Posted with the kind permission of MIT Press, Cambridge 02142. Copyright remains with Massachusetts Institute of Technology. Trade and the Environment: Stuck in a Political Impasse at the WTO after the Doha and Cancun Ministerial Conferences

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The establishment of the WTO in January 1995 expanded the mandate of the original GATT 1947 Agreement considerably by including in the trade regime a very powerful Dispute Settlement Body and new issues such as intellectual property rights and services. This considerably widened mandate inevitably means that trade policies now encroach into other ministries' responsibilities in sectors such as the environment, public health, international development cooperation, culture, and so on.

This article attempts to make a contribution to the understanding of the role and importance of environmental trade restrictions in the context of WTO law, jurisprudence, and ongoing negotiations. I argue that conflicts between trade and environmental concerns need to be given greater attention, and that on the whole short-term trade interests tend to outweigh intergenerational environmental considerations. I conclude that the very important 2001 ministerial Doha Declaration,¹ which represents the agenda and the framework of the presently ongoing WTO negotiations, has only a limited potential for reconciliation between trade and environmental objectives.

It is important for understanding the dynamics of environmental discussions and negotiations at the WTO to realize that in every government the trade authorities have considerably more political power than their environmental counterparts. This can be explained by the fact that in order to gain and maintain power, politicians need to provide employment and economic growth; long-term environmental constraints are generally seen as less impor-

1. Available at http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm.

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tant by the electorate.² It is perhaps not surprising therefore that the WTO was given wide powers by its members through a unique triple mandate that embraces the negotiation of trade law (through its General Council and the Ministerial Conferences), the monitoring of its implementation (through its Trade Policy Review Mechanism), and the automatic authority of acting as the world's compulsory and exclusive tribunal mandated to adjudicate trade disputes among its members (through its Dispute Settlement Body).

The WTO and the Environment: Limited Ambitions and Strict Rules

Disagreements among WTO members over trade and environment policies are always present in spite of the fact that the mandate of the organization's Committee on Trade and Environment (CTE) is very constrained and seems to favor the protection of commercial interests over sustainable development objectives. The latter are mentioned in the WTO legal text, but do not appear in any legally binding paragraphs.³ The CTE in fact after nearly ten years of existence has still not formulated any recommendations to the WTO General Council or a ministerial conference. There is no space here for an in-depth discussion of these tensions, but an explanation indirectly provided by Shaffer⁴ seems to me convincing: he found that the widespread assumption that the CTE was created in order to allow the WTO to address environmental concerns and to integrate them into trade law cannot be substantiated by the results of his research into the CTE's origins. He concludes, to the contrary, that it was established to protect trade concerns from potential environmental incursions "in reaction to the perception of environmental groups' growing success in promoting environmental regulation."5

The multilateral politics of the environment have changed significantly since the early 1990s, with less attention now being paid to such deliberations. This state of affairs can explain for instance the fact that at the 2002 World Summit on Sustainable Development environmental concerns were clearly less pronounced than at the 1992 Rio Earth Summit. Further, there was no launching of new principles, organizations, conventions or other major initiatives that might be comparable with the Rio achievements.⁶

Environmental concerns often face a considerable degree of uncertainty in their interface with trade issues because it is often not clear for an importing

^{2.} This observation might be seen as contradicted by Shaffer's (2002, 81) finding that the delegations in the WTO's Committee on Trade and Environment (CTE), especially in the case of the major countries, receive instructions emanating from intra-agency debates from various ministries other than the trade ministry. This finding is interesting but it needs to be qualified by the fact that the CTE has relatively little power within the WTO.

^{3.} Boisson de Chazournes and Mbengue 2002a, 875-878.

^{4.} Shaffer 2002, 92. It should be noted here that Shaffer's study is by no means an NGO polemic but a research project funded by a grant from the US National Science Foundation.

^{5.} Shaeffer 2002, 86.

^{6.} Perrez 2003.

country—the case of the GMOs represents a good example—which agreement will be decisive in the ruling of a dispute over alleged discriminatory trade practices.⁷ This is despite the much praised predictability of the trade regime's Dispute Settlement Body (DSB). This body consists of *ad hoc* panels as its first judiciary instance, and of the permanent Appellate Body (AB). Once a dispute settlement panel has made a ruling based on certain pieces of scientific evidence submitted by the experts it has chosen to consult (which it has to do within very tight deadlines), the fact finding process is completely terminated. The AB's mandate is strictly limited to the legal interpretation and reconsideration of the Panel's reasoning and ruling.⁸ It is therefore not surprising that a member of the AB has commented that fact finding is "one of the—if not *the*—weakest aspects of the panel process."⁹ This impossibility of reconsidering the scientific evidence during the appeals process constitutes a further barrier to an in-depth consideration and assessment of environmental facts and new scientific findings which might jeopardize trade interests.

The Difficult Search for Balance between Trade and the Environment

Disputes under Multilateral Environmental Agreements (MEAs) administered by the United Nations are usually adjudicated very slowly under voluntary dispute settlement procedures which are often based on non-binding rules. These procedures reflect the relatively low political power of the responsible national authorities in charge of negotiating these agreements and issues, i.e. usually ministries of the environment. The low profile of these MEA procedures stands in marked contrast with the WTO's Dispute Settlement Body which has managed to force all members, including the world's biggest economic powers, to respect and maybe even sometimes to fear its rulings. The very unequal power relationship between the WTO and the UN's development-oriented and environmental bodies is situated at the very root of the dynamics that drive trade and environment negotiations.¹⁰ It is therefore necessary to give more attention to this interface between ecology and economics. Providing it with a specific designation—I propose the term *ecolomics*¹¹—should facilitate such analyses by focusing attention on the complexities and ramifications of these interactions.

It is not surprising that this power relationship is reflected in the features which distinguish WTO law from all other international agreements that constitute the body of public international law. Fundamentally, the WTO's DSB has been restricted by its creators in its legal ability to take into consideration inter-

10. Thomas 2000, 13–14.

^{7.} Boisson de Chazournes et Mbengue 2002b, 199.

^{8.} WTO 1994/1999, Understanding on Rules and Procedures Governing the Settlement of Disputes, Article 17.6. All WTO documents cited in this article are listed in the bibliography and are available online at http://www.wto.org/english/info_e/site2_e.htm.

^{9.} Ehlermann 2002, 25.

^{11.} See http://www.EcoLomics-International.org for an explanation and exploration of the concept.

national agreements outside WTO law. Nevertheless it is not situated in "clinical isolation"¹² from them. That is, the WTO is not a closed system, and its terms and concepts have become the subject of an "evolutive interpretation."¹³ Thus WTO case law has broadened, for example, the notion of exhaustible natural resources, which has come to include animals since the ruling on the *US*—*Shrimp-Turtle* dispute. In this much-cited case, the AB ruled that US measures to protect sea turtles from winding up as unintended by-catch of shrimp fishing were of a discriminatory nature. In the same ruling the DSB has also opened the door *prima facie* to the controversial right to consider non-requested information, the so-called *amicus curiae* briefs.¹⁴ Nevertheless, as law professor and WTO panel member Thomas Cottier makes clear, such transgressions beyond the "safe territory" of the Marrakesh agreements, are exceptional:

Applying WTO law, however, may entail the need to assess the scope and implications of other agreements. They are taken into account on a different, auxiliary level only. In WTO dispute settlement procedure, the problem of connecting and reconciliation must be addressed from the point of view of WTO law.¹⁵

This predominance of WTO law shows the significance of the WTO's compulsory jurisdiction for all claims under its wide-ranging mandate, and the predetermined interaction with regard to MEAs.¹⁶ The imbalance between these different bodies of law tends to create problems especially in disputes centered on scientific uncertainty, such as *EC–Hormones*. A negotiator for the European Commission¹⁷ has concluded that in those rulings where scientific expertise played an important role, the panels have "adopted a narrow, positivist view of science and standard of proof in situations of scientific uncertainty."¹⁸ This observation is particularly serious because the panels and the AB through their rulings have not limited themselves to applying WTO law as they are essentially expected to do. In reality, they tend to transgress their authority and to assume a much-debated role of *de facto* makers of law.¹⁹ In the DSB's defense it may be added that the vagueness in the formulation of important parts of the WTO agreements often leaves them no choice but to do precisely that.

There is therefore an inherent tension between on one hand the WTO system with its trade-centered DSB, and on the other hand the UN system which takes a more comprehensive, holistic approach in its weighing of conflicting priorities. An example of this tension can be seen in an evaluation of the very sensitive GMO problematic by the World Health Organization which criticizes "non-

- 14. Boisson de Chazournes and Mbengue 2003.
- 15. Cottier 2002, 473.
- 16. Pauwelyn 2001, 535.
- 17. The European Union is represented at the WTO by the European Commission.
- 18. Christoforou 2002, 270.
- 19. Ibid., 259.

^{12.} Marceau 1999, 99.

^{13.} Ibid., 107, 120.

coherent systems of evaluation focusing solely on human health or environmental effects in isolation."²⁰ The fact is of course that corporate ownership of patents on seeds has many other dimensions.²¹ We are left with the suspicion that under this compartmentalized approach to risk management there is a tendency to sweep long-term environmental threats under the carpet in the name of economic expediency. As Christoforou notes:

... existing risk assessment methodologies are inherently biased in favor of avoiding overinclusive regulatory measures (i.e., the inclination is to avoid false positives) for fear of imposing undue costs on technological progress and society.²²

Where does this leave us in our search for balance between trade and environment concerns at the WTO? Can we conclude that the wider objective of sustainable development has brought about, to a considerable extent, a "normalization" of this debate?²³ Is the WTO's environmental record better than critics believe (even though the outlook is bleak)?²⁴ And in a similar vein, should the WTO's rules on environmental exceptions be seen, in DeSombre and Barkin's words, as "a check on bad or incompetent legislation" and as "an opportunity to make better international environmental rules, not as an obstacle to the making of those rules?"²⁵ Or, to the contrary, is the trade regime to be blamed for what Weber calls a "legitimacy gap in global governance from an environmental perspective?"²⁶ And after the negotiations breakdown at the 2003 Cancun ministerial conference, is there, as Eckersley suggests, a "political impasse within the CTE?"²⁷

In the *Shrimp-Turtle* case the AB has indeed supported and substantiated DeSombre and Barkin's critique of bad or incompetent legislation by ruling that the US trade measures intended to protect sea turtles were discriminatory, unfair, and showed a lack serious efforts to arrive at a multilaterally negotiated solution. It decided therefore that US regulations requiring that a specific kind of so-called turtle excluding device be used for catching shrimp was WTO-illegal because such a measure was inflexible and certain countries were specifically discriminated against.²⁸ The ruling mentions the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) but it did not clarify in general terms the relationship between MEAs and trade obligations under the WTO. Nevertheless, in the eyes of most policy and legal analysts, the

- 21. See for instance Le Prestre 2002.
- 22. Christoforou 2004, 34. Christoforou backs up his observation with several references in footnote 48.
- 23. Williams 2001, 8.
- 24. Neumayer 2004 (this issue).
- 25. DeSombre and Barkin 2002, 18.
- 26. Weber 2001, 105.
- 27. Eckersley 2003, 15.
- 28. WTO 1998a, para. 188 and 189.

^{20.} WHO 2002. 20 Questions on Genetically Modified (GM) Foods, *Food Safety News*, No. 3, 18 October, Question # 20, available at http://www.who.int/fsf/GMfood/q&a.pdf.

ruling strengthened the case for environmental arguments at the WTO in general terms for procedural reasons (the potential admission of *amicus curiae* briefs, and the consideration of animals as exhaustible natural resources) thanks to the above-mentioned notion of evolutive interpretation.²⁹

A minority view, however, considers that it is unclear weather the DSB, in Mann's words, has achieved "the right substantive balance between trade and environment."³⁰ Furthermore, the DSB has stopped a long distance short of conferring the status of automatically recognized exceptions to trade-related environmental measures which are part of an MEA even if there is no evidence of discrimination or protectionism.³¹ The status of such measures remains uncertain because there is presently no WTO ruling concerning any alleged WTO-incompatible trade measures that are contained in such an agreement, and the AB has not made any innovative comments in that sense. The term Multilateral Environmental Agreement or MEA does not even appear in the *Shrimp* ruling except for a vague reminder based on the 1996 Singapore ministerial conference that "due respect must be afforded" to both WTO agreements and MEAs.³²

Notwithstanding the AB's restraint, it has opened up a discussion in the *Shrimp-Turtle* case which did not attract the deserved attention in the literature on WTO law, but which touches nevertheless upon some of the fundamentals of the WTO's Dispute Settlement Understanding (DSU), the charter of the DSB. In discussing the conditions which govern the acceptability of environmentally justified trade barriers, the AB went back to the negotiating history of GATT's Article XX, and it pointed out that "the original framers of the GATT 1947" had the obvious intention of allowing such obstacles only in clearly specified cases:

... In November 1946, the United Kingdom proposed that "in order to prevent abuse of the exceptions of Article 32 (which would subsequently become Article XX)," the chapeau[³³] of this provision should be qualified.... This proposal was generally accepted, subject to later review of its precise wording. Thus, the negotiating history of Article XX confirms that the paragraphs of Article XX set forth *limited and conditional* [italics in the original] exceptions from the obligations of the substantive provisions of the GATT. Any measure, to qualify finally for exception, must also satisfy the requirements of the chapeau...³⁴

What are the implications of this history-based argumentation? It is clear that by putting a contemporary dispute into the context of the societal perceptions and values of 1946, the AB has framed this debate though the lenses

- 32. WTO 1998a, para. 169.
- 33. Ibid. An introductory paragraph is often called a chapeau.
- 34. Ibid., para. 158.

^{29.} The Yearbook of International Environmental Law 1998, Volume 9, contains a Symposium of six articles on the *Shrimp-Turtle* case (3–48), see Brunnée and Hey 1998.

^{30.} Mann 1999, 35.

^{31.} There is no generally accepted definition for Multilateral Environmental Agreements. Instead, there is a debate over various definitions at the WTO, but so far no agreement covered by any of the seriously considered definitions has ever been the specific target of a WTO ruling.

and ethical standards which then predominated and thus shaped the negotiations. I would argue that there is a problem here with the legal principle of intertemporality which stipulates that a ruling must be rooted in the value system of its time.³⁵ How could such past considerations be of importance in the search for balance between trade and environmental priorities today? The reason is that by framing its argumentation in the reasoning of 1946 and thus by conferring an open-ended validity to the perspectives of negotiators of that bygone time, the AB has built up an obstacle against potential present and future attempts by WTO members to confer a better status to trade measures contained in MEAs. Such efforts may be justified by emergencies, by new scientific evidence, or by a changing political consensus. It can hence be argued that the AB has expanded the (trading) rights of WTO members which it is not allowed to do according the WTO's Dispute Settlement Understanding:

... Recommendations and rulings of the DSB cannot add to or diminish the rights and obligations provided in the covered agreements.³⁶

This question of expanding the trading rights opens undoubtedly a parenthesis here which will require further investigations before more definite legal and political conclusions can be drawn. Be that as it may, Weber's critique mentioned above goes beyond the rulings of the WTO's DSB. He supports calls for "a genuinely political process of establishing the scope of global economic governance with reference to ecological impacts."³⁷ Clearly, as discussed in the first section, the consensus among the WTO members is presently by no means moving toward this challenge. I do not believe that the positive sign set in the Doha Declaration by initiating negotiations on trade and environment³⁸ represents a sufficient effort in bringing about a substantially improved reconciliation between trade and environment concerns anytime soon. One may point at the nearly complete absence of the environment as a serious negotiation issue during the Cancun ministerial conference to back up this view.

In many cases the conflicts between intergenerational environmental objectives on one hand and more pressing economic priorities supported by industrial and commercial constituencies on the other hand have resulted in a stunting of progress on the environmental front. As Martin points out, "... it should be emphasized that the 'supremacy' of the trade regime has often resulted in a 'chilling' effect on other intergovernmental processes dealing with trade and environment."³⁹ This chilling effect is a phenomenon which attracts

^{35.} Some useful elements regarding the complex legal questions related to the intertemporality principle can be found in the 1999 *UN Report on State Responsibility*, e.g. para 125: "Agreement was expressed with the view of the Special Rapporteur ... that the intertemporal principle did not entail that treaty provisions were to be interpreted as if frozen in time."

WTO 1994/99, Annex 2: Understanding on Rules and Procedures Governing the Settlement of Disputes, para. 3.2.

^{37.} Weber 2001, 110.

^{38.} WTO 2001, Doha Ministerial Declaration, para. 31.

^{39.} Martin 2001, 151.

increasing attention. It may be more prevalent with regards to aspects of the global commons such as biodiversity than in the case of national environmental affairs because in the former case the benefits of environmental efforts must be shared with other nations and are therefore less visible, whereas the costs caused by these measures are usually obvious and must be paid in the short term.⁴⁰ Neumayer has analyzed the linkages between environmental standards in industrialized countries and potential capital flight; he concludes that regulatory chill is very difficult to demonstrate, but enough evidence has been brought to light "to warrant an evaluation of policy options to address the (potential) problem of 'regulatory chill'."⁴¹ In some cases authors do not use the term 'chill-ing' effect, but rather they mention for instance "the many legal uncertainties and the resultant dangers of being drawn into a trade dispute,"⁴² or they show how a ruling of the DSB has protected trade interests, for instance in the *Beef Hormones* case, against other societal considerations.⁴³ Nevertheless it often is unmistakable that the chilling effect is really what they mean.

The Cartagena Protocol on Biosafety⁴⁴ which entered into force in September 2003 and the FAO's International Treaty on Plant Genetic Resources for Food and Agriculture which enters into force in June 2004⁴⁵ are examples of the chilling effect. In these two cases the phenomenon is relatively easy to demonstrate because the conflicts between the trade and the environmental regimes are particularly clear-cut.⁴⁶ In the case of the Cartagena Protocol the past and ongoing negotiations evolve to an important extent around the modalities of the application of precautionary measures which are under pressure because they are given far greater consideration here than at the WTO.⁴⁷ In the case of the FAO International Treaty on the other hand the trade-related pressures at the WTO focus on intellectual property rights, especially patents, which are in conflict with the FAO's and the Convention on Biological Diversity's attempts to operationalize provisions for benefit sharing and environmental protection.

To conclude this section on the balance between trade and environment, it should be stressed that contrary to a widespread myth, actual negotiations with direct environmental ramifications are by no means conducted primarily at the CTE. Rather, they take place in other WTO bodies, for instance in the TRIPS Council regarding intellectual property rights on plants, in the GATT Council regarding process and production methods, in the SPS Committee regarding environmental measures based on precaution, in the TBT Committee regarding ecolabeling, and in the Committee on Agriculture regarding environ-

- 40. Neumayer 2001, 69.
- 41. Ibid., 78.

- 44. See http://www.biodiv.org/biosafety/default.aspx.
- 45. See http://www.fao.org/newsroom/en/news/2004/39887/index.html.
- 46. Thomas 2002, 200-204.

^{42.} Stoll 1999, 119.

^{43.} Mbengue 2002, 277; See WTO. 1998b. Ruling on Hormones, para. 123.

^{47.} See for example, Bail, Falkner and Marquard 2002, Boisson de Chazournes et Mbengue 2002a and 2002b, Christoforou 2002 and 2004, Cottier 2002, de Sadeleer 2002.

mental subsidies for agriculture. The CTE on the other hand serves primarily as a forum where more general environmental issues are being discussed without any commitment, and where actual negotiations have started only recently in special sessions.

Trade and Environment, quo vadis?

Can we see in the Doha Declaration a meaningful signal indicating that the trade regime will in its future negotiations and rulings give more weight to environmental considerations? Without going here into an analysis of this WTO negotiation blueprint, let us just point out that one of the Declaration's objectives, namely to clarify the relationship between MEAs and WTO agreements, is certainly overdue and perhaps the Declaration's most important environmental agenda item. A closer inspection shows, however, that this good intention is couched in various layers of constraining specifics which will undoubtedly diminish the potential for significant achievements. Arguably the most important sub-paragraph is 31(i) dealing with the newly introduced concept of "Specific Trade Obligations" (STOs).48 STOs are not defined in any consensual official WTO document. This additional conceptual and legal restriction creates two kinds of trade-related measures in MEAs. There are those which the WTO chooses to include in its negotiations on the relationship between MEAs and trade agreements, and those which it chooses to exclude, namely those measures which are not considered by the WTO as being sufficiently specific or obligatory. It is possible for instance that some provisions of the Convention on Biological Diversity⁴⁹ or of its Cartagena Protocol on Biosafety⁵⁰ will not be included by the WTO in these negotiations, and they might thus be disregarded by the trade system. These kinds of misgivings are shared by Professor Robyn Eckersley who points out that the DSB's modest procedural advances which in principle favor environmental concerns may be rescinded in future rulings if the panels and the AB should feel that they are overstepping the boundaries of the General Council's perceptions.⁵¹

The outcome of the Cancun ministerial conference has not alleviated these fears. MEA secretariats have still not received regular observer status at the WTO's Committee on Trade and Environment due to political conflicts that have nothing to do with the environment.⁵² One of the most important power plays affecting negotiations on trade and environment is arguably the fact that most developing countries tend to block any progress in this area with the stereotypical argument that such "non-trade objectives" represent essentially a form of green protectionism, and that they are one of the very few bargaining

^{48.} WTO Doha Ministerial Declaration.

^{49.} Ogolla, Lehmann, and Wang 2003, 122-127.

^{50.} Ibid., 127-131.

^{51.} Eckersley 2003, 15. Available at http://www.utas.edu.au/government/APSA/REckersleyfinal.pdf.

^{52.} Motaal 2002. The CBD has also requested observer status at the SPS Committee.

assets they have in order to attempt to improve their (indeed exceedingly unfair!) treatment by their wealthy counterparts. Non-trade objectives such as environmental protection represent in fact one of the WTO's biggest and most inextricable challenges. These are entirely home-made problems for the trade regime because they result directly from the enlargement of the original GATT mandate.

Ten years after the signature of the WTO Agreement, can one assert, as Neumayer does, that "WTO jurisprudence does not have a bad environmental record?"⁵³ I would question that assertion, as the only ruling cited by Neumayer to back up his claim, EC-Asbestos, is unconvincing. First of all it is a dispute over public health, not an environmental dispute. More seriously from a legal standpoint, the final ruling was based entirely on a strictly economic criterion, namely on the question of whether customers would be willing to pay the same price for an asbestos product as they would for an equivalent alternative. In the eyes of the AB, Canada failed to prove that they would do so.⁵⁴ Neumayer further undermines his argument on the WTO's supposedly good environmental record in his subsequent discussion of precaution. There he correctly observed that "... the WTO's jurisprudence has become tainted by decisions that seem insensitive to environmental and human health concerns."55 But due to a lack of political contextualization, this important observation is not supported by the thrust of his article. As mentioned above, the WTO's and the wider trade community's negative environmental impact on the negotiations of agrobiodiversity regulations has been particularly serious.⁵⁶

To conclude, protectionism is a justified accusation in some isolated cases, but it is also true that developing countries dependent on agricultural exports are generally far more vulnerable to severe environmental disruptions than industrialized countries that usually can switch agricultural suppliers quite easily. Because of its disregard of Southern priorities,⁵⁷ the industrialized world is even more guilty of indifference toward multilateral environmental problems. It has never made a comprehensive effort to improve the developing world's trading position. It is deplorable that serious negotiations aimed at a reduction of environmentally destructive subsidies and a facilitation of incentive measures are stalled by the deadlock of the trade and environment debate which is held hostage to other politically more prominent international negotiations. The WTO has a large but essentially unrealized potential of playing a very important role here.

I agree with Eckersley's pessimistic evaluation that we are witnessing what may indeed be called a "Big Chill"⁵⁸ in the trade and environment discussions and negotiations, and that "the future does not look bright for the general

- 54. Musselli and Zarrilli 2004, 380-381.
- 55. Neumayer 2004, 6 (this issue).
- 56. Newell 2003.
- 57. See for instance Chang and Green 2003.
- 58. Eckersley 2003, 23.

^{53.} Neumayer 2004, 1 (this issue).

greening of the WTO." A great deal remains to be done in order to go beyond the usual diplomatic formula of striving to make trade and environmental objectives "mutually supportive." What is needed is to bring the various MEAs and WTO agreements, which can be regarded as elements of global ecolomic governance, into some sort of a coherent mosaic. For the foreseeable future, unfortunately, these agreements will undoubtedly look much more like an unfinished puzzle.⁵⁹ Last but not least, I should emphasize that I am supporting efforts to reform the WTO but I am by no means in favor of calls to weaken or dissolve it. This is because the WTO would in these latter cases be replaced by regional or unilateral trade regulations that constitute undoubtedly worse alternatives for the protection of global environmental resources and for developing countries.

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59. Boisson de Chazournes and Mbengue 2002b, 189.

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