helpful discussions with Julia Moore of the US National Science Foundation, Gretchen Stanton of the WTO, and David Cox of the Canadian Food Inspection Agency, as well as penetrating criticism from WTR anonymous reviewers. Able research assistance and advice were provided by Olivia Baldwin and Cory Binderup. Research support was received from the Social Sciences and Humanities Research Council of Canada, and a Fellowship at the Woodrow Wilson International Center.

**Professor Emeritus, Dalhousie University, Halifax, Canada.

Agreement adopted a scientific basis for assessing permissible trade-restricting measures, namely, that a measure applied to protect life or health "...is based on scientific principles and is not maintained without sufficient scientific evidence...."(Article 2.2). The agreement further required countries to base their SPS measures on a scientific assessment of the risks to life and health (Article 5.1). On the basis of this requirement, the WTO ruled in 1998 that the import bad n by the European Community on US beef produced with growth hormones was an impermissible trade restriction due to the failure of the EC to support its ban with a scientific risk assessment (WTO, 1998a).

On January 29, 2000, at Montreal, some 130 countries completed the Cartagena Protocol on Biosafety(CPB, 2000a). The purpose of the Protocol is to protect the environment from the risks associated with trade in living modified organisms (LMOs); or more specifically, to provide for the "...safe transfer, handling and use of living modified organisms resulting from modern biotechnology...."(Article 1). The Protocol was negotiated pursuant to the Convention on Biological Diversity (CBD), and was five years in the making. Like environmental agreements generally (eg, Rio Declaration, CBD), the Biosafety Protocol adopted the "precautionary principle", which means that "potentially dangerous activities can be restricted or prohibited even before they can be scientifically proven to cause serious damage."(CPB, 2000b). European negotiators were reportedly delighted to have included the precautionary principle in a mainly trade agreement. Also included in the agreement is the statement that the Protocol does not affect the rights and obligations of governments under existing international agreements.

Each of the above-mentioned agreements is part of a regime in international politics, specifically, the trade and environmental regimes.[1] When it comes to protecting life, health or the

[1] Regimes are defined by academics as "...implicit or explicit principles, norms, rules and

environment, each of the above regimes has a guiding principle, namely scientific risk assessment in trade versus the precautionary principle in environment. And, despite the efforts of the drafters of the Biosafety Protocol to gloss over inconsistencies, the two principles appear to be incompatible, and hence the respective regimes are likely in conflict with each other.[2] If this is the case, the result of regime conflict could be a growing paralysis in the implementation of international trade and environmental law, along with an increasing hostility in the economic relations of the United States and the European Union.[3]

Both regimes developed over a long period in international relations. The norms and rules of the trade regime go back to various trade agreements in the 19th Century, such as the Cobden-Chevalier commercial treaty of 1860, and would include the Reciprocal Trade Agreements of the 1930s. The GATT of 1947 codified many of the norms and rules of the then-existing regime into a single agreement. The elements of the GATT regime have been described by Gerard and Victoria Curzon (1976), and include a substantial reduction of trade barriers, particularly tariffs; the norm of reciprocity; the intent to build an international trade order; and the elimination of discriminatory treatment in international trade. The norm of non-discrimination gave rise to two important rules, namely, GATT Article I (Most-favoured Nation Treatment) and Article III (National Treatment).

The WTO, created in 1994, deepened the regime by adding rules to cover vast new areas of

---

decision-making procedures around which actors' expectations converge in a given area of international relations." (Krasner, 1983).

[2] In the Hormones case (WTO, 1998a), the Appellate Body found that the precautionary principle, raised as a "customary rule of international law" by the EC, did not override the requirements of the SPS Agreement for scientific risk assessment. This finding would have been problematic had the SPS Agreement included the relevant language of the Biosafety Protocol.

[3] For a similar example of inconsistency between international regimes, see the analysis of Rosendal (2001), which contrasts the Convention on Biological Diversity with the WTO Agreement

international exchange, such as trade in services, trade-related intellectual property, and foreign investment. Furthermore, the WTO incorporated an advanced dispute settlement system, described as "...the most ambitious worldwide system for the settlement of disputes among more than 130 states ever adopted in the history of international law."(Petersmann, 1998). The combination of extensive rules plus a legally-binding mechanism for adjudicating the rules makes the WTO trade regime one of the most impressive examples of governance in the contemporary international system.

The international environmental regime commenced in the 19th Century with the development of international environmental associations and environmental treaties (Meyer et al., 1997). The contemporary indicators of the regime are, first, the numerous international non-governmental organizations (INGOs) that have gained prominence and power in international diplomacy, such as organizations like the World Wide Fund for Nature (WWF) and the World Resources Institute (WRI) that wielded influence over the Convention on Biological Diversity (Raustiala, 1997). The second aspect of the regime is a series of international treaties addressing various aspects of environmental problems. These treaties, and their accompanying organizational structure, are often referred to as regimes in their own right; for example, Miles (2002) and his associates have examined 14 case studies of international environmental regimes in an attempt to assess regime effectiveness.[4] Some institutionalization exists in the international environmental regime in the form of the United Nations Environmental Program (UNEP), but this structure has far

---

on Trade-related Intellectual Property.

[4]These regimes include the Mediterranean Action Plan, the International Whaling Commission (IWC), the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR), and so forth.

less impact in the environmental regime than does the WTO in the trade regime. UNEP is at most a catalytic agency in regard to global environmental cooperation and policy, and is involved mainly in prompting research and information sharing. Clearly environment and trade have produced different kinds of regimes in international politics, and in terms of regime theory, the environmental regime would be identified more in cognitive terms that place an emphasis on principled and shared understandings as well as communicative actions, whereas the trade regime would be identified more in formal terms with an emphasis on rules-based behaviour (Hasenclever et al., 1996:181).

The two factors that have allowed the modern environmental regime to develop–as argued by Meyer and his colleagues--were the expansion of scientific debate about environmental degradation that began in the last century, and the creation of an accessible organizational format in the UN system that facilitated the mobilization of social causes. The former--also analysed as "epistemic community" by Haas and his colleagues (1992)--created an awareness of the environment in world political culture that laid the groundwork for later political action. The latter provided a venue to translate environmental awareness into treaty making activity by international organizations and nation states. The environmental regime originated in informal international discourse and association and moved toward more official intergovernmental activity and organization over time. The process can be characterized in the international system as top-down and not bottom-up, in that the lead was taken initially at the international and not nation-state level. For example, Meyer and his associates (at 645) argue that international organization preceded national organization, in that many national environmental ministries and agencies developed in the period after the establishment of the UNEP in 1972.[5]

[5]On a related point, Meyer et al. (at 625) question "...how so much organized collective action

The trade and environmental regimes are not at loggerheads on all issues, for trade agreements increasingly deal with environmental issues, and recent environmental agreements have been sensitive to trade concerns and even framed in liberal trade-friendly terms.[6] However, where there is potential conflict, there is a lot at stake for both regimes, not only for unique policy concerns of each regime but also for the development of international law. Conflicts driven by issues like food safety or health have become extremely sensitive in domestic and international politics, and the pressures directed toward governments can be intense. For example, the issue of agricultural biotechnology has become highly politicized in Europe where the outbreak of BSE (Mad Cow disease) has caused the public to question both scientific and regulatory decision-making in their political institutions.[7] This intensity is also recent. During the Uruguay Round negotiations that concluded in 1993, the EC sought to incorporate the precautionary principle (and other provisions) in the SPS Agreement, but agreed to subordinate that principle to that of scientific risk assessment under pressure from the Americans (Skogstad, 2001a). It is doubtful the EC would make the same decision today.

The point of departure in examining this case of regime conflict is the development of law in both regimes regarding food, health and environmental safety. Important elements of the trade and environment regimes may not be legally compatible, and if so this could retard the implementation

---

has risen in a world society...in which the dominant state organizations until recently formed few and weak environmental agendas." Today this in no longer the case, as the vast majority of environmental negotiations and agreements are among states and define their terms in reference to state rights and obligations.

[6] An example would be Principle 12 of the Rio Declaration on Environment and Development of 1992, which stated that: "Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade."

[7] Eg., see the cover story "Who's afraid" on genetically modified foods(The Economist 1999)..

of rules in either regime. For example, in a recent major effort to understand legalism in world politics, scholars have defined "legalization" as characterized by obligation (actors are bound by rules), precision (rules are unambiguous), and delegation (rules are interpreted and implemented by third parties, e.g. judicial bodies) (Abbott et al., 2000). It seems likely that regime conflict as described above could threaten all three of these fundamental characteristics of legalization.

Beyond law, however, the conflict over the principles of the trade and environmental regimes could have serious implications for the politics of the international system, especially bilateral relations between the United States and the European Union. In multilateral relations the consequences are also serious, and Paarlberg (2002) has noted how certain African governments, operating more on the principles of the environmental rather than the trade regime, rejected food aid shipments of genetically engineered corn (maize) from the United States during the famine of the summer of 2002. Finally, conflict between the trade and environmental regimes raises new concerns in the theoretical understanding of the role of regimes in international relations, which will be examined in the conclusion to this paper.

II. Development of Scientific Risk Assessment in the Trade Regime

Food safety is an historic concern in the trade regime. It was arguably included as a "General Exception" to the GATT 1947 in Article XX(b), which provided that "...nothing in this Agreement shall…prevent the adoption...of measures...necessary to protect human, animal or plant life or health." The only limitation to this provision was that such measures were not to be applied so as to create arbitrary or unjustifiable discrimination, or a disguised restriction on trade. This provision reflected the attempt of GATT Contracting Parties to balance issues like food safety and trade liberalization. This balance was tested in the dispute over beef hormones.

The hormones case began in the GATT when in 1987 the United States initiated dispute settlement proceedings against the European Community for its ban on beef treated with growth hormones. In the 1950s, the United States commenced using hormones to promote the growth of farm animals for human consumption. The practice subsequently became standard. Meanwhile in the European Community, countries followed diverse policies. In 1980, following a food scare, Italy restricted imports of veal from countries--including EC Member States--where hormones were authorized. The following July 31st, 1981, the EC banned some hormones from use with animals, and ordered studies to be conducted on others.

The studies were conducted by a Scientific Working Group (the "Lamming Group"), which concluded that with two exceptions where further data were needed, the hormones examined "...would not present any harmful effects to the health of the consumer..." when properly controlled and monitored (WTO, 1997:9). The Working Group's findings were corroborated by an EC Scientific Veterinary Committee. Based on these studies, the EC Commission circulated a proposal to permit the use of selected hormones, but the proposal was rejected by the European Parliament and the EC Council of Ministers. The Commission amended its proposal, and on December 31, 1985, the EC Council banned hormones for growth promotion purposes.

The United States raised the hormones ban for consultations in the GATT in 1986, and in 1987 invoked dispute settlement proceedings. The US sought to establish a "technical experts group" under the Tokyo Round Agreement on Technical Barriers to Trade, on the grounds that the EC action was not supported by scientific findings, but the EC blocked the request. Thwarted, the US commenced retaliatory measures in 1989 consisting of 100 per cent duties on a list of imports from the EC. These duties were to continue in part until the WTO Hormones panel was established

in 1996 (WTO, 1997:11).

i. The SPS Agreement. The experience with the GATT Panel helped US negotiators to formulate their position in the Uruguay Round SPS negotiation (McNiel, 1998:95). At the outset, the US sought to provide a more precise and authoritative legal guidance than could be taken from Article XX(b) of the GATT, which was to that point the main rule in the trade regime dealing with food safety issues.[8] Clearly, the objective in writing more explicit rules would be to reduce the possibility that SPS measures could serve as disguised barriers to legitimate trade. This objective was especially important given the liberalization of agricultural trade rules the Uruguay Round was expected to produce, and the fear that new rules might be undercut by an expanded interpretation of health measures or food safety.

Two other US concerns related to the issues of testing procedures and standards. To assess the validity of measures taken to protect health, the US sought to rely on sound scientific procedures as much as possible. This would include the resort to available scientific evidence to determine risks to health, as well as the use of scientific experts in disputes that might arise under the SPS Agreement. With regard to the scientific standards to be applied, the US promoted the use of harmonized sanitary and phytosanitary measures based on international standards developed by regional or international bodies. An example would be the standards set by the Codex Alimentarius Commission, which has promulgated food standards since 1962 that have been adopted by numerous countries. Codex standards are currently used for adjudicatory purposes in international trade issues

[8] GATT Article XX(b) stated that given that measures are not applied as a means of arbitrary or unjustified discrimination, or as a disguised restriction on international trade, "...nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of

involving food products.

The EU approached the negotiation of the SPS Agreement with some similar concerns as the United States: namely, the purpose of the Agreement was to prevent health measures from becoming a barrier to trade, and those measures were to be based as much as possible on scientific principles and evidence (Skogstad, 2001b). However, the EU had other concerns which were not entirely consistent with the above, namely: the use of criteria other than science to justify SPS measures; the promotion of a precautionary principle; and the requirement that exporting countries should carry the burden of proof to demonstrate the safety of a product that an importing country had found to be unsafe. US negotiators disagreed with the EU on these three concerns, and the United States prevailed on these matters in the resulting SPS Agreement.[9]

At the outset, the SPS Agreement incorporates the rights and obligations of GATT Article XX: countries are guaranteed the right to take SPS measures, but these measures must not be discriminatory or disguised restrictions on trade. Beyond this, the Agreement added substantive and procedural precision to the rules on SPS measures. In Article 2.2, Members are obliged to insure measures taken are "necessary" to protect health, are based on "scientific principles", and are supported by "sufficient scientific evidence". In Article 3.1, in order to harmonize SPS measures between countries, Members are obliged to base SPS measures on "international standards" where these standards exist. Such standards may be produced by bodies like the Codex Alimentarius, and Members using such standards are presumed to meet the requirements of the SPS Agreement. As an

---

measures:...necessary to protect human, animal or plant life or health...."

[9] Skogstad(2001b:12) notes EU negotiators were aware the SPS Agreement might create difficulties in the WTO for its ban on hormone-fed beef, but felt this risk could be managed. The advantage of the SPS Agreement was that it served the agricultural export interests of EU Member States.

exception to Article 3.1, Members are permitted to introduce measures that achieve a higher SPS protection than that required by international standards, but there must be a "scientific justification" for the higher standards, or, in effect, a risk assessment conducted under Article 5.

Article 5 addresses the procedures for the assessment of risk. In Article 5.1, Members are obliged to base SPS measures on the assessment of risks to health, and in Article 5.1 are instructed to take account of various examples of "available scientific evidence." With regard to the consistency of SPS measures within countries, Members are obliged in Article 5.5 to avoid arbitrary or unjustifiable distinctions in the levels (of measures) in different situations, if such distinctions result in discrimination or disguised restrictions on trade.

The SPS Agreement satisfied negotiators' demands for a more concrete rules-based system on food safety and health issues in international trade. However, it did not satisfy the subordinate goals of the EU. The SPS Agreement did not provide for the criteria other than scientific procedures that the EU wished to introduce into risk assessment. With regard to the precautionary principle, Article 5.7 did permit Members to apply SPS measures “where relevant scientific evidence is insufficient”, but this exception was qualified by the requirement that the measures be provisional, and that the implementing member should seek to obtain the additional information necessary “within a reasonable period of time.”[10] Finally, with regard to burden of proof, the clear expectation that Members would rely on international standards arguably placed the burden of proof on non-

[10] Article 5.7 read: "In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt [SPS] measures on the basis of available pertinent information... In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the [SPS] measure accordingly within a reasonable period of time."

compliant Members to justify any standards that were higher than international standards.[11] As a result, the exporter would escape the obligation to prove a product was safe in the face of an SPS measure maintained by the importing country.

ii. The Appellate Body's Hormones decision. The WTO came into existence on January 1, 1995. It incorporated the SPS Agreement, along with all other Agreements from the Uruguay Round negotiation. The following January, the United States requested formal consultations with the European Union on the hormones ban. Consultations were unsatisfactory, and the United States requested a panel be established. The Panel commenced on May 20, 1996, and reported on August 18,1997 (WTO, 1997). The case was appealed to the WTO Appellate Body, which in turn reported on January 16, 1998 (WTO, 1998a). These two cases provide a further interpretation of WTO law on the matter of food safety.

The Panel's Report concluded the EU ban on hormones was inconsistent with its obligations under the SPS Agreement in three particulars. First, owing to the fact that EU decision making on hormones had been based more on politics than science,[12] the Panel found the EU did not comply with Article 5.1 because it maintained SPS measures that were not based on a risk assessment. Second, because the EU maintained apparently inconsistent regulations on hormones, the Panel

[11] This requirement led one observer to argue that the SPS Agreement has replaced the traditional GATT principle of "national treatment", whereby a trade-restricting measure might be defended if it were applied to domestic actors. The new principle was labelled "international treatment" (Charnovitz, 1994**).**

[12] The increasing politicization of European regulatory decisions has been noted by Skogstad(2001b:4), who states: "Treaty changes, notably the Treaty on European Union (1991) and the Amsterdam Treaty (1996), have increased the decision-making power and scope of the European Parliament."

found the EU adopted arbitrary distinctions in the levels of sanitary protection in a manner inconsistent with Article 5.5. Finally, because the EU did not adopt Codex Alimentarius standards that found hormones safe, and because it did not comply with risk assessment obligations for the higher standards it did adopt, the Panel found the EU did not comply with the harmonization requirements of Article 3.

The Panel Report was an unequivocal loss for the EU. However, it fared considerably better with the Appellate Body. The Appellate Body (hereinafter AB) confirmed the Panel Report that the EU ban on hormones was inconsistent with the SPS Agreement, but it moved the interpretation of Members' obligations under the SPS Agreement much closer to the EU position. Specifically, by broadening the criteria of evidence that can be used to support a scientific risk assessment, the AB reduced the predictability of Members' obligations under the SPS Agreement.

The AB upheld (with modifications) the Panel's decision on risk assessment (Article 5.1), but reversed the Panel's conclusions on arbitrary distinctions (Article 5.5) and harmonization (Article 3). On the two latter points, first, the AB found that the EU indeed did maintain distinctions in its SPS measures in different situations (eg, by accepting the use of hormones in pig production that were banned in beef production). Some of these distinctions were judged not to be arbitrary; others, while arbitrary, were not discriminatory owing to the fact that the rationale for the measures was not trade-related. Second, the AB found that the requirement of Article 3 to base SPS measures on international standards did not mean that SPS measures must conform to those standards. With this reasoning as a point of departure, the AB went on to reverse the Panel's finding that the EU was not in compliance with Article 3. On both these points the AB expanded the flexibility of WTO Member governments to establish food safety regulations appropriate to their societies. Of

particular importance was the reversal of the Panel's interpretation of Article 3, as countries are not yet prepared to accept trade-related obligations to make domestic regulations on food safety comply with international standards.

On the turning point of the case, namely, the AB's finding on risk assessment, the AB argued that Article 5.1 required "...that there be a rational relationship between the [SPS] measure and the risk assessment." (WTO, 1998a: para. 193) The EU had presented no evidence of a risk assessment to justify the import prohibition on hormones, and on these grounds it was held non-compliant with its obligations in the SPS Agreement. In reaching this decision, however, the AB relaxed the customary notion of what constituted a scientific test in the context of risk assessment. Risk assessment need not embody majority scientific views, nor necessarily be "mainstream" science, but could be representative of divergent opinions from qualified and respected sources. Scientific evidence could also be qualitative, as there was no requirement that it be quantitative. Finally, in regard to the EU's concern that risk assessment took place in laboratories and did not take account of risk factors occurring in the field, the AB noted that the risk to be evaluated included "...not only risk ascertainable in a science laboratory operating under strictly controlled conditions, but also risk in human societies as they actually exist...in the real world where people live and work and die." (WTO, 1998a: para 187)

In keeping with common practices in judicial review, the AB decided Hormones on the narrowest grounds available to it. The AB did not define science. On the grounds of "judicial economy", it did not make a decision on Article 2.2, which arguably is the central obligation of the SPS Agreement.[13] The result is that there is no judicial comment on the fact that the EU had no

[13] Article 2.2 states: "Members shall ensure that any [SPS] measure is applied only to the extent

scientific evidence to support its SPS measures, or that the available scientific evidence overwhelmingly went against the EU's action. A legal judgment on what constitutes sufficient scientific evidence on the matter of hormones will have to wait for another day, and another case.

The AB's decision on Hormones strikes a fine balance between sovereignty, health protection and free trade. The ruling found strong support, and there has been relatively little criticisms from legal scholars (Quick and Bluthner, 1999:636). Effectively the ruling fell between the deeply-felt positions of the two major actors in the WTO, and it produced criticism from Americans, who ostensibly won the case, and support from Europeans who ostensibly were the losers.

III. Development of the Precautionary Principle in the Environmental Regime

The AB gave short shrift to the precautionary principle in Hormones. The EU had argued its case in part on the basis of Article 5.7 of the SPS Agreement, but also on the basis that the precautionary principle had become a customary rule of international law and therefore must be taken into account in the assessment of risk. Applying this principle in Hormones would have meant, according to the EU, that not all scientists would have to agree on the magnitude of risk, or that all WTO Members would have to evaluate risk in the same way (WTO, 1998a: para 121). Most importantly, the precautionary principle would have allowed the AB to find that the SPS Agreement did not prevent Members from being cautious in their risk assessment procedures. The AB declined to take a position on the EU's claim for customary status for the precautionary principle. Instead, it held that the precautionary principle, as reflected in Article 5.7, did not override the requirement of

---

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 provided for in paragraph 7 of Article 5."

Article 5.1 for a scientific risk assessment.

The EU's claim that the precautionary principle represents customary international law flows from the importance the principle has assumed in the past two decades. It originated as Vorsorgeprinzip in the domestic politics of West Germany in the 1960s and 70s, and found its way into legislation dealing with pollution control related to acid rain, marine pollution and global warming (Boehmer-Christiansen, 1994). As noted by Cameron and Abouchar(1996:39): "The principle places on German policy makers, a moral duty, and an entitlement to act when irreversibility is feared but where scientific certainty is lacking. Vorsorge frequently buttresses political acts favourable to the environment but challenged on the grounds of insufficient science or cost." The precautionary principle cropped up indirectly in environmental legislation of many countries, where liability offenses were established for emitting substances that "may" cause harm to the environment. As well, there are numerous examples of direct invocation of the precautionary principle.[14]

International environmental treaties have also endorsed this principle. References to precaution, or "precautionary measures", have appeared increasingly in international agreements, such as the Preamble to the Montreal Protocol on Substances That Deplete the Ozone Layer, 1987; or the Preamble to the Convention on Biological Diversity, 1992. In the Rio Declaration the precautionary principle was adopted in its entirety, conveying the same implications for scientific assessment as did the German Vorsorgeprinzip.[15] In sum, it could be said the precautionary

[14] Eg, Article 1502.3 of Canada's Agreement on Internal Trade permits precaution as a basis for taking environmental measures that affect trade.

[15] Eg, Principle 15 states: "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 scientific certainty shall not be used as a reason for postponing cost-

principle--even if it does not constitute custom--is an emerging principle of international law, a point conceded by one of the complainants of the EU's actions in Hormones (WTO, 1998a: Canada's Appellee submission at para 34,).

The development of the precautionary principle foursquarely impacted the trade regime with the negotiation of the Cartagena Protocol on Biosafety. The impetus for this negotiation was the development of genetically modified organisms (GMOs) through advances in biotechnology, which triggered a fear that transboundary movements of such organisms could cause harm to the health and environments of individual countries.[16] The negotiation began in 1996 when the Conference of the Parties to the Convention on Biological Diversity established the "Open-ended Ad Hoc Working Group" on Biosafety. The Group was instructed to focus on the effects of biotechnology on the conservation and sustainable use of biological diversity (CPB, 2000a).

The Group met six times from 1996 to February 1999 in the context of growing opposition to GMO food (Eichenwald et al, 2001). Alliances quickly formed in the negotiation, of which the most important were: the European Union; the Like-Minded Group (comprised of most developing countries, and largely supporting the EU); and the Miami Group (the United States, plus agricultural exporters). Some of the most difficult issues were which agricultural commodities would be covered by the agreement, the labelling of GMO products, the precautionary principle, and the relationship of the Biosafety Protocol to the WTO Agreements (Eggers and Mackenzie, 2000: 527).

---

effective measures to prevent environmental degradation." Rio Declaration on Environment and Development, 1992.

[16]Regrettably, the technology of genetic engineering is complex, and there is no common definition of GMOs (McHughen, 2000:10). Generally, GMOs are understood to be living systems, or products processed from same, that result from recombinant DNA technology. Living modified organisms(LMOs), which were the subject of the Biosafety Protocol, are mainly genetically modified seeds used for seeding, feed and processing.

The Parties met in February, 1999, in plenary session in Cartagena, Colombia to conclude the agreement. The session was unsuccessful, and the Parties re-convened the plenary session in Montreal, Canada the following January. On January 29, 2000, the Biosafety Protocol was concluded. By March 7, 2003, 103 states and regional organizations had signed the Protocol, including the European Union and excepting the United States, Japan, Russia and Brazil. The Protocol enters into force when it receives 50 ratifications. On July 15, 2003, Nigeria became the 53rd state to ratify the Protocol, which entered into force on September 11, 2003.

The objective of the Protocol is to ensure the safe transfer, handling and use of living modified organisms (LMOs). The importance of the precautionary principle to this objective can be seen in the frequent references to the principle throughout the agreement, and especially in Article 1.[17] It is evident the precautionary principle and LMOs were meant for each other.

The Protocol specified obligations between exporters and importers, depending on the classification of the LMOs being transhipped. For LMOs that will enter the environment of the importer (eg, seeds), the exporter is required to conduct a risk assessment and then obtain the Advanced Informed Agreement of the importer. The importer may or may not accept the LMOs; it should base its decision on a risk assessment conducted in a "scientifically sound manner" (CPB, Article 15.1), but it may also use the fact that lack of scientific certainty "shall" not prevent a prospective importer from taking "appropriate" action.[18] Additionally, exporters are obliged to label

[17] Article 1, OBJECTIVE, "In accordance with the precautionary principle contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of modified living organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements."

[18] Article 10.6. The importer can also invoke "socio-economic considerations" under Article 26.1,

LMOs as such.

The requirements are less strict for LMOs used for food, feed and processing (ie, LMO-FFPs), such as bulk grains, which make up more than 90 per cent of the trade in LMOs. Parties making a decision regarding the domestic use of LMOs are obliged to inform other Parties of that decision through a Biosafety Clearing-House (CPB, Article 11.1). This information is detailed, and includes a risk assessment. Other Parties may import LMO-FFPs under their domestic regulatory framework, but they are obliged to make their laws and regulations available to the Clearing-House. Prospective importers are allowed to invoke the precautionary principle in making the decision to import LMO-FFPs (CPB, Article 11.6). Again, labels are required, but only to indicate that the goods "may contain" LMOs and are not intended for introduction into the environment of the importer (CPB, Article 18.2(a)).

In the case of both LMO seeds and LMO-FFPs, the legal provisions of the Cartegena protocol are claimed to be "...complicated and ambiguous, reflecting the sensitivity of the compromise struck." (Hagen and Weiner, 2000: 710)[19] This ambiguity was compounded when considering the relationship of the Protocol to other international agreements, particularly the WTO. The Protocol's Preamble stated it could not be interpreted to change the rights and obligations of Parties under other international agreements, which would obviously include parties' rights under the WTO Agreements. However, the Protocol then went on to add: "...the above recital is not intended to subordinate this Protocol to other international agreements." Elsewhere in Article 2.4, Parties are

---

as follows: "The Parties…may take into account...socio-economic considerations arising from the impact of [LMOs] on the conservation and sustainable use of biological diversity....".

[19] The authors argue the ambiguity of the language could allow importers to restrict LMO imports on the basis of the precautionary principle, even in the face of contradictory scientific evidence suggesting the LMOs are safe.

permitted to take actions more protective of conservation than called for in the Protocol if they are consistent with other obligations in international law; but in Article 11.4 Parties are permitted to take [any] decision respecting imports "...that is consistent with the objective of this Protocol."

These provisions in the Protocol appear to be internally inconsistent, but more important, they seem to be incompatible with the obligations countries would have under the agreements of the WTO. It is possible that an arbitral panel could resolve the inconsistency within the Protocol by reference to Article 22 of the Convention on Biological Diversity, which would apply to the Protocol because the Protocol is negotiated under the framework of the CBD. Article 22 states "...that the Convention is dominant where the exercise of rights and obligations under other international agreements `would cause a serious damage or threat to biological diversity'." (Eacott, 2000) Reliance on CBD Article 22 would permit an interpretation that would strengthen the precautionary principle provisions within the Protocol, but it would likely also deepen the apparent conflict between the Protocol and the WTO. The upshot is that the precautionary principle introduces a potential conflict of legal regimes in international law that could make the resolution of trade and environmental conflicts essentially uncertain and problematic.

IV. The Prospect of Future Legal Conflict over Food Safety

In the past decade, the trade and environment regimes have developed in different directions on the issue of food and environmental safety. These issues at the best of times are sensitive political subjects, but the modern advances in biotechnology that have created genetically modified (GM) products have only served to increase that sensitivity.[20] The concern over agricultural

[20]For example, Raustiala(1997) notes that the issue of biotechnology greatly complicated the

biotechnology obviously underlies the Biosafety Protocol, and it will likely figure prominently in future applications of the SPS and TBT Agreement. The debate over genetically modified organisms (GMOs) can be expected to increase sharply the conflict between the trade and environment regimes (Coleman and Gabler, 2002).

The main protagonists in the debate over GMOs are the United States and the European Union. The relative economic interests of these two parties on GMO food products are roughly similar to their interests in the earlier conflict over growth hormones in beef. After years of laboratory and field tests in the United States, GMO field crops were released in 1996 for commercial use (Paarlberg, 2000). In 1996, the global area of GMO crops (mainly, soybeans, corn, cotton and canola) was 1.7 million hectares (James, 2002). This figure grew thirty-fold between 1996 and 2001. In 2001 GMO crops were grown in 13 countries, with four countries accounting for 99 per cent of the acreage: the United States (68 per cent), Argentina (22 per cent), Canada (6 per cent), and China (3 per cent) (James, 2002).

By contrast, in Europe the EC commenced approvals for the use of GMO commercial products in 1990, but resistance from European consumers prevented the use from becoming widespread. In June 1998, the EU instituted a moratorium on GMO approvals in response to demands for a ban on domestic use and commercial imports. As a result of this action, US exports of soybeans and corn to Europe fell by about one-half, for a loss of nearly $1 billion in sales (Zarrilli, 2000: 6-7). Coinciding with the drop in European exports, growing resistance to GMO products in the United States began to affect the domestic market by 1999, with the result that GMO plantings could be sharply cut back in the future. This brief economic resume indicates the

---

negotiation of the Convention on Biological Diversity, and was instrumental in the decision of the

substantial stakes that US agriculture and the biotech industry have in legal questions about food safety.

On July 25, 2001, the European Commission adopted proposals on labeling and tracing of GMO agricultural products designed to end the moratorium on GMO approvals, but which set some of the world's strictest rules on GMO foods and animal feed (USDA, 2001). Subsequently, the European Parliament and the Council of Ministers reviewed these proposals under the complicated rules of the EU "Co-Decision Procedure" (Kreppel, 2002). On July 2, 2003 the Parliament passed two pieces of legislation that will require supermarkets to label all products containing more than 0.9 per cent biotech material, and will also require producers to trace GMOs at all stages of production. There are further uncertainties in that the legislation must be adopted by the Council of Ministers, and that Member States must comply with the re-commencement of the approvals process for new GMO products, but assuming no further difficulties, the lengthy effort to achieve new EU regulations and to end the GMO moratorium will have come to a conclusion.

These new regulations will further threaten the remaining US exports of GMO products to Europe. The costs of the GMO traceability system are likely to be high, and will be borne by the exporter. Then too, there is no assurance that products labelled as GMO would be marketable in Europe: indeed, it is possible that the labelling regulations will simply substitute consumer group pressure for government regulation as a means for keeping US GMO exports out of the EU. Another area of concern is a report that the EU will campaign in bodies like the Codex Alimentarius for new international food safety standards consistent with European regulations (Inside U.S. Trade, 2001b) This campaign would be similar to that conducted by the EU for the adoption of the precautionary

---

Bush Administration not to sign the treaty

principle in the environmental and trade regimes, and the campaign (plus the US response) risks politicizing the standards-setting process on food safety.[21]

The past year has seen a vigorous debate in the US Administration on whether to initiate a WTO case against the EU on the GMO issue. The argument against this action was twofold: first, there was a concern that such an action would have a negative impact on public opinion in Europe; and second was the belief that a victory in a dispute case would be unlikely to alter European behaviour, thereby necessitating another damaging round of retaliations. Despite these arguments, in June, 2003, the US commenced a WTO dispute settlement procedure against the EU that challenged the WTO-legality of the GMO moratorium as well as various individual Member-State marketing bans against GMO products. The motivations for the US action was a concern that the US. biotech industry and its agricultural products were becoming stigmatized in world markets,[22] as well as a perceived need to challenge the legitimacy of the EU regulatory system on agricultural biotechnology. The WTO case will likely deepen conflict between the trade and environment regimes, and also will seriously risk damaging the WTO dispute settlement system.

i. Alternative viewpoints. The prospect of legal conflict between the Cartegena Protocol and various WTO Agreements is a delicate question for international lawyers and civil servants. In the EC Commission, the view is expressed: "...no conflict exists...if there is "tension", then the WTO

[21]On July 1, 2003, the Codex Alimentarius Commission adopted new regulatory standards on GMO foods, including the use of 'product tracing' as a tool of risk management. The United States supported product tracing for the purpose of public health, but did not support the application of this concept to the labelling of foods derived from biotechnology.

[22] A similar concern over the "product defamation" of US hormone-treated beef in part motivated the US Government to pursue the Hormones case. The author is grateful to David Cox for this observation.

will have to interpret in a way that takes both agreements into account...the WTO can't interpret in isolation."(Personal interview)[23] Predictably, a more negative view comes from the WTO Secretariat: "...certainly there is potential for massive confusion. We simply can't tell what the WTO Appellate Body could do with another document and other rules."(Personal interview) Apart from the expression of individual opinions, the issue has not yet been dealt with by the political bodies of the WTO, nor has the WTO Secretariat made public any analysis of the subject.[24]

Academic analysts dealing with the issue of biotechnology have been less equivocal, and have confirmed some of the inconsistencies raised in this paper. For example, Phillips and Kerr(2000) note the Protocol conflicts with the basic philosophy of the WTO in allowing trade restrictions to be justified on the basis of production and processing methods (PPMs) instead of product characteristics. Arguing by analogy that cotton cloth could not be restricted on the basis of being made by modern machinery instead of hand looms, the authors state that GMO technology has in many cases produced products that are undifferentiated, which has been the basis for domestic approval in countries such as the United States and Canada. The authors conclude: "The BSP is clearly inconsistent with the WTO in a number of areas...it is imperative that jurisdictional issues should be sorted out quickly...." (Phillips and Kerr, 2000: 74).[25]

---

[23] The author conducted interviews with senior officials of the WTO, EU Commission and US agencies for this paper. Regrettably these sources cannot be identified; however in the author's judgment, their comments provide valuable additional background for the analysis presented here.

[24] The author is not aware of any formal discussions of this matter under the CBD.

[25] There is arguably more ambiguity on the issue of PPMs in WTO jurisprudence than the authors imply, particularly in the wake of the Appellate Body's decision in Shrimp-Turtles (Wynter, 1999: 177-78). However, the authors' position is consistent with the US Food and Drug Administration, which decided in 1992 that GMO foods (except foods with known allergins) were "substantially equivalent" to foods produced from traditional plant breeding, and hence did not require any special labeling or approval process. (Pew Initiative,2001):20)

A similar position is taken by analysts who have a different normative fix on the subject. Matthee and Vermersch write: "It can be concluded that under the current WTO Agreement and with the current definitions of the precautionary principle, no full reconciliation of the precautionary principle and trade liberalisation is possible." (Matthee and Vermersch, 2000: 69) The reason is that since the absence of scientific evidence justifies the use of precautionary measures, the need for such measures cannot be proven, nor could a country employing those measures demonstrate they were not a disguised restriction on trade. The authors go on to question whether WTO rules "...work towards the fine balance between the precautionary principle and trade liberalisation, which is required by the objective of a sustainable development." (Matthee and Vermersch, 2000: 69)

The question of how the precautionary principle might be interpreted by the EU itself has been addressed by the European Commission in a Communication of February 2, 2000, which was subsequently tabled at a meeting of the Codex Alimentarius Commission (Codex Alimentarius, 2000). This Communication is important because of the ambiguity of some of the provisions of the Biosafety Protocol, and the uncertainty surrounding the operational aspects of the precautionary principle.

The Communication is a document of 15 pages, plus appendices. It notes at the outset that European legal texts do not define the precautionary principle, but that "...it is for the decision-makers and ultimately the courts to flesh out the principle." (Codex Alimentarius, 2000: 10)[26] In section 5.1 titled "Factors triggering recourse to the precautionary principle", the Communication indicates the precautionary principle would be used when a potential risk is identified, when a

[26] The Communication adds: "However, it would be wrong to conclude that the absence of a definition has to lead to legal uncertainty. The Community authorities' practical experience with the precautionary principle and its judicial review make it possible to get an ever-better handle on the

scientific evaluation has been conducted, and when scientific uncertainty still exists. Elsewhere in section 6.2 titled "The triggering factor", the Communication indicates the basis for triggering a decision to invoke the precautionary principle occurs once a scientific evaluation is completed. Some relevant factors in this decision include: a population that could be jeopardized; scientific uncertainties; the fear of consequences of inaction; the prospects of new scientific data; and finally, the belief that the absence of scientific proof should not be used to justify inaction.

The EC's Communication has been criticized for being imprecise and for creating the potential for protectionism.[27] Certainly the latter claim is given some credence by the Commission's reference to the "potential risks" that populations and the environment are exposed to, and to the fact that: "Decision-makers have to take account of the fears generated by these perceptions and to put in place preventive measures to eliminate the risks or at least reduce it to the minimum acceptable level." The concern is that "pressure from public opinion" (explicitly referred to in para. 5.2.1 of the Communication) might be the major if unspoken factor underlying the "triggering factors" enumerated above. Certainly the Commission's Communication did little to allay concerns that the EU would rely on "...political considerations rather than scientific ones in determining food safety standards." (Inside U.S. Trade, 2000: 14).

ii. Dispute settlement. The question of the consistency of the precautionary principle with WTO Agreements--especially on the issue of GMO technology--will likely have to be settled

---

precautionary principle."

[27] Eg, in the US response to the Communication, it asked the EU "...to first define the precautionary principle in order to allay fears about its potential use against foreign goods and services." (Inside U.S. Trade, 2000: 14). An academic commentator has observed: "...the Communication does not place restrictions on the use of the precautionary principle sufficient to

through dispute settlement. This would probably not occur under the Convention on Biological Diversity, which provides for conciliation and arbitration processes, but without enforceability. On the other hand, the WTO has a strong dispute settlement system, and is an example of relatively "hard" law in international relations (Abbott et al, 2000: 406-7). Under Article 6 of the WTO Dispute Settlement Understanding (DSU), Members have a right on request to launch a dispute settlement process (ie, "establish a panel"). The conclusion of that process is nearly automatically "adopted" (ie, rendered legally binding) under Article 16, and the result can be enforced under Articles 21-22 by sanctions authorized by the WTO. If a Member requested dispute settlement on a case involving GMOs, the WTO would be obliged to honour that request. Such a request has now been filed against the European Union.28

There are several issues that would arise should the question of the precautionary principle related to GMO technology be raised to dispute settlement in the WTO. One is which WTO Agreement would the case fall under? Presumably GMOs would deal partly (although not wholly) with food safety, hence the SPS Agreement would be invoked; however, Members do not agree politically whether the SPS Agreement applies to GMO food safety issues, and therefore, without raising the subject of GMOs, there has been no discussion of the applicability of the precautionary principle in the SPS Committee. The position taken by the United States is that since the precautionary principle is the EU's idea, it should be the party to raise it in the committee. The EU has not done so. As a result of this standoff, the issue may get resolved through an application for dispute settlement by one of the Members, in which case it would be left to a Panel or the Appellate

---

avoid protectionist abuses." (McNelis, 2000: 545).

28 On August 29, 2003, at the request of the United States, Canada and Argentina, the WTO established a dispute settlement panel to hear complaints against the EU's moratorium and labeling requirements on GM food and feed imports.

Body to decide.[29] However, most agree it would be preferable for the issue to be decided through negotiation between the Members.

Assuming a case invoking the precautionary principle did come before the WTO, a Panel or the AB would have to decide what weight to give a legal principle arising in an agreement outside the agreements explicitly covered by the DSU. It is true that Article 3.2 of the DSU calls upon the dispute settlement system of the WTO to "...clarify the existing provisions of [the covered] agreements in accordance with customary rules of interpretation of public international law." Under this provision, the AB has made use of the Vienna Convention in its decisions, especially in regard to the obligation to give precedence to treaties that are more recent, and it has stated that the GATT ought not to be interpreted in "clinical isolation" from public international law (WTO, 1996) Accordingly, it has been argued within the WTO Secretariat that the provisions of the Biosafety Protocol should be taken into account in interpreting the provisions of WTO Agreements, especially given that there is a presumption in international law toward the removal rather than the perpetuation of legal conflict. Be that as it may, the fact remains that a Panel or the AB is obliged to base its judgment on the "covered agreements" of Article 1.1; namely, the agreements listed in Appendix 1 to the DSU, being the agreements reached in the Uruguay Round of Trade Negotiations. If the plain meaning of the precautionary principle were to nullify the provisions of a WTO Agreement, such as the requirement in SPS Article 5.1 for a scientific risk assessment, it is difficult to see how the precautionary principle could be sustained. As noted by one interviewee: "...if there <u>is</u> conflict, the WTO does apply, because we have to enforce WTO Agreements."

[29] Eg, in a preliminary move toward dispute settlement, Thailand requested consultations with Egypt over the latter's ban on canned tuna containing GMO soybean oil. The request referenced various articles of the SPS Agreement. The complaint was subsequently settled by the parties (WTO,

There is a possibility that WTO Panels or the AB could weaken the meaning of "sufficient scientific evidence" through their interpretations of SPS Article 2.2 in order to find accommodation with the precautionary principle. Arguably, some movement in this direction has already been taken in the AB's comments on science in Hormones. However, this movement is unlikely to be continued. In a case following on Hormones, the AB accepted the Panel's argument that sufficient science had to be assessed in relation to the SPS measure that is maintained, and on that basis it confirmed the decision of the Panel that the measure in question was not maintained with sufficient scientific evidence (WTO, 1999a: para 73). This decision would appear to put some distance between WTO law and the kind of legal reasoning that would be necessary to support the precautionary principle.30

The conclusion is that it will be difficult to resolve the legal conflict between the precautionary principle and WTO principle of scientific risk assessment. There are powerful interests behind each of these principles which make resolution through dispute settlement an increasingly difficult challenge, even in the WTO which has an effective dispute settlement mechanism. The tendency may be to avoid bringing cases that invoke these principles, because of the fear of non-implementation of dispute settlement decisions by Members strong enough to resist. Either way the WTO trade regime would suffer a serious loss of credibility, which would not necessarily be offset by any gains in the environmental regime. The greatest loss would be the prospects for legal precision in international economic relations.

As noted earlier, the movement toward "legalization" in international affairs can be

---

2000).

30 In a later decision (WTO, 2003: para 216), the AB found that a risk assessment must be consistent with the definition of risk assessment contained in para. 4 of Annex A to the SPS Agreement.

characterized by the variables obligation, precision and delegation (Abbott et al, 2000). Precision, the requirement that rules be unambiguous and non-contradictory, was of great importance in the formation of the WTO regime, simply because the various GATT rules prior to the WTO were numerous, overlapping and contradictory (Winham, 1998). The "single undertaking" philosophy of the Uruguay Round negotiation removed much of the ambiguity and contradiction that previously characterized the trade regime. In the regime conflict that is now occurring between trade and environment, there is a danger that ambiguity and contradiction will re-emerge from relations external to the trade regime, just as internal relations have been rendered more consistent. In the environmental regime, the loss of precision may be of lesser concern since there is not the same level of coherence among multilateral environmental agreements that now exists to trade agreements under the WTO umbrella. However, regime conflict would nevertheless add an impediment to the rationalization of environmental rules by adding external constraints to any efforts to achieve internal coherence between agreements within the regime.

V. Conclusion: The Significance of Regime Conflict

Conflict between the trade and environment regimes is not a new phenomenon in international affairs. This conflict came into sharp focus after 1991 with GATT rulings against a US law that prohibited imports of tuna caught in a manner that endangered dolphins (GATT, 1991, and 1994). These rulings were followed by a similar case heard by a WTO panel and the Appellate Body that again found against a US law that restricted imports of shrimp in a manner that threatened sea turtles (WTO, 1998b). These cases inflamed the environmental NGO community, and helped to

propel environment onto the formal WTO agenda (WTO, 1999b). Other examples of a potential clash between trade and environment were the different approaches taken to agricultural biotechnology in the Convention on Biological Diversity and the Agreement on Trade-related Intellectual Property of the WTO (Rosendal, 2001), and a dispute between the EU and Chile over swordfish in which the parties resorted to different international legal regimes to support their claims. The latter case arose over Chile's refusal to give EU fishing trawlers access to its port facilities, on the grounds that EU fishing practices failed to comply with conservation measures mandated by the UN Convention on the Law of the Sea (UNCLOS) (Orellana, 2001). The EU took a dispute settlement action in the WTO under GATT Article V which provides for freedom of transit, while Chile pursued a case before the International Tribunal of the Law of the Sea (ITLOS) under provisions in UNCLOS related to the conservation of the living resources of the high seas. The parties eventually reached an agreement in January 2001 that suspended the proceedings in the WTO and the ITLOS.

The above examples of regime conflict are not particularly worrisome. For one thing, especially the swordfish case, they represent commonly occurring behaviors of "forum-shopping", where disputing parties seek out judicial and/or regulatory venues most consistent with their position on the issues. Then too, regime conflict of the sort experienced in the CBD/TRIPS case may represent no more than the normal play of institutional politics, analogous perhaps to a conflict in an urban setting between a police department and a department of education over the handling of violence in public schools. While these examples of regime conflict may be inconsequential in systemic terms, and even economic terms, the conflict over the safety of GMO foods is less easily dismissed because it involves large commercial flows and arises principally between the two

"superpowers" of the international political-economic system: the EU and the US. By contrast, the cases involving tuna-dolphin, shrimp-turtles, swordfish, and even CBD/TRIPS all represented conflicts between the US and/or EU versus developing countries, and they have proven manageable through the application of power and diplomacy. However, neither power nor diplomacy has worked in the case of agricultural biotechnology.

What distinguishes regime conflict over food safety and GMOs is that, first, each regime is backed by a national champion capable of wielding enormous influence in the international political-economic system, and second, within each national champion are non-governmental actors (environmental groups in the EU and industrial groups in the US) that are questioning the legitimacy of the regime supported by the other power. For example, a former Greenpeace official has stated: "Greenpeace and other NGOs consider that multilateral environmental agreements should never be subordinate to international trade rules."(Gale, 2002). The conflict is no longer legal but intensely political, and it is not even strictly a problem of inter-state relations. But the implications are certainly felt in inter-state relations, and a major effect could be to weaken the commitment of the majors to the multilateral trade regime. As noted by Fred Bergsten, the commitment of the US and the EU largely created the current trade regime, and "their failure to maintain that commitment would devastate the entire regime (Bergsten, 1999: 26)." Presumably, an irreconcilable conflict between the majors could have a serious impact on the environmental regime as well.

In the case of food safety, regime conflict--which could be described as a struggle over the rules of the system that goes beyond a struggle over specific policies--has the capacity to exacerbate policy differences between nations, and therefore raises some troublesome issues in international relations theory. The concern for conflict in international relations theory comes from the

Hobbesian tradition, which emphasizes anarchy and the role of competition, and has led to Realist theory, the concept of balance of power and alliance building. On the other hand, the concern for cooperation comes from the Kantian tradition, which emphasizes rule-oriented behavior and the role of joint action, and has been associated with Idealist theory, the concept of harmony of interest, and the construction of institutions. Modern regime theory grows out of a concern for and analysis of cooperation in international affairs (Keohane and Nye, 1989; Keohane, 1984). Regime theory does not consider the possibility that regimes themselves might be a focus of or a stimulus for conflict, and the concept of regime conflict is absent in two major reviews of regime theory (Haggard and Simmons, 1987; Hasenclever et al, 1996).

Regimes are claimed to be vehicles for cooperation; for example, they provide information to governments, facilitate issue linkage, reduce costs of transacting agreements, monitor compliance, and discipline cheating. But vehicles for cooperation can also be vehicles for competition, and none of the above functions is inherently associated with cooperation as opposed to competition. In the competition between the principles of scientific risk assessment versus the precautionary principle, the regimes in which these principles are embedded appear to serve more as a means to compete against (to paraphrase Krasner) "principles, norms, rules and decision making procedures" which are disapproved of, than as a means to promote cooperation in the international system. Thus regimes take on the guise of alliances which are competitive structures in the nation-state system, and which arguably have a long history of promoting conflict rather than cooperation, particularly when they include great powers as their members. [31]

The stakes are high on the issue of food safety and environment in the contemporary

[31]Eg., Gibler and Vasquez(1998) find that alliances that are war prone consist of coalitions of

international system. Regulatory competition over agricultural biotechnology exists between the US and EU, which are the economic leaders of the system. This competition is conducted in international organizations like the Codex Alimentarius, and, in an apparent throwback to the Cold War, the competition is extended to the Third World of developing countries in an effort to gain regulatory allies (Paarlberg, 2002; Moore, 2002). In a world where voices on all sides have argued for more effective regulation of the science of agricultural biotechnology (GAO, 2002), the development of regime conflict at the international level is not likely to promote an optimal relationship between science and society in the future.

References:

Abbott, K.W., R. Keohane, A. Moravcsik, A.M. Slaughter, and D. Snidal, (2000) 'The Concept of Legalization' International Organization, **54:** 401-419.

Bergsten, C.F., (1999) 'America and Europe: Clash of the Titans?' Foreign Affairs, **78(2):** 20-34.

Bluthner, A., and R. Quick, (1999) 'Has the Appellate Body Erred? An Appraisal and criticism of the Ruling in the

---

major states, a proposition that might be heuristic (and worrying) in thinking about regime conflict.

WTO Hormones Case.' Journal of International Economic Law, **2:** 603-639.

Boehmer-Christiansen, S., (1994) 'The Precautionary Principle in Germany-enabling Government' in T. O'Riordan and J Cameron (eds) Interpreting the Precautionary Principle, London: Earthscan Publications Ltd., 31-60.

Cameron, J. and J. Abouchar, (1996) "The Status of the Precautionary Principle in International Law", in D Freestone and E. Hey (eds) The Precautionary Principle and International Law: The Challenge of Implementation, The Hague: Kluwer Law International, 29-52.

CPB, (2000a), Cartagena Protocol on Biosafety, (2000a) Background, www.biodiv.org/biosafe/protocol/background.html, January 1.

CPB, (2000b), Cartegena Protocol on Biosafety, (2000b) Press Release, www.biodiv.org/press/pr-2000-01-28-biosafety.html, January 28.

Charnovitz, S., (1994) 'The World Trade Organization and Environmental Supervision' International Trade Reporter, **17:** 89-93.

Codex Alimentarius, (2000) 'Communication of the European Commission on the Precautionary Principle', Commission Document CX/GP 00/3-Added as of March 2.

Coleman, W.D. and M. Gabler, (2002) 'Agricultural Biotechnology and Regime Formation: A Constructivist Assessment of the Prospects' International Studies Quarterly, **46(4):** 481-506.

Curzon, G. and V., (1976) 'The Management of Trade Relations in the GATT', in Andrew Shonfield (ed.) International Economic Relations of the Western World 1959-1971 ,Vol. 1, Politics and Trade (London: Oxford University Press, 1976, 141-283.

Eacott, E., (2000) 'Are International Environmental Obligations under the Cartegena Protocol on Biosafety Reconcilable with International Obligations under the WTO?', Dalhousie Law School unpub. ms., April 23.

Economist, (1999) 'Who's afraid', June 19.

Eggers, B., and R. Mackenzie, (2000) 'The Cartegena Protocol on Biosafety' Journal of International Economic Law, **3:** 525-543.

Eichenwald, K., G. Kolata, and M. Petersen, (2001) 'Biotechnology Food: From the Lab to a Debacle' New York Times, January 25.

Gale, L., (2002) "Environmental NGOs" in C. Bail, R. Falkner and H. Marquard (eds) The Cartagena Protocol on Safety: Reconciling Trade in Biotechnology with Environment and Development, London: Royal Institute of International Affairs, 251-62.

GAO, (2002) Genetically Modified Foods: Experts View Regime of Safety Tests as Adequate, but FDA's Evaluation Process Could Be Enhanced, U.S. General Accounting Office , Report to Congressional Requesters (GAO-02-566) in May.

GATT, (1991) 'United States–Restrictions on Imports of Tuna: Report of the Panel', September 3. (DS21/R)

GATT, (1994) 'United States–Restrictions on Imports of Tuna: Report of the Panel', June 16. (DS29/R)

Gibler, D.M. and J.A. Vasquez, (1998) 'Uncovering the Dangerous Alliances, 1498-1980' International Studies Quarterly, **42:** 785-807.

Haas, P.M., (ed.) (1992) 'Special Issue: Knowledge, Power and International Policy Coordination' International Organization, **46(1):** 323-365.

Hagen, P.E., and J.B.Weiner, (2000) 'The Cartegena Protocol on Biosafety: New Roles for International Trade in Living Modified Organisms' The Georgetown International Environmental Law Review, **12:** 697-716.

Haggard, S. and B.A. Simmons, (1987) 'Theories of International Regimes' International Organization, **41(3):** 491-517.

Hasenclever A., P. Mayer, and V. Rittberger, (1996) 'Interests, Power, Knowledge: The Study of International Regimes'

Mershon International Studies Review, **40(2):** 177-228.

Inside U.S. Trade, (2000) 'U.S. Asks EU to Clarify Precautionary Principle at Codex Meeting', April 7.

Inside U.S. Trade, (2001a) 'Revision of EU Biotech Rules Threatens U.S. Feed Exports', February 9.

Inside U.S. Trade, (2001b) 'EU to Seek International Backing for Biotech Regulations', February 16.

James, C., (2002) 'Global Review of Commercialized Transgenic Crops: 2001' International Service for the Acquisition of Agri-biotech Applications, ISAAA Brief No. 24.

Keohane, R. and J.S. Nye, (1989) Power and Interdependence 2nd Ed. (Glenview, IL: Scott Forsman, 1989).

Keohane, R., (1984) After Hegemony, Princeton, N.J.: Princeton University Press).

Krasner, S., (1983) 'Structural Causes and Regime Consequences: Regimes as Intervening Variables' in Stephen Krasner (ed.) International Regimes, Ithaca, NY: Cornell University Press.

Kreppel, A., (2002) The European Parliament and Supranational Party System: A Study in Institutional Development, Cambridge: University of Cambridge Press.

Matthee, M., and D. Vermersch, (2000) 'Are the Precautionary Principle and the International Trade of Genetically Modified Organisms Reconcilable?' Journal of Agricultural and Environmental Ethics, **12:** 59-70.

McHughen, A., (2000) Pandora's Picnic Basket: The Potential and Hazards of Genetically Modified Foods Oxford, U.K.: Oxford University Press

McNeil, D.G. Jr., (2001) 'Europe Approves Strict Food Rules' New York Times, February 15.

McNelis, N., (2000) 'EU Communication on the Precautionary Principle' Journal of International Economic Law, **3:** 545-551.

McNiel, D.E., (1998) 'The First Case Under the WTO's Sanitary and Phytosanitary Agreement: The European Union's Hormone Ban' Virginia Journal of International Law, **39(4):** 89-134.

Meyer, J.W., D.J. Frank, A. Hironaka, E. Schofer, and N.B. Tuma, (1997) 'The Structuring of a World Environmental Regime, 1870-1990' International Organization, **51(4):** 623-51.

Miles, E.L. et al (2002) Environmental Regime Effectiveness: Confronting Theory with Evidence, Cambridge, MA: MIT Press.

Moore, J., (2002), 'China's Double Standards over GM Foods' Wall Street Journal, July 22.

Orellana, M., (2001) 'The EU and Chile Suspend the Swordfish Case Proceedings at the WTO and the International Tribunal of the Law of the Sea' American Society of International Law Insights, February, <www.asil.org/insights/insight60.htm>

Paarlberg, R., (2000) 'The Global Food Fight' Foreign Affairs, **79(3):** 24-38.

Paarlberg, R., (2002) 'African Famine, Made in Europe' Wall Street Journal August 23.

Petersmann, E., (1998) 'From the Hobbesian International Law of Coexistence to Modern Integration law: the WTO Dispute Settlement System' Journal of International Economic Law, **1(2):** 175-198.

Pew Initiative on Food and Biotechnology, (2001) Guide to U.S. Regulations of Genetically Modified Food and Agricultural Biotechnology Products, Sept.7, 2001: 20. (<www.pewagbiotech.org/resources/issuebriefs>).

Phillips, P.W.B., and W.A Kerr, (2000) 'Alternative Paradigms: The WTO Versus the Biosafety Protocol for Trade in Genetically Modified Organisms' Journal of World Trade, 34: 63-75.

Quick, R. and A. Bluthner, (1999) 'Has the Appellate Body Erred? An Appraisal and criticism of the Ruling in the WTO Hormones Case.' Journal of International Economic Law, **2:** 603-639.

Raustiala, K., (1997) 'Domestic Institutions and International Regulatory Cooperation: Comparative Responses to the Convention on Biological Diversity' World Politics, **49** (July): 482-509.

Rosendal, G.K., 'Impacts of Overlapping International Regimes: The Case of Biodiversity' Global Governance, **7** (2001) 95-117.

Skogstad, G., (2001a) 'Internationalization, Democracy and Food Safety Measures: The (Il)Legitimacy of Consumer preferences?', Global Governance, **7:** 293-316.

Skogstad, G., (2001b)'The WTO and Food Safety Regulatory Policy in the EU' Journal of Common Market Studies, **39(3)**: 485-505.

USDA, (2001), 'Genetically Modified Foods/Novel Foods' Office of Agricultural Affairs, U.S. Mission to the European Union, August 3, Washington, D.C.: US Department of Agriculture.

Winham, G.R., (1998) 'The World Trade Organisation: Institution-Building in the Multilateral Trade System' The World Economy, **21:** 349-68.

WTO, (1994) Agreement on the Application of Sanitary and Phytosanitary Measures, The Results of the Uruguay Round of Multilateral Trade Negotiations: The Legal Texts, Geneva: World Trade Organization.

WTO, (1996) 'United States–Standards for Reformulated and Conventional Gasoline(Gasoline): Report of the Appellate Body',(WT/DS2/AB/R of April 29), Geneva: World Trade Organization.

WTO, (1997) 'EC Measures Concerning Meat and Meat Products (Hormones): Report of the Panel', (WT/DS26/R/USA of August 18), Geneva: World Trade Organization.

WTO, (1998a) 'EC Measures Concerning Meat and Meat Products (Hormones): Report of the Appellate Body', (WT/DS26/AB/R of January 16), Geneva: World Trade Organization.

WTO, (1998b) 'United States–Import Prohibitions of Certain Shrimp and Shrimp Products: Report of the Panel', (WT/DS58/R of May 15); and 'Report of the Appellate Body', (AB-1998-4 of October 12), Geneva: World Trade Organization.

WTO, (1999a) 'Japan-Measures Affecting Agricultural Products: Report of the Appellate Body', (WT/DS76/AB/R of March 19), Geneva: World Trade Organization.

WTO, (1999b) Trade and Environment, Special Studies 4, Geneva: World Trade Organization.

WTO, (2000) 'Egypt-Import Prohibition On Canned Tuna With Soybean Oil: Request for Consultations by Thailand',(WT/DS205/1 of September 27), Geneva: World Trade Organization.

WTO, (2003) "Japan-Measures Affecting the Importation of Apples: Report of the Appellate Body" WT/DS245/AB/R of 26 November, Geneva: World Trade Organization.

Wynter, M., (1999) 'The Use of Market Mechanisms in the Shrimp-Turtle Dispute: The WTO's Response' in K. Bosselmann and B. J. Richardson (eds.), Environmental Justice and Market Mechanisms, The Hague: Kluwer Law International

Zarrilli, S., (2000) 'International Trade in Genetically Modified Organisms and Multilateral Negotiations: A New Dilemma for Developing Countries' (UNCTAD/DITC/TNCD/1, 5 July), Geneva: UNCTAD.