The GMO Dispute before the WTO: Legal Implications for the Trade and Environment Debate

Francesco Sindico

NOTA DI LAVORO 11.2005

JANUARY 2005

NRM – Natural Resources Management

Francesco Sindico, *Departamento de Derecho Publico, Universitat Jaume I*

The GMO Dispute before the WTO: Legal Implications for the Trade and Environment Debate

Summary

USA, Canada and Argentina have challenged before the World Trade Organisation the European Communities' (EC) denial of Genetically Modified (GM) product imports, which took place from 1998 to 2004 . Against this background, the goal of this paper is twofold. Firstly, we will determine which WTO provisions would have been violated by the EC. Secondly, we will highlight the dispute's most important legal issues in order to see to what extent the dispute might influence the ongoing trade and environment debate. The paper concludes that the role of the precautionary principle in the application of the EC legislation is one of the dispute's main issues. Furthermore, the Panel findings on the legal nature of the precautionary principle, and on its relevance for the interpretation of WTO provisions, will finally determine the influence of the GMO dispute on the trade and environment debate.

Keywords: GMO, WTO, Trade, Environment

JEL Classification: Q00, F10

Address for correspondence:

Francesco Sindico
Departamento de Derecho Publico
Universitat Jaume I
Campus Riu Sec
Apartado 8029
12080 Castellón de la Plana
Spain
Phone: +34 964728707
Fax: +34 964728675
E-mail: sindico@dpu.uji.es

1. INTRODUCTION

On May 19, 2004 the European Commission approved the sale of Syngenta Bt-11 sweet corn.[1] It has been the first Genetically Modified product (hereinafter 'GM product') to be placed in the European market since 1998. Before that year more than ten GM products had been granted market access in accordance with the European Communities (hereinafter 'EC') approval procedure.

In the past few years political tension arose between the leading Genetically Modified Organism (hereinafter 'GMOs') producers, such as the United States of America (hereinafter 'US'), Canada, Argentina, Egypt and Australia,[2] and the EC,[3] because the latter would have put in place a deliberate suspension of its own GMO approval process, which negatively affected their exports to the European market. On the one hand, it was argued that no new application was permitted and, on the other hand, that the pending ones were deliberately not granted. In other words, according to the GMO producer states, the EC has established a *general moratoria* for new GM products and a *product specific moratoria* for those GM products, whose application was still pending. Furthermore, several EC member states also established national import bans on GM products.

This tension has finally led the GMO issue directly into the WTO Dispute Settlement Body (hereinafter 'DSB') agenda. In fact, in May 2003 the US, Canada and Argentina (hereinafter 'the Complainants')[4] requested consultations to the EC about the GM product import system in the European market, in accordance with Article 4.4 of the WTO Dispute Settlement Understanding (hereinafter 'DSU'). The consultations were held in Geneva on June 19, 2003 but they were unable to settle the dispute. Therefore, the Complainants requested the DSB to establish a Panel to solve the

---

1 See "EC approves GM canned maize", 4.10 *BRIDGES Weekly Trade News Digest* (2004) for the 'bitter' reactions in Europe to the approval of Syngenta Bt-11 sweet corn.

2 In 2001 the US, Argentina, Canada and China accounted for ninety-nine percent of the total land area devoted to biotech products.

3 In the same year the EC only accounted for less than four-tenths of one percent of the worldwide land area devoted to biotech products.

4 See Doc. WT/DS291/1, *European Communities - Measures Affecting the Approval and Marketing of Biotech Products Request for Consultations by the United States*, 20 May 2003; Doc. WT/DS292/1, *European Communities - Measures Affecting the Approval and Marketing of Biotech Products Request for Consultations by Canada*, 20 May 2003; Doc. WT/DS293/1, *European Communities - Measures Affecting the Approval and Marketing of Biotech Products Request for Consultations by Argentina*, 20 May 2003.

dispute.[5] The DSB, pursuant to the request of the three countries, established a single panel on August 29, 2003.[6] However, due to disagreement among the parties in the dispute on its composition, it was finally constituted only in March 2004.[7] The parties have already sent their first submissions to the Panel, which has also already held oral hearings. The panel's decision was due in September 2004 but it has been postponed to March 2005 because, in August 2004, the Panel announced that it would seek expert advice on technical and scientific issues raised in the dispute.[8]

Against this factual background, the goal of this paper is to analyse the possible influence of the GMO dispute and of the legal issues therein on the ongoing trade and environment debate within the WTO.

The first part of this paper will describe the EC GMO regulation and it will underline its legislative changes in the last fifteen years. The second part will introduce the current GMO dispute before the WTO and it will analyse the parties' submissions before the Panel. In the following part of the paper we will underline the main legal issue at stake, which is the role of the precautionary principle in the EC GMO regulation. We will see how the WTO has dealt with this principle in its previous case law and we will study how the parties in the GMO dispute address this issue in their submissions before the Panel . Finally, we will draw our conclusions on the possible influence that the GMO dispute may have on the trade and environment debate.

2. THE EUROPEAN COMMUNITIES GENETICALLY MODIFIED ORGANISMS REGULATION

[5] See Doc. WT/DS291/23, *European Communities - Measures Affecting the Approval and Marketing of Biotech Products Request for the Establishment of a Panel by the United States*, 8 August 2003; Doc. WT/DS292/17, *European Communities - Measures Affecting the Approval and Marketing of Biotech Products Request for the Establishment of a Panel by Canada*, 8 August 2003; Doc. WT/DS293/17, *European Communities - Measures Affecting the Approval and Marketing of Biotech Products Request for the Establishment of a Panel by Argentina,* 8 August 2003.

[6] In accordance with Art. 9 of the DSU.

[7] See Doc. WT/DS291/24, WT/DS292/18, WT/DS292/18, *European Communities - Measures Affecting the Approval and Marketing of Biotech Products. Constitution of the Panel Established at the Requests of the United States, Canada and Argentina. Note by the Secretariat*, 5 March 2004. The chairman of the Panel is Mr. Christian Häberli and the members are Mr. Mohan Kumar and Mr. Akio Shimuzu.

[8] Some commentators consider the request for further scientific advice as a victory for the EC. See "Biotech case: scientists to be heard, final decision postponed", 8.28 *BRIDGES Weekly Trade News Digest* (2004).

The EC has been dealing with the use and the placing on the market of GM products since the mid 1980's.[9] The GMO legislation has developed and it has been modified in order to follow scientific novelties and public opinion concerns. Very recently it has suffered a new important modification, which is important to underline because the dispute before the WTO concerns only the old EC GMO regulation. The Complainants specifically maintain that they are arguing against the application of the old legislation and do not want the Panel to take into account recent developments in the EC and its recent application.[10]

Therefore, it is important to clarify which EC provisions are to be dealt with in the GMO dispute. Council Directive 90/220/EEC on the deliberate release into the environment of genetically modified organisms[11] is the first binding piece of legislation regarding GMOs and it was approved in 1990. GMO regulation in the EC was completed in 1997 by a Regulation on novel foods and novel food ingredients: Regulation (EC) Nº 258/97,[12] while Directive 90/220/EEC was replaced in 2001 by Directive 2001/18/EC.[13] These three pieces of legislation (Directive 90/220/EEC, Directive 2001/18/EC and Regulation (EC) Nº 258/97) are the provisions that must be dealt with before the WTO.

Furthermore, the EC GMO regulation has been modified very recently and the previous legislation has been amended by two regulations: Regulation (EC) Nº

---

9 See Communication de la Commission au Conseil "Un Cadre Communautaire pour la Reglamentation de la Biotechnologie", COM(1986)0573.

10 This position is reaffirmed in European Communities - Measures Affecting the Approval and Marketing of Biotech Products (WT/DS291), *Executive Summary of the First Submission of the United States -- 04/30/2004* (2004), available at http://www.ustr.gov/assets/Trade_Agreements/Monitoring_Enforcement/Dispute_Settlement/WTO/Dispute_Settlement_Listings/asset_upload_file737_5542.pdf, § 16. Therefore, the fact that two GMOs have been placed on the European market in the last months does not change the Complainants position.

11 Council Directive 90/220/EEC of 23 April 1990 *on the deliberate release into the environment of genetically modified organisms*. Official Journal L 117 , 08/05/1990 P. 0015 – 0027. Hereinafter Directive 90/220/EEC.

12 Regulation (EC) No 258/97 of the European Parliament and of the Council of 27 January 1997 *concerning novel foods and novel food ingredients*. Official Journal L 043 , 14/02/1997 P. 0001 – 0006. Hereinafter Reg. (EC) 258/97.

13 Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 *on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC* - Commission Declaration Official Journal L 106 , 17/04/2001 P. 0001 – 0039. Hereinafter Directive 2001/18/EC.

1829/2003 on genetically modified food and feed,[14] and by Regulation (EC) Nº 1830/2003 on labelling and traceability of genetically modified organisms.[15]

2.1. Characteristics of the European Communities GMO Legislation

We will analyse the EC GMO legislation in order to underline its main characteristics and we will specify which elements are due to the novel regulation. In the first place, the objective of the legislation is to protect human health and the environment from possible adverse effects arising from GMOs.[16] These objectives must be fulfilled "in accordance with the precautionary principle",[17] which is the cornerstone of the EC legislation.

The scope of the regulation is the placing on the market of GM products. The latter, in order to receive a market approval must not "present a danger for the consumer", must not "mislead the consumer" and must not "differ from the foods that they are intended to replace to such an extent" for them to be "nutritionally disadvantageous for the consumer".[18] If the three criteria are met, the GM product will be granted a market approval. According to Regulation (EC) Nº 258/97, this will be determined by an initial assessment made by a Member State Food Assessment Body,[19] which follows a formal request from an applicant to place a GM product on the market.[20] This request must provide information that demonstrates that the latter meets

---

14 Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 *on genetically modified food and feed*. Official Journal L 268 , 18/10/2003 P. 0001 – 0023. Hereinafter Reg. (EC) 1829/2003.

15 Regulation (EC) No 1830/2003 of the European Parliament and of the Council of 22 September 2003 *concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC*. Official Journal L 268 , 18/10/2003 P. 0024 – 0028. Hereinafter Reg. (EC) 1830/2003.

16 See Reg. (EC) 258/97, §. 2, 5 of the preamble; Directive 2001/18/EC, § 5, 43, 53, 56 of the preamble and Art. 1. The new EC GMO regulation has the same objectives: see Reg. (EC) 1829/2003, Art. 1.

17 Directive 2001/18/EC, Art. 1: "In accordance with the precautionary principle, the objective of this Directive is (…) to protect human health and the environment…".

18 Reg. (EC) 258/97, Art. 3.1. The new EC GMO regulation sets the same criteria: see Reg. (EC) 1829/2003, Art. 4.1.

19 Reg. (EC) 258/97, Art. 6.2.

20 The authorisation procedure in Directive 2001/18/EC is provided for in Art. 13 through 15. The new EC GMO legislation provides for a very similar procedure. In fact, according to Reg. (EC) 1829/2003, a GMO will be placed on the market only after an authorisation, which can be obtained from the applicant from the competent authority of a Member State (Art. 5.1). The application must demonstrate that the GMO meets the three criteria set out in Art. 4.1. In order to make a decision the Competent Authority can ask a Member States Food Assessment Body for a food safety assessment and it can ask a competent authority to carry out an environmental risk assessment (Art. 6.3).

the three criteria above-mentioned.[21] It must also provide a dossier with the results of the environmental risk assessment that the applicant is obliged to carry out. Furthermore, the applicant must present a labelling proposal for the GM product once it is placed on the market.[22] Further assessment regarding GM product market approval may be requested to the applicant from the Competent Authority that is dealing with the application or from any other Member State concerned with the placing on the market of the GM product.[23] Directive 2001/18/EC provides for a very similar procedure. However, it specifies that in case a market approval is requested for a specific kind of GM product, it may have to meet new and more stringent criteria in order to better protect human health and the environment.[24]

If the Competent Authority decides in favour of a market approval, the applicant can place the GM product on the market and his product shall circulate freely in all EC Member States.[25] The decision that authorises the placing on the market of the GM product will also establish the labelling requirements that the product must comply with. It must have a label that specifies that the product is or contains a "genetically modified organism".[26] However, Directive 2001/18/EC maintains that labelling will not be mandatory for those products that have only traces of authorised GMOs, under certain thresholds.[27] The new GMO legislation has provided that labelling will not be necessary for food containing less than 0,9% GMOs of the total ingredients.[28] The market approval authorisation will be granted for a maximum of ten years.[29]

Directive 2001/18/EC specifically maintained that the EC GMO legislation had to be modified in order to be compatible with the new international community consensus on trade in GMOs framed in the Cartagena Biosafety Protocol to the

---

21 Reg. (EC) 258/97, Art. 6.1.

22 *Ibid*, Art. 9.1. See also Directive 2001/18/EC, Art. 13.2.b. Labelling is one of the issues that the new legislation has strengthened. It is, together with traceability, the main goal of Reg. (EC) 1830/2003. See the objective laid down in Art. 1: "This Regulation provides a framework for the traceability of products consisting of or containing genetically modified organisms (GMOs), and food and feed produced from GMOs, with the objectives of facilitating accurate labelling, monitoring the effects on the environment and, where appropriate, on health, and the implementation of the appropriate risk management measures including, if necessary, withdrawal of products", and Art. 4.6.

23 See Reg. (EC) 258/97, Art. 6.3 and Art. 7. The request for further information in order to grant a market approval is also provided for in Directive 2001/18/EC, Art. 15.

24 Directive 2001/18/EC, Art. 16.

25 *Ibid*, Art. 22.

26 Reg. (EC) 258/97, Art. 8.1.d. and Directive 2001/18/EC, Art. 21.

27 Directive 2001/18/EC, Art. 21.2.

28 Reg. (EC) 1829/2003, Art. 12.2.

29 Directive 2001/18/EC, Art. 15.4. The same is provided in Reg. (EC) 1829/2003, Art. 7.5.

Convention on Biological Diversity (hereinafter 'Cartagena Protocol'),[30] which entered into effect on September 11, 2003.[31] The two new Regulations that currently amend the previous EC GMO legislation are the result of the compromise of the EC with the Cartagena Protocol. The new legislation is very similar to the previous one. However, environmental and safety requirements seem to have been strengthened as well as labelling requirements. What is definitely new is the section regarding traceability, which has been pushed through from public opinion concerns. A correct application of Reg. (EC) 1830/2003 will allow consumers to know at all subsequent stages of the placing on the market if a product is or contains a GMO.[32]

In conclusion, the EC GMO regulation refers to the placing on the market of GM products. The entire legislation is based on the precautionary principle and on an authorisation procedure, which follows an environmental and health risk assessment. Once a GM product is placed on the market its must be labelled and it must be traceable at all times.

3. THE GMO DISPUTE BEFORE THE WORLD TRADE ORGANIZATION

Once clarified the EC GMO legislation, this part of the paper will analyse the dispute between the EC and the Complainants before the WTO. The dispute is still before the panel and a decision is expected in March 2005. This part of the paper will be based mainly, but not only, on the first submission of the parties to the Panel[33] and on the Amicus Curiae that has been sent to the Panel by a coalition of fifteen NGOs.[34]

This part of the paper is divided into four sections. Firstly, we will clarify which measures have been challenged by the Claimants before the Panel. Secondly, we will

---

30 Directive 2001/18/EC, Art. 32, Dir. 2001.

31 *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*, Montreal, January 29, 2000, in force September 11, 2003, 39 *ILM* (2000), at 1027.

32 Reg. (EC) 1830/2003, Art. 4.1 through 4.4.

33 European Communities - Measures Affecting the Approval and Marketing of Biotech Products (WT/DS291), *First written submission by the European Communities - 17/05/2004* – (2004), available at http://www.genewatch.org/WTO/Submissions/EC_WTO_Submission.pdf, (Hereinafter *First written submission by the European Communities*); European Communities - Measures Affecting the Approval and Marketing of Biotech Products (WT/DS291), First Submission of the United States -- 04/21/2004 (2004), available at http://www.ustr.gov/assets/Trade_Agreements/Monitoring_Enforcement/Dispute_Settlement/WTO/Dispute_Settlement_Listings/asset_upload_file720_5542.pdf, (Hereinafter *First written submission of the United States*)

34 European Communities - Measures Affecting the Approval and Marketing of Biotech Products (WT/DS291), *Information submitted to the Panel by Non-Parties (Amicus Curiae Submission) together referred to as the Amicus Coalition*, 27/05/2004, (Hereinafter *Amicus Curiae Submission*).

analyse the preliminary issues that have been raised by the parties. Thirdly, we will deal with the supposed violations of the SPS Agreement. Finally, we will underline possible breaches of other WTO Agreements.

3.1. Challenged Measures before the Panel

In the request for the establishment of the Panel the Claimants identify three EC measures that negatively affected their exports of GM products to the European market. The first measure is the so called *general moratoria*, which has been defined as "the suspension by the EC of consideration of applications for, or granting of, approval of biotech products".[35] The second measure is the *product specific moratoria*, which is the "the failure by the EC to consider or approve, without undue delay, applications for approval of [specific] products".[36] The last EC measures that have been challenged by the Complainants are the national restrictions on imports of GM products, which have been defined as "bans on agricultural biotechnology products introduced by EC member States which infringe both WTO rules and Community legislation".[37]

In sum, it is important to underline that the scope of the Panel's decision is limited to these three measures. All parties agree on this. In fact, the Complainants clarify that they do not want the panel to make findings on the consistency of the EC GMO legislation[38] with WTO law and the EC reaffirms that its legislation *per se* is not within the Panel's jurisdiction.[39]

3.2. Preliminary Issues

Before analysing the single provisions that have been violated by the EC measures according to the Complainants position, it is necessary to underline two preliminary issues, which are relevant to the dispute. In particular, we will deal with the nature of the challenged measures and with the applicable law to such measures.

---

35 See Doc. WT/DS291/23, *Request for the Establishment of a Panel by the United States… op. cit.*
36 See Doc. WT/DS292/17, *Request for the Establishment of a Panel by Canada… op. cit.*
37 See Doc. WT/DS293/17, *Request for the Establishment of a Panel by Argentina… op. cit.*
38 *First written submission of the United States* § 68.
39 *First written submission by the European Communities* § 382 and 517.

3.2.1. Nature of the challenged measures

The parties disagree on this point and it can be argued that the dispute's final decision will depend on how the Panel decides this very first preliminary issue.

On the one hand, the Complainants consider that, despite the fact that the EC general moratoria and the product specific moratoria are not present in any official document, they have the same effects as if they were embodied in legal documents.[40]

On the other hand, the EC clearly argues that all assertions about a deliberate moratoria are to be intended as 'delays' in the authorisation procedure for the placing on the market of GM products.[41] The EC strongly maintains that there is no general or product specific moratoria. It defends its position by saying, on the one hand, that the fact that no approval has been granted does not prove that the process has been suspended and,[42] on the other hand, that under the simplified procedure provided for in Reg. (EC) 258/97 thirteen GM products have been placed on the market since 1998.[43] Furthermore, the EC argues that the Complainants position is based only on political statements, which, according to their interpretation, announce the GMO moratoria. On the one hand, the EC replies that these statements do not have any value as evidence of practice[44] and, on the other hand, that the political statements, such as the Common Position previous to the enter into force of Directive 2001/18/EC, must be read in full.[45] The EC finishes its argumentation saying that, even if a pattern may be found against the interests of the Complainants, a pattern is not a challengeable measure before the WTO.[46]

In other words, the Complainants consider that the EC from 1998 to 2003 has deliberately denied any GMO market approval application. Therefore, the EC has established a general and a product specific moratoria, which is a challengeable measure before the WTO. On the opposite, the EC maintains that there has not been any general moratoria and that what the Complainants call product specific moratoria must be dealt

---

40 *First written submission of the United States* § 81: "In short, the EC measure blocks biotech approvals just as effectively as would a written amendment to the EC legislation."

41 See, *First written submission by the European Communities…* § 373.

42 *Ibid* § 548.

43 *Ibid* § 549.

44 *Ibid* § 560.

45 *Ibid* § 563-564.

46 *Ibid* § 566.

with as issues of 'delays' in the authorisation procedure for the placing on the market of GM products.[47]

The EC position leads to two first conclusions. Firstly, no charge can be presented against its general moratoria because such moratoria does not exist. Secondly, the charges against its allegedly product specific moratoria must focus on 'delay' issues. On the opposite, the EC does not contest the challengeable nature of the national GMO bans from several Member States.

3.2.2 Applicable Law

The parties disagree in their interpretation on which WTO Agreements is applicable to the EC measures. On the one hand, among the Complainants, the US strongly maintains that the objective of the EC measures is the protection of human health and that, therefore, the applicable law must be found in the Agreement on Sanitary and Phytosanitary Measures (hereinafter 'SPS Agreement').[48] On the other hand, both Argentina and Canada presented also claims under the Agreement on Technical Barriers to Trade (hereinafter 'TBT Agreement') and under the General Agreement on Tariffs and Trade (hereinafter 'GATT') in alternative to the SPS Agreement.

The EC argues that in order to determine the applicable law the objective of its GMO legislation and of the different WTO Agreements must be analysed together. It maintains that the main objective of its GMO related legislation is to protect the environment.[49] While the SPS does not deal with environmental concerns, the TBT and the GATT do have environmental related provisions. Therefore, the EC concludes that the SPS Agreement is applicable only to the extent that the challenged measures are relative to the protection of human health, while, when the main interest is environmental protection, the applicable law must be found in the other two WTO Agreements.[50]

Furthermore, the EC stresses the importance of the Cartagena Protocol in this dispute. It argues that the WTO must not be read in clinical isolation from International

---

47 This is important to underline because it refers to the application of a provision and not to its establishment.

48 *First written submission of the United States* § 71-80. However, it reserved the right to make claims also under the TBT Agreement.

49 *First written submission by the European Communities…* § 416.

Law.[51] On the contrary, the multilateral trading system must take into account international law rules ad principles. The Cartagena Protocol is currently the most advanced and 'specific' international legal text in the field of trade in GMOs. The EC, together with leading experts,[52] considers that the Cartagena Protocol can assess the WTO in the interpretation of specific issues, such as the application of the precautionary principle or of the environmental risk assessment.[53] In other words, it maintains that, because the Cartagena Protocol has a more 'specific' scope than the WTO, provisions present in WTO agreements may be clarified through reference to provisions therein.[54]

Among the Complainants the US has the strongest position against the possibility for the Panel to use the Cartagena Protocol to interpret WTO provisions. It clearly says that the Protocol is not applicable because the Complainants are not parties in it and that, even if they were, the Protocol does not affect rights arising from other international treaties.[55]

3.3. Violation of the SPS Agreement

The Complainants consider that the EC general moratoria, the product specific moratoria and the national bans breach several SPS provisions. These violations can be divided into two groups: violations of procedural requirements (Art. 8 and Annex B, Art. 7 and Annex C) and violations of substantive obligations (Art. 5.1 and Art. 2.2). These violations entail a disguised restriction on international trade in accordance with Art. 5.5 and Art. 2.3 of the SPS Agreement.

---

50 *Ibid* § 449.

51 WTO law as part of Public International Law has been underlined in previous WTO case law; see Doc. WT/DS2/AB/R Appellate Body Report: *United States - Standards for Reformulated and Conventional Gasoline* , 1996, p. 621.

52 T. Cottier, "Implications for trade law and policy: towards convergence and integration", in C. Bail, R. Falkner & H. Marquard, *The Cartagena Protocol on Biosafety: Reconciling Trade in Biotechnology with Environment and Development?*: London; Royal Institute for International Affairs (2002), p. 478: "In particular, it is conceivable to construe the provisions and risk assessment in light of the more advanced and better rules on risk assessment and risk management of the protocol."

53 The importance of the Cartagne Biosafety Protocol is underlined in *First written submission by the European Communities…* § 453-459.

54 See *infra*, pp. 31-33.

55 European Communities - Measures Affecting the Approval and Marketing of Biotech Products (WT/DS291), *Executive Summary of the U.S. Rebuttal Position -- 07/29/2004* (2004), available at http://www.ustr.gov/assets/Trade_Agreements/Monitoring_Enforcement/Dispute_Settlement/WTO/Dispute_Settlement_Listings/asset_upload_file908_5542.pdf, § 17-18.

3.3.1. Violation of Procedural Requirements

According to the Complainants position, the EC measures constitute a violation of specific procedural requirements provided for in the SPS Agreement. On the one hand, the measures do not comply with the obligation to undertake approval procedures without undue delay (Art. 8 and Annex C of the SPS Agreement) and, on the other hand, they do not comply with the obligation to promptly publish sanitary measures (Art. 7 and Annex C of the SPS Agreement).

3.3.1.1. Approval procedures must be undertaken without undue delay

The first procedural requirement that presumably has been violated is provided for in Art. 8 of the SPS Agreement,[56] which must be read together with Annex C, paragraph 1 (a).[57] The two provisions maintain that parties are allowed to establish marketing approval systems based on an authorisation process, such as the EC procedure for the placing on the market of GM products. However, the SPS Agreement requires such procedures to be "undertaken and completed *without undue delay*".[58]

Undue delay is considered by the Complainants to be "the "unjustifiable" and excessive" [ ] "hindrance" in undertaking or completing an approval procedure".[59] The EC moratoria falls into this definition and, therefore, the EC measures violate SPS obligations provided for in Art. 8 and Annex C.

---

[56] SPS Agreement, Art. 8: "Members shall observe the provisions of Annex C in the operation of control, inspection and approval procedures, including national systems for approving the use of additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs, and otherwise ensure that their procedures are not inconsistent with the provisions of this Agreement."

[57] *Ibid*, Annex C.1 (a): "Members shall ensure, with respect to any procedure to check and ensure the fulfilment of sanitary or phytosanitary measures, that such procedures are undertaken and completed without *undue delay* and in no less favourable manner for imported products than for like domestic products." (Emphasis added).

[58] Emphasis added.

[59] *First written submission of the United States* § 89. For the reasoning behind the product specific moratoria see *ibidem* § 137-139.

The EC, as we have mentioned above, maintains in the first place that the general moratoria does not exist and that, therefore, it cannot be challenged under any WTO provision. In the second place, it argues that the product specific moratoria is not a deliberated ban on GMO imports. It is only an issue of 'undue delay'. Therefore, it agrees with the Claimants that this EC measure can be challenged under such procedural requirement. However, it denies that the authorisation procedures violates Annex C.1 (a) of the SPS Agreement. The delay in the authorisation process would be caused by the request for further information, which is an essential element of the GMO legislation.[60]

3.3.1.2. Sanitary Measures must be published promptly

The second procedural requirement that has been violated according to the Complainants position is provided for in Art. 7 of the SPS Agreement,[61] which must be read together with Annex B, paragraph 1.[62] The two provisions maintain that sanitary measures must be published promptly.

The Complainants argue, as we have seen above, that the EC moratoria is a measure, notwithstanding the fact that it is not present in any official document.[63] Consequently, the measure should have been published in order to enable other WTO

60 *First written submission by the European Communities…* § 487.

61 SPS Agreement, Art. 7: "Members shall notify changes in their sanitary or phytosanitary measures and shall provide information on their sanitary or phytosanitary measures in accordance with the provisions of Annex B."

62 *Ibid*, Annex C.1 (b): "Members shall ensure, with respect to any procedure to check and ensure the fulfilment of sanitary or phytosanitary measures, that (…) the standard processing period of each procedure is published or that the anticipated processing period is communicated to the applicant upon request; when receiving an application, the competent body *promptly* examines the completeness of the documentation and informs the applicant in a precise and complete manner of all deficiencies; the competent body transmits *as soon as possible* the results of the procedure in a precise and complete manner to the applicant so that corrective action may be taken if necessary; even when the application has deficiencies, the competent body proceeds as far as practicable with the procedure if the applicant so requests; and that upon request, the applicant is informed of the stage of the procedure, with *any delay* being explained;" Emphasis added.

63 See *supra* pp. 8-9.

members to become acquainted with it. Not having fulfilled this requirement, the EC has violated Art. 7 of the SPS Agreement.[64]

The EC defence is once again based on the fact that the general moratoria does not exist as such and that the authorisation procedure has followed correctly the EC legislation and has not violated Annex C.1(b) of the SPS Agreement.[65]

3.3.2. Violation of substantive obligations

The Complainants argue that the EC measures do not comply with substantive obligations present in the SPS Agreement. They consider that they do not comply with the obligation to carry out a risk assessment (Art. 5.1) and with the obligation to base measures on scientific principles (Art. 2.2.).

3.3.2.1. Sanitary measures must be based on a risk assessment

The first substantive obligation that has been presumably violated by the EC measures is provided for in Art. 5.1 of the SPS Agreement that obliges sanitary measures to be based on a risk assessment.[66]

According to the Complainants position the EC has established the moratoria without a previous risk assessment. While the Appellate Body has argued in earlier decisions that in order for a sanitary measure to be established there must be a "rational relationship between the measure and the risk assessment",[67] in this case there would be no relationship whatsoever because no risk assessment has been undertaken. Therefore, it is clear, according to the Complainants position, that the EC moratoria violates Art. 5.1 of the SPS Agreement.[68]

---

64 *First written submission of the United States* § 92-95. For the reasoning behind the product specific moratoria see *ibidem* § 140-142.

65 *First written submission by the European Communities…* § 505. Furthermore, the EC stresses that the Complainants have not made a prima facie case.

66 SPS Agreement, Art. 5.1: "Members shall ensure that their sanitary or phytosanitary measures are *based on an assessment*, as appropriate to the circumstances, *of the risks* to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations." Emphasis added.

67 Doc. WT/DS26/AB/R: Appellate Body Report: *EC Measures Concerning Meat and Meat Products (Hormones)*, 1998, § 193.

68 *First written submission of the United States* § 100-108. For the reasoning behind the product specific moratoria see *ibidem* § 143-149.

The EC defence is based, firstly, on the fact that the general moratoria does not exist as such. Secondly, the EC argues that its GMO legislation includes risk assessments as one of the conditions that must be fulfilled in order to grant a market approval and that this has been done in all challenged GMO applications.[69] Finally, the EC considers that the national bans and the product specific moratoria are not to be dealt with under the SPS Agreement. However, if they were to be challenged therein they are justified under Art. 5.7.[70] In fact, they constitute a temporary provision based on the precautionary principle. Furthermore, the EC argues that they were established because science was not sufficient; that they were based on the available pertinent information; that the Member States are seeking for more information; and that the measures will be reviewed.[71]

3.3.2.2. Sanitary measures must be based on scientific principles

The second substantive obligation that has been supposedly violated by the EC measures is provided for in Art. 2.2. of the SPS Agreement,[72] according to which sanitary measures must be based on scientific principles.

According to previous WTO jurisprudence, if a measure is not based on a risk assessment, it will also not be based on scientific principles. Following this reasoning the Complainants consider that the EC measures are not based on scientific principles and that, therefore, they also violate Art. 2.2 of the SPS Agreement.[73]

The EC replies maintaining that its measures do not violate Art. 2.2 because they are justified under Art. 5.7 of the SPS Agreement and because, nevertheless, they were based on an environmental risk assessment.[74]

---

69 *Ibid* § 604.

70 *First written submission by the European Communities…*§ 575 and 593.

71 Therefore the EC provisions complies with the requirements provided for in SPS Agreement, Art. 5.7: "In cases where relevant *scientific evidence is insufficient*, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of a*vailable pertinent information*, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall *seek* to obtain the *additional information* necessary for a more objective assessment of risk and *review* the sanitary or phytosanitary measure accordingly within a reasonable period of time." Emphasis added.

72 SPS Agreement, Art. 2.2.: "Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is *based on scientific principles* and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5." Emphasis added.

73 *First written submission of the United States* § 109-111. For the reasoning behind the product specific moratoria see *ibidem* § 150.

74 *First written submission by the European Communities…*§ 615.

3.3.3. Disguised Restriction on International Trade

The Complainants argue that the EC measures are a disguised restriction on international trade because, on the one hand, they violated Art. 5.5 that obliges members to be consistent in the application of sanitary measures, and, on the other hand, because the EC measures also violated Art. 2.3 that obliges members to not discriminate in the application of sanitary measures.

3.3.3.1. The application of sanitary measures must be consistent

EC measures violate Art. 5.5 of the SPS Agreement according to the Complainants position. This provision maintains that no member shall be inconsistent in the application of sanitary measures to such an extent that those measures would result in discrimination or in a disguised restriction of international trade.

The Complainants argue that in order to determine whether a measure violates Art. 5.5 three conditions must be met.[75] First, different sanitary measures must be established for similar situations. The EC was doing exactly so by distinguishing between products elaborated with GMOs, such as certain types of cheeses, whose placing on the market does not have to be authorised, and new GM products that must be previously authorised. Second, these differences must not be arbitrary or unjustifiable. The Complainants consider that both kinds of GM products could suppose health or environmental problems and that there is no solid reason for their discrimination. Third, the measures will be a disguised restriction of international trade if the two first conditions are met and if they were not based on a risk assessment. As we have already seen above, the Complainants maintain that the measures were not based on a risk assessment. Therefore, the three conditions are met and the EC measures violate Art. 5.5 of the SPS Agreement.[76] This conclusion is supported by an 'additional

[75] SPS Agreement, Art. 5.5.: "With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid *arbitrary or unjustifiable distinctions* in the levels it considers to be appropriate in different situations, if such distinctions result in *discrimination* or a *disguised restriction on international trade*." (Emphasis added).

[76] *First written submission of the United States* § 112-127. For the reasoning behind the product specific moratoria see *ibidem* § 151-152.

factor', which is the extremely more important effect of the GMO moratoria on the US, Canada and Argentina producers than on the Europeans…[77]

The EC replies only to the challenge to its national bans and to the products specific moratoria. It considers that they do not violate Art. 5.5 because they fall under the exception provided for in Art. 5.7. However, the argues that GM products are different from non GM products and that to establish a regulatory difference between the two products is neither arbitrary nor unjustified.[78]

3.3.3.2. Sanitary measures must not be discriminatory

The last SPS Agreement provision that has been violated by the EC measures, according to the Complainants position, is Art. 2.3.,[79] according to which sanitary measures must not discriminate between members where similar conditions prevail.

Previous WTO jurisprudence has maintained that if a measure violates Art. 5.5, the measure will also be deemed discriminatory and, therefore, in violation of Art. 2.3.[80] Following this reasoning the Complainants consider that the EC measures also violate this last SPS provision.[81]

---

77 *Ibid* § 126: "Finally, the "additional factor" is a disproportionate effect of the general moratorium on producers outside the European Communities as compared to producers within the European Communities. In 2001, the European Communities accounted for less than four-tenths of one percent of the worldwide land area devoted to growing biotech products. In contrast, the United States, Argentina, Canada, and China accounted for ninety-nine percent of the total land area devoted to biotech products in 2001. For producers in these countries, the moratorium on approvals of biotech products has had a substantial negative effect. The disproportionate impact of the general moratorium on internal versus imported products is an "additional factor" as it is a strong indication that the measure is discriminatory or a disguised restriction on international trade."

78 *First written submission by the European Communities…*§ 621.

79 SPS Agreement, Art. 2.3.: "Members shall ensure that their sanitary and phytosanitary measures do not *arbitrarily or unjustifiably discriminate* between Members where identical or similar conditions prevail, including between their own territory and that of other Members. Sanitary and phytosanitary measures shall not be applied in a manner which would constitute a *disguised restriction on international trade*." (Emphasis added).

80 Doc. WT/DS26/AB/R: Appellate Body Report: *EC Measures Concerning Meat and Meat Products (Hormones)*, 1998, § 212.

81 *First written submission of the United States* § 128-129.

The EC argues in the same way but with opposite conclusions. Taking into account that the national bans and the product specific moratoria do not violate Art. 5.5., they will also not violate Art. 2.3.

3.4. Violation of Other WTO Agreements

While the US only presented claims of SPS violations in its first submission to the Panel, Canada and Argentina also raised issues related to other WTO Agreements. Both countries consider that the EC challenged measures are inconsistent with the TBT Agreement and with the GATT. Furthermore, Argentina considers that the moratoria is violating EC WTO obligations to developing countries arising from the special and differential treatment clause, which is present in the SPS and in the TBT Agreement. Finally, the EC argues that, even if the Panel should decide in favour of the Claimants' position, all measures would be justified under Art. XX of the GATT.

3.4.1. Violation of the TBT Agreement

Canada and Argentina claim that the EC measures have also breached the TBT Agreement. Even in this case the EC raises a preliminary issue that will be fundamental for the dispute. The TBT Agreement only applies to technical regulations and the EC does not consider the challenged measures to be so. According to the European position, these measures do not lay down clear requirements and cannot be considered abstract technical regulations.[82] Therefore, the EC does not reply to the alleged violations of the TBT Agreement.

However, it is interesting to see which provisions were violated, according to the position of Canada and Argentina. Firstly, the two countries consider that the EC measures violate Art. 2.1 of the TBT Agreement that obliges parties, in relation to technical regulations, to not discriminate imported like products.[83] Secondly, the challenged measures violated Art. 2.2.,[84] according to which members are allowed to

---

82 *First written submission by the European Communities…*§ 649-650.

83 TBT Agreement, Art. 2.1.: "Members shall ensure that in respect of technical regulations, products imported from the territory of any Member shall be accorded treatment no less favourable than that accorded to like products of national origin and to like products originating in any other country."

84 *Ibid*, Art. 2.2.: "Members shall ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade. For this purpose, technical regulations shall not be more trade-restrictive than necessary to fulfil a legitimate

establish technical regulations for the protection of human health or the environment but these must not create "unnecessary obstacles to international trade". Canada and Argentina maintain that the EC measures objective is neither human health nor environmental protection and that their application is unnecessarily trade restrictive.[85]

3.4.2. Violation of the GATT

While the US has not presented any claim under the GATT, Canada and Argentina include also this WTO Agreement in their submissions to the Panel. Both countries consider that the product specific moratoria and the national bans violate Art. III. 4 of the GATT.[86] This provision is one of the cornerstones of the multilateral trading system and it lays down the national treatment principle according to which a country can not give to an imported product a different treatment than the one accorded to a domestic like product.

Canada, Argentina and the EC agree on the three conditions that must be met in order for there to be a violation of Art. III. 4 of the GATT. First, imported and domestic products must be 'like products'; second, the challenged measure must be a law; and third, imported products must be accorded a less favourable treatment than like domestic products.[87]

The first condition is to determine a GM like product.[88] Argentina and Canada consider that GM like products are the domestically grown non biotech counterparts.[89] On the other hand, the EC argues that the only possible like product is a domestic GM product.[90] The second condition is to assess whether the challenged measures is a law or a regulation. Despite the fact that the moratorias are not present in any official

---

objective, taking account of the risks non-fulfilment would create. Such legitimate objectives are, *inter alia:* national security requirements; the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment. In assessing such risks, relevant elements of consideration are, *inter alia:* available scientific and technical information, related processing technology or intended end-uses of products."

85 See *First written submission of Canada*, § 486-499, and *First written submission of Argentina*, § 571-583, cited in *First written submission by the European Communities…*note 409 and 411.

86 GATT, Art. III.4.: "The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded *treatment no less favourable* than that accorded to *like products* of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use. (…)" Emphasis added.

87 *First written submission by the European Communities…*§ 520.

88 On the like product issue in the dispute see also the *Amicus Curiae Submission*, § 117-121.

89 See *First written submission of Canada*, heading VII.B.1(b), and *First written submission of Argentina*, heading III.a. cited in *First written submission by the European Communities…*note 389 and 390.

document, Argentina and Canada consider that they should be considered as if they were laws. On the other hand, the EC maintains that only the national bans are laws in accordance with the Art. III.4 GATT requirement, while the alleged moratorias must be considered as issues related to possible delays in the application of a legitimate procedure.[91] The third condition that must be met is to see whether imported and domestic like products are treated unequally. The Complainants argue that the domestically grown non biotech counterparts do not have to be authorised in order to be placed on the market and, therefore, they consider that the EC measures finally violate Art. III. 4 of the GATT. On the other hand, the EC reaches the opposite conclusion because it says that the domestic GMO are placed on the European market in accordance with the same authorisation process that regulates imported GMOs.[92]

3.4.3. Violation of Special and Differential Treatment Provisions

Argentina claims that the EC moratoria has negatively affected exports to the EC from developing countries that have adopted GMOs techniques in their agriculture. This violates, according to Argentina's position, Art. 10.1 of the SPS Agreement and Art. 12.3 of the TBT Agreement that embody the principle of the special and differential treatment principle.

The US does not specify which WTO provisions have been violated by the EC measures in relation to developing country exports, but it does underline strongly their negative impact. It considers that countries whose population is starving have denied US aid consisting in GM food for fear that their meat exports to the EC would have been hindered.[93] The US in its submission suggests that "agronomic and nutritional issues of particular concern to developing countries" can be solved through "biotech research activities".[94] Thereby, the US seems to be blaming the EC of hindering global solutions to food shortage.[95]

---

90 *First written submission by the European Communities…* § 536 and 634.

91 *Ibid* § 522-526 and 627.

92 *Ibid* § 527-532 and 629.

93 *First written submission of the United States* § 64-66. The EC strongly critices this position. Furthermore, the new legislation is very clear on this point; see Reg. (EC) 1829/2003, § 16 of the preamble: "

94 *Ibid* § 64.

95 However, the *Amicus Curiae Submission*, § 15 remind us that the US "is unique among industrialised countries in refusing to donate financial aid as food aid and insisting on the provision of US grain generated as agricultural surpluses. Aid is therefore used in an effort to support US corporations and interests…"

The EC maintains that Argentina's allegations only ground is that the moratoria is illegal and that, therefore, it also violates Art. 10.1 of the SPS Agreement. It also contests Argentina's position in relation to Art. 12.3 of the same Agreement, according to which the EC measures would violate this provision because they also violate Art. 5.2.1 of the TBT. Furthermore, the EC replies to Argentina's claim also on factual grounds maintaining that statistics demonstrate that developing country exports have not reduced since they have been using GMOs.[96]

3.4.4. Art. XX, GATT

The last legal issue in the dispute has been brought up by the EC. The latter strongly disagrees with the Claimants and considers that its measures do not breach the different WTO Agreements. However, it maintains that, if the Panel should decide otherwise, the challenged measures (the general moratoria, the product specific moratoria and the national bans) are justified under Art. XX of the GATT. In fact, the EC argues that the measures fall under either letter (b),[97] (d)[98] or (g)[99] of this provision and that they do not constitute an arbitrary or unjustifiable discrimination that results in a disguised restriction on international trade.[100]

3.5. Concluding Remarks on the GMO Dispute before the WTO

In conclusion, the Complainants consider that the three challenged EC measures, the general moratoria, the product specific moratoria and the national bans, violate provisions of the SPS Agreement, of the TBT Agreement and of the GATT. Furthermore, Argentina argues that the special and differential treatment principle has

---

96 *First written submission by the European Communities…*§ 671. According to the *Amicus Curiae Submission*, § 15: "Roundup Ready soybeans grown in Argentina can be imported in the EC, but are restricted by lack of market demand,…"

97 GATT, Art. XX (b): "Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: (…) necessary to protect human, animal or plant life or health."

98 GATT, Art. XX (d): "(…)necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement, including those relating to customs enforcement, the enforcement of monopolies operated under paragraph 4 of Article II and Article XVII, the protection of patents, trade marks and copyrights, and the prevention of deceptive practices."

99 GATT, Art. XX (g): "(…) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption."

also been violated by the EC measures. On the other hand, the EC denies that the general moratoria exists as such and it considers that both the general and the product specific moratoria must be dealt with by the Panel as possible cases of undue delay in the *application* of the authorisation procedure for the placing on the market of GMOs. Therefore, the EC focuses on the national bans and on the pending applications (the product specific moratoria). It maintains that both do not breach any WTO Agreement. Firstly, they are provisional measures based on the precautionary principle, thereby justified under Art. 5.7 of the SPS Agreement. Secondly, they cannot be challenged under the TBT Agreement because they are not technical regulations. Thirdly, they do not violate Art. III. 4 of the GATT because they do not treat differently domestic like products. The EC concludes saying that even if the Panel should find the EC measures to violate any of the WTO Agreements, these measures are justified under Art. XX of the GATT.

4. THE ROLE OF THE PRECAUTIONARY PRINCIPLE IN THE GMO DISPUTE

This part of the paper pursues two goals: first, it wants to show the importance of the precautionary principle in the GMO dispute before the WTO. Second, it wants to analyse how it has been dealt with in previous WTO disputes and how it has been conceived by the parties in the current dispute.

This part is divided into four sections. The first one will deal with the precautionary principle within the EC GMO legislation. The second section will underline its presence in a global context. The third one will analyse how the precautionary principle has been dealt with in previous WTO case law and the last section will finally study its role in the GMO dispute, according to the position of the parties therein.

4.1. The Precautionary Principle in the EC GMO Policy

[100] *First written submission by the European Communities…*§ 673-674.

The analysis of Directive 2001/18/EC demonstrates that the precautionary principle is the founding pillar of the EC GMO legislation.[101] It first appears in the preamble, which not only lays down the principles that govern the piece of legislation; it also should be used in order to interpret any provision of the Directive. Paragraph 8 of the preamble reads as follows:

> "The precautionary principle has been taken into account in the drafting of this Directive and must be taken into account when *implementing* it."[102]

The Directive clearly maintains that the precautionary principle guided the drafters of the EC GMO legislation. Furthermore, the preamble underlines that the principle is not only a theoretical reference. On the contrary, it must be taken into account at all phases of the Directive's implementation.[103] In other words, the *application* of Directive 2001/18/EC must be based on the precautionary principle.

The latter is also present in the normative part of the Directive. Human health and environmental protection are the EC GMO legislation objectives and they must be pursued in accordance with the precautionary principle, according to Art. 1 of Directive 2001/18/EC.[104] This provision must be analysed together with Art. 4 that lays down the general obligations upon the parties and reads:

> "Member States shall, in accordance with the precautionary principle, ensure that all appropriate measures are taken in order to avoid adverse effects on human health and the environment which might arise from the deliberate release or the placing on the market of GMOs. GMOs may only be deliberately released or placed on the market in conformity with part B or part C respectively."[105]

As we have already analysed in Part 2 of this paper, the placing on the market of a GM product is based on an authorisation procedure provided for in part C of Directive 2001/18/EC. One of the elements of this procedure is the environmental risk assessment that shall help to assess the final competent authority's decision to grant or to deny market access to the GMO. The principles that govern the environmental risk

---

101 A study of the precautionary principle in Directive 2001/18/EC is present in L. Boy, "La place du principe de précaution dans la directive UE du mars 2001 relative a la dissémination volontaire d'organismes génétiquement modifiés dans l'environnement", *Revue Juridique de l'Environnement* (2002-1), pp. 5-24.

102 Emphasis added.

103 See L. Boy… *op. cit.*, pp. 9-11.

104 Directive 2001/18/EC, Art. 1:"In accordance with the precautionary principle, the objective of this Directive is (…) to protect human health and the environment…".

105 Directive 2001/18/EC, Art. 4.1.

assessment are provided for in Annex II to the Directive 2001/18/EC and must be taken into account "in accordance with the precautionary principle".[106]

The analysis of Art. 1, Art. 4.1 and of the principles governing the environmental risk assessment demonstrate that the human health and environmental protection goal must be fulfilled not only by taking into account the precautionary principle; but *through* the precautionary principle. Laurence Boy has been clear on this issue arguing that Directive 2001/18/EC identifies the content of the precautionary principle.[107] The latter must be used in the implementation of the community legislation on GMOs. In other words, once again, the *application* of Directive 2001/18/EC must be based on the precautionary principle.

4.1.1 The Relevance of the GMO Dispute Scope

This conclusion is very important for the GMO dispute before the WTO. We have seen that all parties therein agree that the Panel must not decide on the consistency of the EC GMO legislation with WTO law. On the one hand, the Complainants consider that the dispute's scope is the EC denial of all GM product market access applications from 1998 to 2003 that, according to their position, accounts to a WTO challengeable measure. On the other hand, the EC considers that the scope indicated by the Complainants is not a measure. The denial of a market access is the ultimate phase of a procedure. It amounts to the implementation of a measure.

In other words, if the EC position on the scope of the dispute prevails, the Panel is called to decide on the application of the EC GMO legislation. But, as we have mentioned above, the application of Directive 2001/18/EC must be based on the precautionary principle. The Panel's scope in the GMO dispute would then be to assess the consistency of the *application* of a measure based on the precautionary principle with WTO law.[108]

4.2 The Precautionary Principle in a Global Context

---

106 Directive 2001/18/EC, Annex II (B)

107 See L. Boy… *op. cit.*, p. 9: "La nouvelle directive fait explicitement reference au principe de precaution et donne un contenu concret à ce dernier."

Having underlined the importance of the precautionary principle in the GMO dispute before the WTO, this section will analyse how this principle has evolved in the international community.

4.2.1. The Precautionary Principle as an International Environmental Law Principle

Even if the origins of the precautionary principle were related to human health issues,[109] currently it has become a principle of International Environmental Law. The Rio Declaration on Environment and Development in 1992 was the first international instrument to include the precautionary principle.[110] From then on, it has been present in many multilateral environmental agreements such as the Convention on Biological Diversity[111] or the United Nations Framework Convention on Climate Change.[112]

International trade in GMOs has been on the international community's agenda since the beginning of the nineties of the last century. Finally, in 2003 a multilateral treaty dealing with trade in GMOs entered into force: the Cartagena Protocol. An analysis of this treaty shows that the EC shares with the international community the fact that the precautionary principle is one of the pillars of the GMO trade regulation. In fact, the Cartagena Protocol main provisions are based on it and, similarly to the EC provisions, the principle must also be applied in the implementation of the Protocol. The human health and environmental objectives of the Protocol must be fulfilled taking into

---

[108] Even if the Panel should decide that its scope is to determine the consistency of the challenged EC measures with the WTO, the precautionary principle will still be a central element of the dispute because the alleged measures are directly linked to it.

[109] See The editors, "Working towards a strong protocol", 43 *Biotechnology and Development Monitor* (2000), pp. 2-3.

[110] *Rio Declaration on Environment and Development* (UN Doc. A/CONF.151/6/Rev.1), printed in 31 *ILM* (1992), at 874. Principle 15 reads as follows: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

[111] *Convention on Biological Diversity*, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *ILM* (1992), at 818., Preamble: "*Noting also* that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat," Emphasis present in the original text.

[112] *United Nations Framework Convention on Climate Change*, New York, 9 May 1992, in force 21 March 1994, 31 *ILM* (1992), at 849, Art. 3.3.: "The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost."

account the precautionary principle[113] and trade in GMOs can be denied in accordance with it.[114]

In conclusion, the precautionary principle is now present in many multilateral environmental agreements and it is a pillar of the international community's most advanced legal framework on biotechnology.

4.2.2 Precautionary Principle as a Sustainable Development Law Principle?

In the last few years some of the international environmental principles have evolved. Some are not only related to the protection of the environment but they have also other characteristics and pursue similar but different objectives. This evolution must be analysed together with the effort to better define sustainable development. Leading scholars participating in the International Law Association (hereinafter ILA) have drafted a declaration that lists and defines the principles related to sustainable development: the New Delhi Declaration of Principles of International Law Relating to Sustainable Development.[115] This document, embodied in a United Nations General Assembly Resolution, includes the precautionary principle.[116]

Notwithstanding the important result of the ILA, there are still many sceptics about the legal nature of sustainable development and of its principles. According to the author of this paper: "Currently it [sustainable development] reflects a policy goal of the international community. However, (…) some of the principles which form sustainable development, such as the precautionary principle and the common but differentiated responsibilities principle, are progressively developing into International Law norms."[117]

---

[113] *Protocol on Biosafety to the Convention on Biological Diversity… op. cit.*, Art. 1: "In accordance with the precautionary approach 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 living modified 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."

[114] *Protocol on Biosafety to the Convention on Biological Diversity… op. cit.*, Art. 10.6 and 11.8.

[115] UN Doc. A/57/329 *New Delhi Declaration of Principles of International Law Relating to Sustainable Development*, 31 of August, 2002.

[116] See UN Doc. A/57/329 *New Delhi… op. cit.*, Art. 4; in particular Art. 4.3.: "Decision-making processes should always endorse a precautionary approach to risk management and in particular should include the adoption of appropriate precautionary measures."

[117] The quotation is part of an oral presentation that the author gave at the European Society of International Law Inaugural Conference in Florence, 13-15 May, 2005. The author participated in the

The importance to determine whether the precautionary principle is a norm of international law is without doubt. A conclusion in one or in the other direction has relevant practical consequences for the relationship with the WTO and it is extremely important for the GMO dispute.

4.3. The Precautionary Principle in the WTO Jurisprudence

In this section we will analyse how the WTO has dealt with the precautionary principle and we will underline its position on the legal nature of the principle.

The multilateral trading system takes into account sustainable development interests. In fact, the preamble of the Marrakech Agreement Establishing the World Trade Organization (hereinafter 'the Marrakech Agreement') underlines that sustainable development is one of the objectives of the organisation.[118] As we have mentioned above, precautionary principle can be considered a constitutive part of sustainable development; therefore, it can be argued that the WTO also recognises the importance of this principle. The link between the WTO and the precautionary principle is clear from the analysis of one of the WTO Agreements. In fact, the SPS Agreement, even if it does not use the term 'precautionary principle', clearly provides for it.[119]

The WTO DSB has dealt with the precautionary principle in two cases: the Hormones case in 1998[120] and the Asbestos case in 2001.[121] Both cases dealt with human health issues, but they also provide useful information for disputes in which human health is accompanied by environmental protection, as in the current GMO dispute before the WTO.

4.3.1. The Hormones Case

Agora on International Environmental Law with a presentation titled "Unravelling the Trade and Environment Debate through Sustainable Development Law Principles".

[118] *Marrakech Agreement Establishing the World Trade Organization* (1994), preamble, § 1: "Recognizing that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing for the optimal use of the world's resources *in accordance with the objective of sustainable development*, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development," Emphasis added.

[119] See *supra* note 71.

[120] Doc. WT/DS26/AB/R: Appellate Body Report: *EC Measures Concerning Meat and Meat Products (Hormones)*, 1998.

The first dispute in which the precautionary principle was mentioned was decided in 1998 and it dealt with EC measures that prohibited imports from the USA and Canada of meat treated with hormones for growth purposes. These measures were considered to be not compatible with Art. 3 of the SPS Agreement.[122] The latter allows higher sanitary protection than what provided for in international standards but these measures must be justified by scientific evidence[123] and by a risk assessment.[124] According to the Panel and to the Appellate Body, the EC measures were in breach of the SPS Agreement because they did not provide for a risk assessment that justified such measures.

The precautionary principle was a central element of this dispute. One of the legal issues at stake was to determine whether "the precautionary principle was relevant in the interpretation of the SPS Agreement".[125] In order to reach a conclusion on this point the parties and the WTO addressed the legal nature of the precautionary principle. On the one hand, according to the EC the principle was already a norm of International Law. The EC position was as follows:

> "The precautionary principle is already, in the view of the European Communities, a general customary rule of international law or at least a general principle of law, the essence of which is that it applies not only in the management of a risk, but also in the assessment thereof."[126]

The EC stressed that the principle is present not only in the management but also in the assessment of a risk. In other words, the EC considered that the precautionary principle referred to the implementation of a measure. Therefore, in the Hormones case

---

121 Doc. WT/DS135/AB/R: Appellate Body Report: *European Communities - Measures Affecting Asbestos and Asbestos-Containing Products*, 2001, printed in 40.5 *ILM* (2001) at 1193.

122 In particular see SPS, Art. 3.3.: "Members may introduce or maintain sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by measures based on the relevant international standards, guidelines or recommendations, if there is a scientific justification, or as a consequence of the level of sanitary or phytosanitary protection a Member determines to be appropriate in accordance with the relevant provisions of paragraphs 1 through 8 of Article 5. Notwithstanding the above, all measures which result in a level of sanitary or phytosanitary protection different from that which would be achieved by measures based on international standards, guidelines or recommendations shall not be inconsistent with any other provision of this Agreement."

123 In accordance with SPS, Art. 2.2.

124 In accordance with SPS, Art. 5.

125 Doc. WT/DS26/AB/R: Appellate Body Report: *EC Measures Concerning Meat and Meat Products (Hormones)*, § 96 (c).

126 *Ibid*, § 16.

the EC approach was similar to the current one in the GMO dispute, in which the principle must also be present in the *application* of the EC measures.

On the other hand, the US had a completely opposite view about the precautionary principle. According to its position, it is not a principle but just an approach:

> "The United States does not consider that the "precautionary principle" represents a principle of customary international law; rather, it may be characterized as an "approach" -- the content of which may vary from context to context."[127]

The US also stressed that the WTO already has pertinent provisions referring to precaution. Art. 5.7 of the SPS Agreement should not be overruled by provisions allegedly based on the precautionary principle present in international treaties outside the WTO.

Canada, the other claimant in this dispute, had an intermediate position. It maintained that the precautionary principle was not yet a principle of International Law but it underlined that it might become one:

> "The "precautionary principle" should be characterized as the "precautionary approach" because it has not yet become part of public international law. Canada considers the precautionary approach or concept as an emerging principle of international law, which may in the future crystallize into one of the "general principles of law recognized by civilized nations", within the meaning of Article 38(1)(c) of the Statute of the International Court of Justice."[128]

Therefore, Canada did not close the door to a possible crystallisation of the precautionary principle into a norm of International Law.

How did the WTO approach the legal nature of the precautionary principle? We could answer that it did not. However, a refusal to answer a question or to deal with an issue can also provide information. The Appellate Body maintained the following in its decision:

> "(…) The precautionary principle is regarded by some as having crystallized into a general principle of customary international environmental law. *Whether it has been widely accepted by Members as a principle of general or customary international law appears less than clear.* We consider, however, that it is unnecessary, and probably imprudent, for the Appellate Body in this appeal to take a position on this important, but *abstract*, question. We note that the Panel itself did not make any definitive finding with regard to the status of the precautionary principle in international law and that the precautionary principle, at least

127 *Ibid*, § 43.
128 *Ibid*, § 60.

> outside the field of international environmental law, still awaits authoritative formulation."[129]

The analysis of the Appellate Body's position leads us to draw two conclusions on this issue. First, on the one hand the WTO judges did not want to give their opinion on the legal nature of the precautionary principle. On the other hand, they stressed that the general acceptance of the principle as a general principle of international law is *less* than clear. The wording chosen by the Appellate Body suggests that the WTO agrees with this last position.

Second, the WTO judges considered that the determination of whether the precautionary principle is a general principle of international law or not was an *abstract* question. We disagree with the Appellate Body reasoning on this point. In fact, if the legal issue at stake, as we have seen, was to determine if "the precautionary principle was relevant in the interpretation of the SPS Agreement";[130] the legal nature of a principle, which can be applied to a WTO Agreement, is not an abstract question. On the contrary, a decision in one or in the other direction has a very important *practical* implication for the WTO dispute. In the Hormones case the Appellate Body finally decided that the precautionary principle, as such, could not overrule specific SPS provisions.

In conclusion, this WTO dispute presented three different approaches to the legal nature of the precautionary principle: the EC considered it to be already a principle of International Law; Canada maintained that it might become a principle of International Law; and the US argued that it was only an approach. The WTO did not want to deal with this particular issue but the final decision showed that its position was closer to the US' one and that it considered the debate on the legal nature of the precautionary principle to not have any relevant practical consequences.

4.3.2. The Asbestos Case

The second WTO dispute in which the precautionary principle plays an important role is the Asbestos Case, in which Canada challenged a French ban on asbestos and asbestos containing products. Both the Panel and the Appellate Body rejected Canada's claim and considered the French measure to be consistent with WTO

---

[129] *Ibid*, § 123, (Emphasis added).

law. Even if the challenged measure was not based specifically on the precautionary principle, the spirit behind the French ban was clearly inspired by it. This decision reinforced the view that the WTO Agreements support members' ability to protect human health and safety at the level of protection they deem appropriate. This could be valid not only for sanitary measures but also for measures whose objective is the protection of the environment as well.

The decision in the Asbestos case can be seen as a step forward in the recognition of the precautionary principle on behalf of the WTO.

4.4. The Precautionary Principle in the GMO Dispute before the WTO

Once clarified the importance of the precautionary principle in the EC GMO legislation; the evolution of the principle within the international community; and its consideration in the multilateral trading system; in this section of the paper we will analyse how the parties in the GMO dispute before the WTO have dealt with the precautionary principle.

4.4.1. Is the Precautionary Principle an International Law Principle?

The parties in the GMO dispute before the WTO, except Argentina, are the same ones than in the Hormones case. Not only are the countries the same but also their position on the legal nature of the precautionary principle has not changed. Furthermore, the US argues that this case presents similar aspects to the Hormones dispute and that the Panel should follow the case law therein and not deal with the legal nature of the precautionary principle.[131] However, the US in its rebuttal submission to the EC first submission maintains that:

> "(…) it strongly disagrees that "precaution" has become a rule of international law. In particular, the "precautionary principle" cannot be considered a general principle or norm of international law because it does not have a single, agreed formulation. (…)."[132]

---

130 See *infra* note 121.

131 *Executive Summary of the U.S. Rebuttal Position -- 07/29/2004… op. cit.,* § 14. The US also underlines that the EC has not explained how the precautionary principle could be of any help to interpret the pertinent WTO provisions.

132 *Ibid.*

Therefore, the precautionary principle, according to the US position is not a principle of International Law because there is no consensus on its formulation. The US goes one step further and it maintains that, if the precautionary principle is not a general principle of International Law, it cannot be a rule of customary International Law.[133]

On the other hand, the EC disagrees completely with the Complainants position and it considers the precautionary principle to be a principle of International Law.[134] Furthermore, it considers that this principle is the cornerstone of the Cartagena Protocol, which is the final result of the international community's GMO trade regulation efforts.

4.4.2. Do International Law Principles Inform WTO Agreements?

As in the Hormones case, the parties view on the legal nature of the precautionary principle is very distant. The US underlines, just as it did in the previous dispute, that it considers the definition of the precautionary principle status a "theoretical" issue.[135] As discussed above we strongly disagree with this position.[136] In fact, the answer regarding the status of the precautionary principle must be linked to another question: do international law principles inform WTO Agreements? The issue is to determine whether principles of international law may be used in order to interpret relevant provisions in the WTO agreements. The issue is crucial to the GMO dispute.

Art. 2.3 of the DSU opens the door to the use of public international law rules of interpretation in the multilateral trading system.[137] Treaty interpretation in international law is dealt with by the Vienna Convention on the Law of Treaties. The US considers that "for the purpose of interpreting the WTO Agreement in accordance with the principles in Article 31 (3) of the Vienna Convention"[138] the Cartagena Protocol is not a

---

133 *Ibid,* § 16.

134 The *Amicus Curiae Submission*, § 87 defines the precautionary principle as "an international standard recognised in international agreements and instruments including the Cartagena Protocol on Biosafety and evidenced by the Guidelines adopted by the Codex Alimentarius Commission."

135 See *Ibid*, § 15.

136 See *supra* p.

137 WTO DSU, Art. 2.3.: "The dispute settlement system of the WTO is a central element in providing security and predictability to the multilateral trading system. The Members recognize that it serves to preserve the rights and obligations of Members under the covered agreements, and to clarify the existing provisions of those agreements *in accordance with customary rules of interpretation of public international law*. Recommendations and rulings of the DSB cannot add to or diminish the rights and obligations provided in the covered agreements." Emphasis added.

138 UN Doc. A/CONF.129/15, *Vienna Convention on the Law of Treaties*, Vienna, 23 May 1969, in force on January 27, 1980, printed in 25 *ILM* (1986), at 543; Art. 31.3: "There shall be taken into account, together with the context: (a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions; (b) any subsequent practice in the application of the

rule of international law because the US is not a party thereof. However, even if it were a party, the US argues that the Protocol would still not be applicable to the dispute because, according to its position, it would not "change the rights and obligations under any existing international agreements."[139]

In sum, the Complainants agree that the WTO can be interpreted through public international law rules but that these must be present in treaties in which both are parties. If one is not, then a rule present in the international treaty, in this case the Cartagena Protocol, cannot be used in order to interpret WTO Agreements. In other words, according to the Complainants position, the precautionary principle as provided for in the Cartagena Protocol, cannot be used in order to interpret WTO provisions, which may be relevant for the decision of the GMO dispute.

On the other hand, the EC reaches a completely opposite conclusion. Firstly, it argues that the WTO does not live in clinical isolation from International Law.[140] Secondly, it maintains the following:

> "There can be no doubt that the WTO agreements (…) must be interpreted and *applied* by reference to relevant norms of international law arising outside the WTO context, as reflected in international agreements and declarations."[141]

The EC stresses that not only can the WTO be interpreted through International Law norms; but that provisions of the multilateral trading system can also be applied by reference to such norms. This would mean that the application of a WTO provision can be based on a norm outside of the multilateral trading system. The EC continues its reasoning maintaining that:

> "(…) the Protocol's provisions on precaution and risk assessment inform the meaning and effect of the relevant provisions in the WTO agreements."[142]

---

treaty which establishes the agreement of the parties regarding its interpretation; (c) any relevant rules of international law applicable in the relations between the parties."

139 *Executive Summary of the U.S. Rebuttal Position -- 07/29/2004… op. cit.*, § 18. The US is referring to the next to last introductory sentence of the Cartagena Protocol Preamble. However, this must be read together with the one before it and the one after it. The three introductory sentences read as follows: "Recognizing that trade and environment agreements should be mutually supportive with a view to achieving sustainable development, Emphasizing that this Protocol shall not be interpreted as implying a change in the rights and obligations of a Party under any existing international agreements, Understanding that the above recital is not intended to subordinate this Protocol to other international agreements,"

140 See *supra* note 51.

141 *First written submission by the European Communities* § 456. Emphasis added.

142 *Ibid*, § 459.

This entails, according to the EC position, that the Cartagena Protocol provisions, which refer to the precautionary principle, can guide WTO members in the interpretation and in the application of the precautionary measures provided for in the SPS Agreement.[143]

In other words, the EC maintains that public international law norms can be used in order to interpret and to apply WTO provisions. The precautionary principle present in the Cartagena Protocol is a rule of international law. Hence, the SPS Agreement provisions, which refer to the precautionary principle, can be interpreted and applied in accordance with the Cartagena Protocol's related provisions.

5. CONCLUSIONS: WILL THE GMO DISPUTE BE A STEP FORWARD OR A STEP BACK IN THE WTO RECOGNITION OF THE PRECAUTIONARY PRINCIPLE?

The goal of this paper is not to anticipate possible Panel's findings in the GMO dispute. In the paper we have studied the GMO dispute before the WTO and we have underlined the most important legal issue at stake, which is the role of the precautionary principle in the application of the EC measures.[144]

The analysis of the scope of the dispute demonstrates the importance of the precautionary principle. If the EC position prevails, the scope of the GMO dispute will deal with delays in the application of the challenged measures. These delays are due to the request for further information,[145] which is required because the EC considers that it does not have enough information to correctly assess the possible adverse risks to

---

143 This is also the position of the *Amicus Curiae Submission*, § 98: "We respectfully submit that the precautionary principle is an international standard and is relevant to the Panel's analysis of those provisions in the WTO Agreements concerning risk, including SPS Articles 2 and 5, TBT Articles 2.2 and 2.2 and GATT articles II and XX."

144 The Panel will have to decide on several issues that have been raised by the parties in their submissions and that have been underlined in this paper. The following list summarises the possible work of the Panel. It will have to determine whether the EC measures (the general moratoria, the products specific moratoria and the national bans): 1. are WTO challengeable measures; 2. authorisation process for the placing on the market of GMOs has been too slow and, therefore, if they have violated the obligation to take a decision without undue delay in accordance with Art. 8 and Annex C.1 (a) of the SPS Agreement; 3. can be challenged under the SPS Agreement; 4. have been guided by a previous environmental risk assessment and, therefore, do not violate Art. 5.1 of the SPS Agreement; 5. are justified under Art. 5.7 of the SPS Agreement; 6. are technical regulations and, therefore, if they are challengeable under the TBT Agreement; 7. violate the national treatment principle present in Art. III.4 of the GATT. For that purpose the Panel will have to decide on what is a GMO like product; and 8. are justified under Art. XX of the GATT.

145 The Complainants consider that the Panel must decide on the WTO consistency of the three EC challenged measures, despite the fact that they are not present in any official EC document. On the other hand, the EC argues that the dispute is about the application of the authorisation procedure for the placing on the market of GMOs and that the Panel should decide whether there have been cases of undue delays in its implementation.

human health and to the environment arising from the placing on the market of GMOs. The request for further information is a measure taken in accordance with the precautionary principle.[146] Therefore, the scope of the GMO dispute clearly shows the relevance of the precautionary principle in the controversy.

The main claim of the Complainants is that the EC has violated several SPS provisions. The EC defends itself maintaining that the challenged measures are justified under Art. 5.7 of the SPS Agreement. This provision maintains that "in cases where relevant *scientific evidence is insufficient*, a Member may *provisionally* adopt sanitary or phytosanitary measures".[147] Even if the provision does not mention the precautionary principle, measures adopted under Art. 5.7 of the SPS Agreement are clearly based on it.

The first conclusion of this paper is, therefore, that the scope of the GMO dispute is to determine whether the EC measures, whose application is based on the precautionary principle, are justified under Art. 5.7 of the SPS Agreement.

The second conclusion of this paper refers to the role that the GMO dispute can play in the ongoing trade and environment debate.

On the one hand, in order to reach a conclusion on the consistency of the challenged measures with the WTO, the EC considers that the Panel can use International Law norms in order to interpret WTO provisions. Furthermore, the EC argues that the application of multilateral trading system provisions can be informed by International Law norms and that the Cartagena Protocol is the most advanced rule of International Law about trade in GMOs. It concludes that the Panel can seek advice in the Cartagena Protocol provisions that deal with the precautionary principle in order to interpret Art. 5.7 of the SPS Agreement, when deciding if the EC measures are justified under that provision. On the other hand, the Complainants deny such possibility. They understand that WTO provisions can be informed by pertinent International Law norms

---

146 We have mentioned above that the crucial issue is whether there have been *undue delays* in the implementation of the EC measure. How does the EC defend itself on this point? It argues that delays in the authorisation process are due to the request for further information. This kind of request is a central element of the procedure because it allows the EC to have a clearer view of the possible adverse risks to human health and to the environment arising from the placing on the market of GMOs. The request for further information in the application of the EC measure is decided in order to better pursue the two objectives of the EC GMO legislation: protection of human health and protection of the environment. These objectives, and all measures taken in order to pursue such goals, must be fulfilled in accordance with the precautionary principle. Therefore, the request for further information is a measure taken by the EC to fulfil the Directive's goal and it is based on the precautionary principle. This entails that the Panel will have to decide on the consistency of a measure, whose application is based on the precautionary principle, with WTO law.

but they do not agree that the Cartagena Protocol can play such a role in the GMO dispute because they are not parties therein.

On the other hand, the WTO Appellate Body case law on the precautionary principle has evolved. In the Hormones case it did not consider that International Law rules could overrule the SPS Agreement provisions and it maintained that general acceptance of the precautionary principle as a norm of International Law was less than clear. On the contrary, in the Asbestos case the Appellate Body changed direction and decided in favour of a measure inspired by the precautionary principle.

Therefore, the second conclusion of this paper is that, depending on how the Panel will undertake the study of the EC challenged measures in respect to Art. 5.7 of the SPS Agreement, the WTO recognition of the precautionary principle can make a step forward or a step back.

If the Panel decides to take into account provisions regarding the precautionary principle from outside the WTO in order to interpret the SPS Agreement, this will mean that the multilateral trading system is opening itself to other fields of international law that can inform the WTO when disputes deal with issues which are not only trade related, but that may also deal with human health, environmental or, for example, labour related concerns. This would be very important for the ongoing trade and environment debate. On the other hand, if the Panel does not take into account international law norms in order to interpret the SPS Agreement, it would entail a negative signal. The WTO would isolate itself from the rest of International Law and public opinion criticism would probably increase.

In conclusion, the GMO dispute will demonstrate if the WTO is ready to take a step forward in the recognition of the precautionary principle, and of environmental and social concerns in general.

---

147 Emphasis added.

NOTE DI LAVORO DELLA FONDAZIONE ENI ENRICO MATTEI

Fondazione Eni Enrico Mattei Working Paper Series

Our Note di Lavoro are available on the Internet at the following addresses:

http://www.feem.it/Feem/Pub/Publications/WPapers/default.html
http://www.ssrn.com/link/feem.html

NOTE DI LAVORO PUBLISHED IN 2004

IEM	1.2004	*Anil MARKANDYA, Suzette PEDROSO and Alexander GOLUB*: Empirical Analysis of National Income and So2 Emissions in Selected European Countries
ETA	2.2004	*Masahisa FUJITA and Shlomo WEBER:* Strategic Immigration Policies and Welfare in Heterogeneous Countries
PRA	3.2004	*Adolfo DI CARLUCCIO, Giovanni FERRI, Cecilia FRALE and Ottavio RICCHI:* Do Privatizations Boost Household Shareholding? Evidence from Italy
ETA	4.2004	*Victor GINSBURGH and Shlomo WEBER:* Languages Disenfranchisement in the European Union
ETA	5.2004	*Romano PIRAS:* Growth, Congestion of Public Goods, and Second-Best Optimal Policy
CCMP	6.2004	*Herman R.J. VOLLEBERGH:* Lessons from the Polder: Is Dutch CO2-Taxation Optimal
PRA	7.2004	*Sandro BRUSCO, Giuseppe LOPOMO and S. VISWANATHAN* (lxv): Merger Mechanisms
PRA	8.2004	*Wolfgang AUSSENEGG, Pegaret PICHLER and Alex STOMPER* (lxv): IPO Pricing with Bookbuilding, and a When-Issued Market
PRA	9.2004	*Pegaret PICHLER and Alex STOMPER* (lxv): Primary Market Design: Direct Mechanisms and Markets
PRA	10.2004	*Florian ENGLMAIER, Pablo GUILLEN, Loreto LLORENTE, Sander ONDERSTAL and Rupert SAUSGRUBER* (lxv): The Chopstick Auction: A Study of the Exposure Problem in Multi-Unit Auctions
PRA	11.2004	*Bjarne BRENDSTRUP and Harry J. PAARSCH* (lxv): Nonparametric Identification and Estimation of Multi-Unit, Sequential, Oral, Ascending-Price Auctions With Asymmetric Bidders
PRA	12.2004	*Ohad KADAN* (lxv): Equilibrium in the Two Player, k-Double Auction with Affiliated Private Values
PRA	13.2004	*Maarten C.W. JANSSEN* (lxv): Auctions as Coordination Devices
PRA	14.2004	*Gadi FIBICH, Arieh GAVIOUS and Aner SELA* (lxv): All-Pay Auctions with Weakly Risk-Averse Buyers
PRA	15.2004	*Orly SADE, Charles SCHNITZLEIN and Jaime F. ZENDER* (lxv): Competition and Cooperation in Divisible Good Auctions: An Experimental Examination
PRA	16.2004	*Marta STRYSZOWSKA* (lxv): Late and Multiple Bidding in Competing Second Price Internet Auctions
CCMP	17.2004	*Slim Ben YOUSSEF:* R&D in Cleaner Technology and International Trade
NRM	18.2004	*Angelo ANTOCI, Simone BORGHESI and Paolo RUSSU* (lxvi): Biodiversity and Economic Growth: Stabilization Versus Preservation of the Ecological Dynamics
SIEV	19.2004	*Anna ALBERINI, Paolo ROSATO, Alberto LONGO and Valentina ZANATTA:* Information and Willingness to Pay in a Contingent Valuation Study: The Value of S. Erasmo in the Lagoon of Venice
NRM	20.2004	*Guido CANDELA and Roberto CELLINI* (lxvii): Investment in Tourism Market: A Dynamic Model of Differentiated Oligopoly
NRM	21.2004	*Jacqueline M. HAMILTON* (lxvii): Climate and the Destination Choice of German Tourists
NRM	22.2004	*Javier Rey-MAQUIEIRA PALMER, Javier LOZANO IBÁÑEZ and Carlos Mario GÓMEZ GÓMEZ* (lxvii): Land, Environmental Externalities and Tourism Development
NRM	23.2004	*Pius ODUNGA and Henk FOLMER* (lxvii): Profiling Tourists for Balanced Utilization of Tourism-Based Resources in Kenya
NRM	24.2004	*Jean-Jacques NOWAK, Mondher SAHLI and Pasquale M. SGRO* (lxvii):Tourism, Trade and Domestic Welfare
NRM	25.2004	*Riaz SHAREEF* (lxvii): Country Risk Ratings of Small Island Tourism Economies
NRM	26.2004	*Juan Luis EUGENIO-MARTÍN, Noelia MARTÍN MORALES and Riccardo SCARPA* (lxvii): Tourism and Economic Growth in Latin American Countries: A Panel Data Approach
NRM	27.2004	*Raúl Hernández MARTÍN* (lxvii): Impact of Tourism Consumption on GDP. The Role of Imports
CSRM	28.2004	*Nicoletta FERRO:* Cross-Country Ethical Dilemmas in Business: A Descriptive Framework
NRM	29.2004	*Marian WEBER* (lxvi): Assessing the Effectiveness of Tradable Landuse Rights for Biodiversity Conservation: an Application to Canada's Boreal Mixedwood Forest
NRM	30.2004	*Trond BJORNDAL, Phoebe KOUNDOURI and Sean PASCOE* (lxvi): Output Substitution in Multi-Species Trawl Fisheries: Implications for Quota Setting
CCMP	31.2004	*Marzio GALEOTTI, Alessandra GORIA, Paolo MOMBRINI and Evi SPANTIDAKI:* Weather Impacts on Natural, Social and Economic Systems (WISE) Part I: Sectoral Analysis of Climate Impacts in Italy
CCMP	32.2004	*Marzio GALEOTTI, Alessandra GORIA ,Paolo MOMBRINI and Evi SPANTIDAKI:* Weather Impacts on Natural, Social and Economic Systems (WISE) Part II: Individual Perception of Climate Extremes in Italy
CTN	33.2004	*Wilson PEREZ:* Divide and Conquer: Noisy Communication in Networks, Power, and Wealth Distribution
KTHC	34.2004	*Gianmarco I.P. OTTAVIANO and Giovanni PERI* (lxviii): The Economic Value of Cultural Diversity: Evidence from US Cities
KTHC	35.2004	*Linda CHAIB* (lxviii): Immigration and Local Urban Participatory Democracy: A Boston-Paris Comparison

KTHC	36.2004	*Franca ECKERT COEN and Claudio ROSSI* (lxviii): Foreigners, Immigrants, Host Cities: The Policies of Multi-Ethnicity in Rome. Reading Governance in a Local Context
KTHC	37.2004	*Kristine CRANE* (lxviii): Governing Migration: Immigrant Groups' Strategies in Three Italian Cities – Rome, Naples and Bari
KTHC	38.2004	*Kiflemariam HAMDE* (lxviii): Mind in Africa, Body in Europe: The Struggle for Maintaining and Transforming Cultural Identity - A Note from the Experience of Eritrean Immigrants in Stockholm
ETA	39.2004	*Alberto CAVALIERE:* Price Competition with Information Disparities in a Vertically Differentiated Duopoly
PRA	40.2004	*Andrea BIGANO and Stef PROOST:* The Opening of the European Electricity Market and Environmental Policy: Does the Degree of Competition Matter?
CCMP	41.2004	*Micheal FINUS* (lxix): International Cooperation to Resolve International Pollution Problems
KTHC	42.2004	*Francesco CRESPI:* Notes on the Determinants of Innovation: A Multi-Perspective Analysis
CTN	43.2004	*Sergio CURRARINI and Marco MARINI:* Coalition Formation in Games without Synergies
CTN	44.2004	*Marc ESCRIHUELA-VILLAR:* Cartel Sustainability and Cartel Stability
NRM	45.2004	*Sebastian BERVOETS and Nicolas GRAVEL* (lxvi): Appraising Diversity with an Ordinal Notion of Similarity: An Axiomatic Approach
NRM	46.2004	*Signe ANTHON and Bo JELLESMARK THORSEN* (lxvi): Optimal Afforestation Contracts with Asymmetric Information on Private Environmental Benefits
NRM	47.2004	*John MBURU* (lxvi)*:* Wildlife Conservation and Management in Kenya: Towards a Co-management Approach
NRM	48.2004	*Ekin BIROL, Ágnes GYOVAI and Melinda SMALE* (lxvi)*:* Using a Choice Experiment to Value Agricultural Biodiversity on Hungarian Small Farms: Agri-Environmental Policies in a Transition al Economy
CCMP	49.2004	*Gernot KLEPPER and Sonja PETERSON:* The EU Emissions Trading Scheme. Allowance Prices, Trade Flows, Competitiveness Effects
GG	50.2004	*Scott BARRETT and Michael HOEL:* Optimal Disease Eradication
CTN	51.2004	*Dinko DIMITROV, Peter BORM, Ruud HENDRICKX and Shao CHIN SUNG:* Simple Priorities and Core Stability in Hedonic Games
SIEV	52.2004	*Francesco RICCI*: Channels of Transmission of Environmental Policy to Economic Growth: A Survey of the Theory
SIEV	53.2004	*Anna ALBERINI, Maureen CROPPER, Alan KRUPNICK and Nathalie B. SIMON:* Willingness to Pay for Mortality Risk Reductions: Does Latency Matter?
NRM	54.2004	*Ingo BRÄUER and Rainer MARGGRAF* (lxvi): Valuation of Ecosystem Services Provided by Biodiversity Conservation: An Integrated Hydrological and Economic Model to Value the Enhanced Nitrogen Retention in Renaturated Streams
NRM	55.2004	*Timo GOESCHL and Tun LIN* (lxvi): Biodiversity Conservation on Private Lands: Information Problems and Regulatory Choices
NRM	56.2004	*Tom DEDEURWAERDERE* (lxvi): Bioprospection: From the Economics of Contracts to Reflexive Governance
CCMP	57.2004	*Katrin REHDANZ and David MADDISON:* The Amenity Value of Climate to German Households
CCMP	58.2004	*Koen SMEKENS and Bob VAN DER ZWAAN:* Environmental Externalities of Geological Carbon Sequestration Effects on Energy Scenarios
NRM	59.2004	*Valentina BOSETTI, Mariaester CASSINELLI and Alessandro LANZA* (lxvii): Using Data Envelopment Analysis to Evaluate Environmentally Conscious Tourism Management
NRM	60.2004	*Timo GOESCHL and Danilo CAMARGO IGLIORI* (lxvi):Property Rights Conservation and Development: An Analysis of Extractive Reserves in the Brazilian Amazon
CCMP	61.2004	*Barbara BUCHNER and Carlo CARRARO*: Economic and Environmental Effectiveness of a Technology-based Climate Protocol
NRM	62.2004	*Elissaios PAPYRAKIS and Reyer GERLAGH*: Resource-Abundance and Economic Growth in the U.S.
NRM	63.2004	*Györgyi BELA, György PATAKI, Melinda SMALE and Mariann HAJDÚ* (lxvi): Conserving Crop Genetic Resources on Smallholder Farms in Hungary: Institutional Analysis
NRM	64.2004	*E.C.M. RUIJGROK and E.E.M. NILLESEN* (lxvi): The Socio-Economic Value of Natural Riverbanks in the Netherlands
NRM	65.2004	*E.C.M. RUIJGROK* (lxvi): Reducing Acidification: The Benefits of Increased Nature Quality. Investigating the Possibilities of the Contingent Valuation Method
ETA	66.2004	*Giannis VARDAS and Anastasios XEPAPADEAS*: Uncertainty Aversion, Robust Control and Asset Holdings
GG	67.2004	*Anastasios XEPAPADEAS and Constadina PASSA*: Participation in and Compliance with Public Voluntary Environmental Programs: An Evolutionary Approach
GG	68.2004	*Michael FINUS*: Modesty Pays: Sometimes!
NRM	69.2004	*Trond BJØRNDAL and Ana BRASÃO*: The Northern Atlantic Bluefin Tuna Fisheries: Management and Policy Implications
CTN	70.2004	*Alejandro CAPARRÓS, Abdelhakim HAMMOUDI and Tarik TAZDAÏT*: On Coalition Formation with Heterogeneous Agents
IEM	71.2004	*Massimo GIOVANNINI, Margherita GRASSO, Alessandro LANZA and Matteo MANERA*: Conditional Correlations in the Returns on Oil Companies Stock Prices and Their Determinants
IEM	72.2004	*Alessandro LANZA, Matteo MANERA and Michael MCALEER*: Modelling Dynamic Conditional Correlations in WTI Oil Forward and Futures Returns
SIEV	73.2004	*Margarita GENIUS and Elisabetta STRAZZERA*: The Copula Approach to Sample Selection Modelling: An Application to the Recreational Value of Forests

CCMP	74.2004	*Rob DELLINK and Ekko van IERLAND*: Pollution Abatement in the Netherlands: A Dynamic Applied General Equilibrium Assessment
ETA	75.2004	*Rosella LEVAGGI and Michele MORETTO*: Investment in Hospital Care Technology under Different Purchasing Rules: A Real Option Approach
CTN	76.2004	*Salvador BARBERÀ and Matthew O. JACKSON* (lxx): On the Weights of Nations: Assigning Voting Weights in a Heterogeneous Union
CTN	77.2004	*Àlex ARENAS, Antonio CABRALES, Albert DÍAZ-GUILERA, Roger GUIMERÀ and Fernando VEGA-REDONDO* (lxx): Optimal Information Transmission in Organizations: Search and Congestion
CTN	78.2004	*Francis BLOCH and Armando GOMES* (lxx): Contracting with Externalities and Outside Options
CTN	79.2004	*Rabah AMIR, Effrosyni DIAMANTOUDI and Licun XUE* (lxx): Merger Performance under Uncertain Efficiency Gains
CTN	80.2004	*Francis BLOCH and Matthew O. JACKSON* (lxx): The Formation of Networks with Transfers among Players
CTN	81.2004	*Daniel DIERMEIER, Hülya ERASLAN and Antonio MERLO* (lxx): Bicameralism and Government Formation
CTN	82.2004	*Rod GARRATT, James E. PARCO, Cheng-ZHONG QIN and Amnon RAPOPORT* (lxx): Potential Maximization and Coalition Government Formation
CTN	83.2004	*Kfir ELIAZ, Debraj RAY and Ronny RAZIN* (lxx): Group Decision-Making in the Shadow of Disagreement
CTN	84.2004	*Sanjeev GOYAL, Marco van der LEIJ and José Luis MORAGA-GONZÁLEZ* (lxx): Economics: An Emerging Small World?
CTN	85.2004	*Edward CARTWRIGHT* (lxx): Learning to Play Approximate Nash Equilibria in Games with Many Players
IEM	86.2004	*Finn R. FØRSUND and Michael HOEL*: Properties of a Non-Competitive Electricity Market Dominated by Hydroelectric Power
KTHC	87.2004	*Elissaios PAPYRAKIS and Reyer GERLAGH*: Natural Resources, Investment and Long-Term Income
CCMP	88.2004	*Marzio GALEOTTI and Claudia KEMFERT*: Interactions between Climate and Trade Policies: A Survey
IEM	89.2004	*A. MARKANDYA, S. PEDROSO and D. STREIMIKIENE*: Energy Efficiency in Transition Economies: Is There Convergence Towards the EU Average?
GG	90.2004	*Rolf GOLOMBEK and Michael HOEL* : Climate Agreements and Technology Policy
PRA	91.2004	*Sergei IZMALKOV* (lxv): Multi-Unit Open Ascending Price Efficient Auction
KTHC	92.2004	*Gianmarco I.P. OTTAVIANO and Giovanni PERI*: Cities and Cultures
KTHC	93.2004	*Massimo DEL GATTO*: Agglomeration, Integration, and Territorial Authority Scale in a System of Trading Cities. Centralisation versus devolution
CCMP	94.2004	*Pierre-André JOUVET, Philippe MICHEL and Gilles ROTILLON*: Equilibrium with a Market of Permits
CCMP	95.2004	*Bob van der ZWAAN and Reyer GERLAGH*: Climate Uncertainty and the Necessity to Transform Global Energy Supply
CCMP	96.2004	*Francesco BOSELLO, Marco LAZZARIN, Roberto ROSON and Richard S.J. TOL*: Economy-Wide Estimates of the Implications of Climate Change: Sea Level Rise
CTN	97.2004	*Gustavo BERGANTIÑOS and Juan J. VIDAL-PUGA*: Defining Rules in Cost Spanning Tree Problems Through the Canonical Form
CTN	98.2004	*Siddhartha BANDYOPADHYAY and Mandar OAK*: Party Formation and Coalitional Bargaining in a Model of Proportional Representation
GG	99.2004	*Hans-Peter WEIKARD, Michael FINUS and Juan-Carlos ALTAMIRANO-CABRERA*: The Impact of Surplus Sharing on the Stability of International Climate Agreements
SIEV	100.2004	*Chiara M. TRAVISI and Peter NIJKAMP*: Willingness to Pay for Agricultural Environmental Safety: Evidence from a Survey of Milan, Italy, Residents
SIEV	101.2004	*Chiara M. TRAVISI, Raymond J. G. M. FLORAX and Peter NIJKAMP*: A Meta-Analysis of the Willingness to Pay for Reductions in Pesticide Risk Exposure
NRM	102.2004	*Valentina BOSETTI and David TOMBERLIN:* Real Options Analysis of Fishing Fleet Dynamics: A Test
CCMP	103.2004	*Alessandra GORIA e Gretel GAMBARELLI:* Economic Evaluation of Climate Change Impacts and Adaptability in Italy
PRA	104.2004	*Massimo FLORIO and Mara GRASSENI*: The Missing Shock: The Macroeconomic Impact of British Privatisation
PRA	105.2004	*John BENNETT, Saul ESTRIN, James MAW and Giovanni URGA*: Privatisation Methods and Economic Growth in Transition Economies
PRA	106.2004	*Kira BÖRNER*: The Political Economy of Privatization: Why Do Governments Want Reforms?
PRA	107.2004	*Pehr-Johan NORBÄCK and Lars PERSSON*: Privatization and Restructuring in Concentrated Markets
SIEV	108.2004	*Angela GRANZOTTO, Fabio PRANOVI, Simone LIBRALATO, Patrizia TORRICELLI and Danilo MAINARDI*: Comparison between Artisanal Fishery and Manila Clam Harvesting in the Venice Lagoon by Using Ecosystem Indicators: An Ecological Economics Perspective
CTN	109.2004	*Somdeb LAHIRI*: The Cooperative Theory of Two Sided Matching Problems: A Re-examination of Some Results
NRM	110.2004	*Giuseppe DI VITA*: Natural Resources Dynamics: Another Look
SIEV	111.2004	*Anna ALBERINI, Alistair HUNT and Anil MARKANDYA*: Willingness to Pay to Reduce Mortality Risks: Evidence from a Three-Country Contingent Valuation Study
KTHC	112.2004	*Valeria PAPPONETTI and Dino PINELLI*: Scientific Advice to Public Policy-Making
SIEV	113.2004	*Paulo A.L.D. NUNES and Laura ONOFRI*: The Economics of Warm Glow: A Note on Consumer's Behavior and Public Policy Implications
IEM	114.2004	*Patrick CAYRADE*: Investments in Gas Pipelines and Liquefied Natural Gas Infrastructure What is the Impact on the Security of Supply?
IEM	115.2004	*Valeria COSTANTINI and Francesco GRACCEVA:* Oil Security. Short- and Long-Term Policies

IEM	116.2004	*Valeria COSTANTINI and Francesco GRACCEVA:* Social Costs of Energy Disruptions
IEM	117.2004	*Christian EGENHOFER, Kyriakos GIALOGLOU, Giacomo LUCIANI, Maroeska BOOTS, Martin SCHEEPERS, Valeria COSTANTINI, Francesco GRACCEVA, Anil MARKANDYA and Giorgio VICINI*: Market-Based Options for Security of Energy Supply
IEM	118.2004	*David FISK*: Transport Energy Security. The Unseen Risk?
IEM	119.2004	*Giacomo LUCIANI*: Security of Supply for Natural Gas Markets. What is it and What is it not?
IEM	120.2004	*L.J. de VRIES and R.A. HAKVOORT*: The Question of Generation Adequacy in Liberalised Electricity Markets
KTHC	121.2004	*Alberto PETRUCCI*: Asset Accumulation, Fertility Choice and Nondegenerate Dynamics in a Small Open Economy
NRM	122.2004	*Carlo GIUPPONI, Jaroslaw MYSIAK and Anita FASSIO*: An Integrated Assessment Framework for Water Resources Management: A DSS Tool and a Pilot Study Application
NRM	123.2004	*Margaretha BREIL, Anita FASSIO, Carlo GIUPPONI and Paolo ROSATO*: Evaluation of Urban Improvement on the Islands of the Venice Lagoon: A Spatially-Distributed Hedonic-Hierarchical Approach
ETA	124.2004	*Paul MENSINK*: Instant Efficient Pollution Abatement Under Non-Linear Taxation and Asymmetric Information: The Differential Tax Revisited
NRM	125.2004	*Mauro FABIANO, Gabriella CAMARSA, Rosanna DURSI, Roberta IVALDI, Valentina MARIN and Francesca PALMISANI*: Integrated Environmental Study for Beach Management:A Methodological Approach
PRA	126.2004	*Irena GROSFELD and Iraj HASHI*: The Emergence of Large Shareholders in Mass Privatized Firms: Evidence from Poland and the Czech Republic
CCMP	127.2004	*Maria BERRITTELLA, Andrea BIGANO, Roberto ROSON and Richard S.J. TOL*: A General Equilibrium Analysis of Climate Change Impacts on Tourism
CCMP	128.2004	*Reyer GERLAGH*: A Climate-Change Policy Induced Shift from Innovations in Energy Production to Energy Savings
NRM	129.2004	*Elissaios PAPYRAKIS and Reyer GERLAGH*: Natural Resources, Innovation, and Growth
PRA	130.2004	*Bernardo BORTOLOTTI and Mara FACCIO*: Reluctant Privatization
SIEV	131.2004	*Riccardo SCARPA and Mara THIENE*: Destination Choice Models for Rock Climbing in the Northeast Alps: A Latent-Class Approach Based on Intensity of Participation
SIEV	132.2004	*Riccardo SCARPA Kenneth G. WILLIS and Melinda ACUTT*: Comparing Individual-Specific Benefit Estimates for Public Goods: Finite Versus Continuous Mixing in Logit Models
IEM	133.2004	*Santiago J. RUBIO*: On Capturing Oil Rents with a National Excise Tax Revisited
ETA	134.2004	*Ascensión ANDINA DÍAZ*: Political Competition when Media Create Candidates' Charisma
SIEV	135.2004	*Anna ALBERINI*: Robustness of VSL Values from Contingent Valuation Surveys
CCMP	136.2004	*Gernot KLEPPER and Sonja PETERSON*: Marginal Abatement Cost Curves in General Equilibrium: The Influence of World Energy Prices
ETA	137.2004	*Herbert DAWID, Christophe DEISSENBERG and Pavel ŠEVČIK*: Cheap Talk, Gullibility, and Welfare in an Environmental Taxation Game
CCMP	138.2004	*ZhongXiang ZHANG*: The World Bank's Prototype Carbon Fund and China
CCMP	139.2004	*Reyer GERLAGH and Marjan W. HOFKES*: Time Profile of Climate Change Stabilization Policy
NRM	140.2004	*Chiara D'ALPAOS and Michele MORETTO*: The Value of Flexibility in the Italian Water Service Sector: A Real Option Analysis
PRA	141.2004	*Patrick BAJARI, Stephanie HOUGHTON and Steven TADELIS* (lxxi): Bidding for Incompete Contracts
PRA	142.2004	*Susan ATHEY, Jonathan LEVIN and Enrique SEIRA* (lxxi): Comparing Open and Sealed Bid Auctions: Theory and Evidence from Timber Auctions
PRA	143.2004	*David GOLDREICH* (lxxi): Behavioral Biases of Dealers in U.S. Treasury Auctions
PRA	144.2004	*Roberto BURGUET* (lxxi): Optimal Procurement Auction for a Buyer with Downward Sloping Demand: More Simple Economics
PRA	145.2004	*Ali HORTACSU and Samita SAREEN* (lxxi): Order Flow and the Formation of Dealer Bids: An Analysis of Information and Strategic Behavior in the Government of Canada Securities Auctions
PRA	146.2004	*Victor GINSBURGH, Patrick LEGROS and Nicolas SAHUGUET* (lxxi): How to Win Twice at an Auction. On the Incidence of Commissions in Auction Markets
PRA	147.2004	*Claudio MEZZETTI, Aleksandar PEKEČ and Ilia TSETLIN* (lxxi): Sequential vs. Single-Round Uniform-Price Auctions
PRA	148.2004	*John ASKER and Estelle CANTILLON* (lxxi): Equilibrium of Scoring Auctions
PRA	149.2004	*Philip A. HAILE, Han HONG and Matthew SHUM* (lxxi): Nonparametric Tests for Common Values in First-Price Sealed-Bid Auctions
PRA	150.2004	*François DEGEORGE, François DERRIEN and Kent L. WOMACK* (lxxi): Quid Pro Quo in IPOs: Why Bookbuilding is Dominating Auctions
CCMP	151.2004	*Barbara BUCHNER and Silvia DALL'OLIO*: Russia: The Long Road to Ratification. Internal Institution and Pressure Groups in the Kyoto Protocol's Adoption Process
CCMP	152.2004	*Carlo CARRARO and Marzio GALEOTTI*: Does Endogenous Technical Change Make a Difference in Climate Policy Analysis? A Robustness Exercise with the FEEM-RICE Model
PRA	153.2004	*Alejandro M. MANELLI and Daniel R. VINCENT* (lxxi): Multidimensional Mechanism Design: Revenue Maximization and the Multiple-Good Monopoly
ETA	154.2004	*Nicola ACOCELLA, Giovanni Di BARTOLOMEO and Wilfried PAUWELS*: Is there any Scope for Corporatism in Stabilization Policies?
CTN	155.2004	*Johan EYCKMANS and Michael FINUS*: An Almost Ideal Sharing Scheme for Coalition Games with Externalities
CCMP	156.2004	*Cesare DOSI and Michele MORETTO*: Environmental Innovation, War of Attrition and Investment Grants

CCMP	157.2004	*Valentina BOSETTI, Marzio GALEOTTI and Alessandro LANZA*: How Consistent are Alternative Short-Term Climate Policies with Long-Term Goals?
ETA	158.2004	*Y. Hossein FARZIN and Ken-Ichi AKAO*: Non-pecuniary Value of Employment and Individual Labor Supply
ETA	159.2004	*William BROCK and Anastasios XEPAPADEAS*: Spatial Analysis: Development of Descriptive and Normative Methods with Applications to Economic-Ecological Modelling
KTHC	160.2004	*Alberto PETRUCCI*: On the Incidence of a Tax on PureRent with Infinite Horizons
IEM	161.2004	*Xavier LABANDEIRA, José M. LABEAGA and Miguel RODRÍGUEZ*: Microsimulating the Effects of Household Energy Price Changes in Spain

NOTE DI LAVORO PUBLISHED IN 2005

CCMP	1.2005	*Stéphane HALLEGATTE*: Accounting for Extreme Events in the Economic Assessment of Climate Change
CCMP	2.2005	*Qiang WU and Paulo Augusto NUNES*: Application of Technological Control Measures on Vehicle Pollution: A Cost-Benefit Analysis in China
CCMP	3.2005	*Andrea BIGANO, Jacqueline M. HAMILTON, Maren LAU, Richard S.J. TOL and Yuan ZHOU*: A Global Database of Domestic and International Tourist Numbers at National and Subnational Level
CCMP	4.2005	*Andrea BIGANO, Jacqueline M. HAMILTON and Richard S.J. TOL*: The Impact of Climate on Holiday Destination Choice
ETA	5.2005	*Hubert KEMPF*: Is Inequality Harmful for the Environment in a Growing Economy?
CCMP	6.2005	*Valentina BOSETTI, Carlo CARRARO and Marzio GALEOTTI*: The Dynamics of Carbon and Energy Intensity in a Model of Endogenous Technical Change
IEM	7.2005	*David CALEF and Robert GOBLE*: The Allure of Technology: How France and California Promoted Electric Vehicles to Reduce Urban Air Pollution
ETA	8.2005	*Lorenzo PELLEGRINI and Reyer GERLAGH*: An Empirical Contribution to the Debate on Corruption Democracy and Environmental Policy
CCMP	9.2005	*Angelo ANTOCI*: Environmental Resources Depletion and Interplay Between Negative and Positive Externalities in a Growth Model
CTN	10.2005	*Frédéric DEROIAN*: Cost-Reducing Alliances and Local Spillovers
NRM	11.2005	*Francesco SINDICO*: The GMO Dispute before the WTO: Legal Implications for the Trade and Environment Debate

(lxv) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications” organised by Fondazione Eni Enrico Mattei and sponsored by the EU, Milan, September 25-27, 2003

(lxvi) This paper has been presented at the 4th BioEcon Workshop on “Economic Analysis of Policies for Biodiversity Conservation” organised on behalf of the BIOECON Network by Fondazione Eni Enrico Mattei, Venice International University (VIU) and University College London (UCL) , Venice, August 28-29, 2003

(lxvii) This paper has been presented at the international conference on “Tourism and Sustainable Economic Development – Macro and Micro Economic Issues” jointly organised by CRENoS (Università di Cagliari e Sassari, Italy) and Fondazione Eni Enrico Mattei, and supported by the World Bank, Sardinia, September 19-20, 2003

(lxviii) This paper was presented at the ENGIME Workshop on “Governance and Policies in Multicultural Cities”, Rome, June 5-6, 2003

(lxix) This paper was presented at the Fourth EEP Plenary Workshop and EEP Conference “The Future of Climate Policy”, Cagliari, Italy, 27-28 March 2003

(lxx) This paper was presented at the 9th Coalition Theory Workshop on "Collective Decisions and Institutional Design" organised by the Universitat Autònoma de Barcelona and held in Barcelona, Spain, January 30-31, 2004

(lxxi) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications”, organised by Fondazione Eni Enrico Mattei and Consip and sponsored by the EU, Rome, September 23-25, 2004

2004 SERIES	
CCMP	*Climate Change Modelling and Policy* (Editor: Marzio Galeotti)
GG	*Global Governance* (Editor: Carlo Carraro*)*
SIEV	*Sustainability Indicators and Environmental Valuation* (Editor: Anna Alberini)
NRM	*Natural Resources Management* (Editor: Carlo Giupponi)
KTHC	*Knowledge, Technology, Human Capital* (Editor: Gianmarco Ottaviano)
IEM	*International Energy Markets* (Editor: Anil Markandya)
CSRM	*Corporate Social Responsibility and Sustainable Management* (Editor: Sabina Ratti)
PRA	*Privatisation, Regulation, Antitrust* (Editor: Bernardo Bortolotti)
ETA	*Economic Theory and Applications* (Editor: Carlo Carraro)
CTN	*Coalition Theory Network*

2005 SERIES	
CCMP	*Climate Change Modelling and Policy* (Editor: Marzio Galeotti)
SIEV	*Sustainability Indicators and Environmental Valuation* (Editor: Anna Alberini)
NRM	*Natural Resources Management* (Editor: Carlo Giupponi)
KTHC	*Knowledge, Technology, Human Capital* (Editor: Gianmarco Ottaviano)
IEM	*International Energy Markets* (Editor: Anil Markandya)
CSRM	*Corporate Social Responsibility and Sustainable Management* (Editor: Sabina Ratti)
PRCG	*Privatisation Regulation Corporate Governance* (Editor: Bernardo Bortolotti)
ETA	*Economic Theory and Applications* (Editor: Carlo Carraro)
CTN	*Coalition Theory Network*