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GLOBALIZATION AND NATIONAL SOVEREIGNTY: CONTROLLING THE INTERNATIONAL FOOD SUPPLY IN THE AGE OF BIOTECHNOLOGY

Debra M. Strauss* and Melanie C. Strauss**

I. INTRODUCTION

With globalization and widespread technological advances, new international issues have emerged that hold critical importance for transnational economic integration, state sovereignty, and the future of global governance. These issues notably affect the power, authority, sovereignty, and legitimacy of states as defined in the Westphalian system.¹ Overall, the controversy over genetically engineered foods follows the trend that “while states were once the masters over markets, now it is the markets which, on many critical issues, are the masters over the governments.”² The resolutions of trade disputes and international conflicts over genetically modified (GM) foods have taken away from state sovereignty—the ability for each state to make laws to regulate and control its domestic food supply—by favoring free trade and universal standards. Nation-states are no longer the only players in this arena, because international agencies, transnational biotechnology corporations, and non-governmental organizations have significant powers and roles in the decision-making process of regulating GM foods on the nation-state and international levels.

The ongoing controversy over the production, international trade, and management of GM foods is demonstrated in the 2006 decision by the World Trade Organization (WTO) to preclude the European Union (EU) from maintaining a de facto ban of GM food imports. Part II of this article will provide a background on genetically modified organisms (GMOs), their potential benefits, and their uncertain risks. Part III analyzes the U.S.-EU trade dispute, and how the WTO’s decision potentially increases the future likelihood of global governance and decreases the significance of state borders, while still allowing states to have some control of their domestic regulatory processes. Part IV presents the contrary perspective, that

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¹ “Westphalian system” is term that dates back to the Westphalia peace treaty of 1648 and is generally used to describe the current system of nation-states with territorial integrity and national sovereignty. See, e.g., Andreas Osiander, *Sovereignty, International Relations, and the Westphalian Myth*, 55 INT’L ORG. 251, 251 (2001) (discussing its traditional origins and questioning whether the world is moving “beyond Westphalia” and the “pillars of the Westphalian temple decaying”); Benno Teschke, *Theorizing the Westphalian System of States: International Relations from Absolutism to Capitalism*, 8 EUR. J. INT’L REL. 5 (2002) (presenting a “new approach, revolving around contested property relations, for theorizing the constitution, operation and transformation of geopolitical systems, exemplified with reference to early modern international relations”).

² Susan Strange, *The Declining Authority of States*, in THE GLOBAL TRANSFORMATIONS READER 127, 128 (2d. ed. 2003).

implementing more international regulations on domestic issues, for purposes such as food security and safety, detracts significantly from state sovereignty, limiting the abilities of nation-states to act in the best interests of their citizens, follow their cultural norms, or adhere to previously established international agreements. This position holds that because genetically modified products are not purely international trade issues, global governance is not necessary and policies should be determined by states. As Part V concludes, the GMOs debate evokes the central conflict between free markets and international economic integration versus state regulation and economic protectionism. Its resolution will, accordingly, carry implications beyond the area of global food safety and sustainability to the ultimate transformation of the international political economy.

II. BACKGROUND ON GENETICALLY MODIFIED FOODS

Genetically modified foods are created when genetic materials are altered using technological processes, such as recombinant DNA, that combine molecules from different DNA sources into single molecules.³ This technological process, available since 1995, can manipulate foods to create new plant varieties with unique benefits, including resistance to pesticides, toxicity to predatory insects, or enhanced nutritional contents.⁴ Other potential benefits of GM foods include increased agricultural productivity, reduced chemical usage, improved food sustainability and quality, and the reduction of world hunger.⁵ Additionally, GM foods increase the ability to grow crops in areas with harsh agricultural and environmental conditions. Today, the most common GM food crops are soybeans, cotton, and canola, such as herbicide-resistant cotton created by inserting herbicide resistant genes into the plant.⁶

However, there are unknown and potentially hazardous impacts of GM foods on human health, food safety, and the environment. GMOs could influence health by affecting the allergenicity, toxicity, and nutrition contents in food. GM foods may also harm the environment through cross-pollination, damaging

³ For more background information on this technology, including the health and environmental risks, see Debra M. Strauss, *The International Regulation of Genetically Modified Organisms: Importing Caution into the U.S. Food Supply*, 61 FOOD & DRUG L.J. 167, 167 (2006) [hereinafter Strauss, *Importing Caution*].

⁴ Charlotte Granville-West, et al., *Special report 2: The WTO and EU policy towards GMOs*, EUR. POL'Y ANALYST 47 (2006).

⁵ World Health Organization (WHO), *Modern Food Biotechnology, Human Health and Development: an Evidence-Based Study*, at iii (June 24, 2005) [hereinafter WHO STUDY], available at http://www.who.int/foodsafety/publications/biotech/biotech_en.pdf. But see Debra M. Strauss, *Defying Nature: The Ethical Implications of Genetically Modified Plants*, 3 J. FOOD L. & POL'Y 1, 7–19 (2007) (debunking the myths that this technology would reduce world hunger, decrease pesticide usage, improve nutritional content, and increase farmers' income and contrasting these claims of potential benefits with the risks) [hereinafter Strauss, *Ethical Implications*].

⁶ Laylah Zurek, Comment, *The European Communities Biotech Dispute: How the WTO Fails to Consider Cultural Factors in the Genetically Modified Food Debate*, 42 TEX. INT'L L.J. 345, 348 (2007).

ecosystem biodiversity, and harming traditional agriculture methods.⁷ There are fears that multinational biotech companies could crowd out local seed markets and farmers, or that the spread of genetically modified material could lead to the development of hybrid superweeds or superpests that are highly resistant to pesticides.⁸ Currently, there is inconclusive information on the negative effects of GM foods; additional research and risk assessments should be conducted to explore future consequences of manipulating genes in crops.

Globalization has helped shaped the rise of the agricultural biotechnology industry. When globalization is viewed as a permanent and structural change, it is clear that the recent agricultural technological advances impact trade and the meaning of space, because it is no longer feasible for states to engage in economic protectionism and new technologies are changing how people view traditional food. The increased internationalization of the seed industry and company mergers in the 1990s has led to the development of expansive and powerful multinational corporations with sufficient capital funding for research and development.⁹ Increased mechanization has heightened agricultural productivity and the demand for capital funding of new biotechnology projects.¹⁰ The production of goods is international, rather than state-based, and technological innovation leads to mass consumption and value-added manufactured goods.¹¹

⁷ WHO STUDY, *supra* note 5, at 12, 20. See also Food and Agriculture Organization of the United Nations (FAO), Biotechnology in Food and Agriculture, FAO Statement on Biotechnology, <http://www.fao.org/biotech/stat.asp?lang=en> (last visited June 16, 2009) (recognizing the potential risks to human and animal health and environmental consequences, and recommending a cautious approach, including post-approval monitoring and “a science-based evaluation system that would objectively determine the benefits and risks of each individual GMO. This calls for a cautious case-by-case approach to address legitimate concerns for the biosafety of each product or process prior to its release”).

⁸ See Starla L. Borg, Note, *Waiting for the River: The United States and European Union, Heads Up and High Stakes in the WTO—Genetically Modified Organisms in International Trade*, 43 WASHBURN L.J. 681, 704 (2004) (describing the backdrop of the dispute in an analogy to a game of poker and predicting a loss for the EU).

⁹ Marc Williams, *Feeding the World?: Transnational Corporations and the Promotion of Genetically Modified Food*, Paper presented at the annual meeting of the International Studies Association 48th Annual Convention, Hilton Chicago, CHICAGO, IL, USA, Feb. 28, 2007, <http://www.allacademic.com/meta/p179775_index.html>, at 4; see also William Lesser, *Intellectual Property Rights and Concentration in Agricultural Biotechnology*, 1 AGRICULTURE 56 (1998).

¹⁰ See Williams, *supra* note 9, at 6.

¹¹ According to the ETC Group’s 2005 report on the seed industry, “corporate concentration—not only in food and agriculture, but in all sectors related to the products and processes of life—has increased remarkably” so that the top 10 companies control almost half of the \$21 billion commercial seed market. The internationalization of corporate control is dramatically evident in the 2005 figures: “Since ETC’s 2003 report, the world’s top 10 seed companies have increased their control from one-third to one-half of the global seed trade and the top 10 biotech enterprises have raised their share from just over half to nearly three-quarters of world sales in that sector.” ETC Group, Globalization Inc. Communiqué #91, *Oligopoly Inc: Concentration in Corporate Power, 2005* (2005), at 2, available at http://www.etcgroup.org/en/materials/publications.html?pub_id=44. In addition, the top 10 publicly-traded biotech companies accounted for almost three-quarters of the global biotech market. *Id.* at 1.

The United States, Argentina, Brazil, and Canada are the largest producers of GM foods;¹² not surprisingly, then, they support biotechnology companies and the free trade of GMOs. In the United States as of 2008, 92 percent of soybeans acres, 86 percent of cotton acres, and 80 percent of corn acres were genetically engineered to control weeds and insects.¹³ As a result, most food products in U.S. stores contain GMOs, without being labeled as a GM product.¹⁴ Biotech and agricultural companies such as Monsanto are reaping huge profits because the United States does not distinguish between GM and non-GM foods in its regulatory treatment; moreover, the government grants patents to genetically engineered technological processes, thereby increasing the incentive for companies to innovate.¹⁵ The European Union, Japan, and Australia take cautionary stances that favor food labeling and thorough health and safety testing before allowing GM foods to enter their domestic food supplies. Particularly in the EU, consumers are concerned about the safety of GM foods and prefer increased transparency, labeling, and restrictions.¹⁶ In view of these differences in governmental regulations and public opinion across nation-states, one must consider whether international organizations should work to develop international policies that set standards and define global regulations for the international trade of GM foods.

III. INCREASED FREE TRADE ENHANCES GLOBAL GOVERNANCE

With international trade as paramount, the interests of biotechnology companies and the governments that support them reign supreme, even outweighing at times the boundaries of nation-states. From this perspective, this section will discuss in turn the context of the U.S.-EU GMO trade dispute, its implications for the shift towards global governance, and the power of states to respond.

A. *The U.S.-EU GMO Trade Dispute*

The Codex Alimentarius Commission develops food standards based on scientific studies and qualified expert opinions. The Codex then shares this information with state governments, lawmakers, and international organizations such as the WTO, the World Health Organization (WHO), and the Food and Agriculture

¹² KATHRYN MCCONNELL, U.S. MISSION TO THE EUROPEAN UNION, WORLD TRADE AGENCY UPHOLDS CHALLENGE OF EUROPEAN BIOTECH BAN, Sept. 29, 2006, <http://useu.usmission.gov/Article.asp?ID=BFD0D73C-E01B-478C-A164-08F5E747FEEF>.

¹³ USDA Economic Research Service, Adoption of Genetically Engineered Crops in the U.S., <http://www.ers.usda.gov/data/biotechcrops/> (last visited June 9, 2009).

¹⁴ The Grocery Manufacturers of America (GMA) estimates that 75% of all processed foods in the United States contain a GM ingredient, including almost every product with a corn or soy ingredient and some containing canola or cottonseed oil. See Americans Clueless About Gene-Altered Foods (Mar. 23, 2005), <http://www.msnbc.msn.com/id/7277844/> (statement of Stephanie Childs, Grocery Manufacturers of America).

¹⁵ USDA Economic Research Service, *supra* note 13.

¹⁶ See Zurek, *supra* note 6, at 361.

Organization of the United Nations (FAO). Over 165 member states directly support Codex, and its main goals are to protect consumer health while also promoting fair food trade practices.¹⁷ The WTO's mission is to promote free trade and economic growth; thus, the 153 member-states adopting imported food standards beyond Codex Alimentarius' minimal national food safety standards must have scientific evidence that the imported goods significantly threaten health or safety, rather than merely harming domestic profits or jobs.¹⁸ Member states of the WTO can file complaints to the Dispute Settlement Body (DSB), the WTO's panel of trade experts, if they believe a member state has food trade policies that support state economic protectionism. The WTO will then make an enforceable decision on whether the specific issue or policy does hinder free trade, and member-states may have to change their protectionist trade policies within a specified reasonable period of time. In the domain of the international trade of food, the Sanitary and Phytosanitary Measures Agreement (SPS Agreement) acknowledges that states can protect domestic food supplies for scientific, well-documented health and safety risks, as long as this does not unfairly discriminate against a particular industry or country for unfounded reasons.¹⁹ According to this agreement, instead of banning all products, a state could implement less costly or less restrictive alternatives, such as mandatory labeling or quality testing, to sustain free trade while protecting its citizens.²⁰

In 2003, the United States, Canada, and Argentina filed a case with the WTO that claimed the European Commission (EC), and in particular six EU member states, were intentionally slow in approving GM imports on a case-by-case basis, and that this "undue delay" in the approval process was effectively a de facto ban of GM products in the EU since 1998.²¹ Although the EU approved one strain of genetically engineered corn in 2004, Austria, France, Germany, Italy, Greece, and Luxemburg nonetheless banned GM crops, even though they were approved by other EU states.²² The moratorium cost U.S. corn producers approximately \$300 million in annual export sales and \$5.5 billion in total sales for the global biotech market.²³ The

¹⁷ Diahanna L. Post, *The Precautionary Principle and Risk Assessment in International Food Safety: How the World Trade Organization Influences Standards*, 26 RISK ANALYSIS: AN INT'L J. 1259, 1262 (2006).

¹⁸ J. MARTIN ROCHESTER, BETWEEN PERIL AND PROMISE: THE POLITICS OF INTERNATIONAL LAW 110 (2006).

¹⁹ Granville-West, *supra* note 4, at 51. See WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) (1994), available at http://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm [hereinafter SPS Agreement]. For more on this treaty, see RICHARD SCHAFFER ET AL., INTERNATIONAL BUSINESS LAW AND ITS ENVIRONMENT 333-335 (6th ed. 2005).

²⁰ See Borg, *supra* note 8, at 692.

²¹ Granville-West, *supra* note 4, at 47; see also Biotechnology Industry Organization, European Union Moratorium, <http://www.bio.org/foodag/background/eumoratorium.asp> (last visited June 12, 2009); Press Release, European Union, European Commission Regrets U.S. Decision to File WTO Case on GMOs as Misguided and Unnecessary (May 23, 2003), <http://www.eurunion.org/news/press/2003/2003036.htm>.

²² Borg, *supra* note 8, at 684.

²³ CHARLES E. HANRAHAN, AGRICULTURAL BIOTECHNOLOGY: THE U.S.-EU DISPUTE (CRS Rep. RS21556)

United States, Canada, and Argentina also claimed that the EU's policies would harm worldwide agricultural exports, impede the development of advanced agricultural biotechnology, and increase negative public perceptions of GM foods. For example, even though there was a horrific famine in 2002 in Sub-Saharan Africa, Zambia refused genetically modified corn given as foreign aid by the United States because of environmental and food safety concerns, and the negative public perceptions about GMOs due to the EU's moratorium.²⁴

From the U.S. perspective, resistance to GM foods "is fed by a potent mixture of scientific irrationalism, economic protectionism, and even anti-U.S. sentiment."²⁵ The United States, Canada, and Argentina asserted that decisions against GM foods violated the SPS Agreement due to a lack of comprehensive scientific evidence.²⁶ They also claimed the moratorium violated other established WTO treaties, including the Agreement on Technical Barriers to Trade (TBT Agreement) that ensures that international regulatory standards do not create unnecessary obstacles to trade, as well as the General Agreement on Tariffs and Trade (GATT) that promotes free trade and tariff reductions.²⁷

The international differences in approaches towards GM foods are reflected in differences in regulatory schemes.²⁸ The United States treats GM foods the same as their conventional counterparts, opting not to require additional regulation or labeling.²⁹ In contrast, the EU favors close regulations for new technologies with

(March 10, 2006), at 1 [hereinafter CRS REPORT].

²⁴ Jennifer Clapp, *The Political Economy of Food Aid in an Era of Agricultural Biotechnology*, 11 GLOBAL GOVERNANCE 467 (2005).

²⁵ Robert Falkner, *The Global Biotech Food Fight: Why the United States Got It So Wrong*, 14 BROWN J. WORLD AFF. 99, 100 (2007).

²⁶ Complaints by the United States (WT/DS291), Canada (WT/DS292), and Argentina (WT/DS293).

²⁷ Zurek, *supra* note 6, at 352 n. 50, 353. See WTO Agreement on Technical Barriers to Trade (TBT Agreement) (1994), available at http://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm; General Agreement on Tariffs and Trade (GATT), Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194.

²⁸ For a discussion of the differing regulatory approaches of the United States and the EU as a reflection of the cultural views of risk and scientific uncertainty with the potential impact on international trade, see Debra M. Strauss, *Genetically Modified Organisms in Food: A Model of Labeling and Monitoring With Positive Implications for International Trade*, 40 INT'L LAW. 95 (2006).

²⁹ Under the U.S. scheme, no special regulations have been developed for genetically modified food because there is no recognition of risks inherent in the new technology:

The United States uses health and safety laws written prior to the advent of modern biotechnology to review genetically engineered products. To date, the United States has not issued any new legislation for these products . . . agencies that were responsible for regulatory oversight of certain product categories or for certain product uses are also responsible for evaluating those same kinds of products developed using genetic engineering.

United States Regulatory Agencies Unified Biotechnology Website, Frequently Asked Questions, <http://usbiotechreg.nbio.gov/FAQRecord.asp?qryGUID=2> (last visited June 11, 2009). For a compilation of the laws currently used to regulate the products of modern biotechnology and the regulations developed under these statutes (the Plant Protection Act, the Federal Food, Drug, and Cosmetic Act (FDCA), the Federal Insecticide, Fungicide, and Rodenticide Act, and the Toxic Substances Control Act), see United States Regulatory Agencies Unified Biotechnology Website, U.S. Laws and Regulations, <http://usbiotechreg.nbio.gov/lawsregsguidance.asp> (last visited June 11, 2009); see also 1986 Coordinated

uncertain implications, adhering to the precautionary principle in the Cartagena Protocol on Biosafety, an international agreement established to protect biological diversity from the risks of biotechnology.³⁰ The precautionary principle advocates a cautionary approach so that insufficient or inconclusive scientific evidence on GM foods should lead to regulation or prohibition until further information satisfies safety concerns.³¹ As a result, the EU has strict labeling and traceability regulations for GM foods and EU consumers vocally disapprove of GMOs.³² The EU claimed that the contested bans addressed both environmental and health risk factors, so that GM food imports could be banned under the SPS Agreement.³³ The European Commission also has argued that the de facto ban on GM foods was based upon some scientific knowledge about probable risks associated with these crops.³⁴

Framework for Regulation of Biotechnology, 51 Fed. Reg. 23,302 (June 26, 1986).

³⁰ Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Jan. 29, 2000, art. 1, available at <http://www.cbd.int/biosafety> [hereinafter Cartagena Protocol]. The Cartagena Protocol was put forth in January 2000 and went into effect on September 11, 2003, the ninetieth day after receiving the fifty instruments of ratification by states or regional economic integration organizations that are parties to the U.N. Convention on Biological Diversity (CBD), which was adopted in Rio de Janeiro in 1992 and has been ratified by 191 parties. See IISD Linkages, A Brief Introduction to the Convention on Biological Diversity, <http://www.iisd.ca/biodiv/cbdintro.html> (last updated Feb. 18, 2000). As of June 2009, 156 parties had ratified the Protocol. The United States, which had signed the CBD, but had not ratified it, is not among them. Canada and Argentina had signed the Protocol but did not ratify it. For a list of the status of the ratifying parties, see The Convention on Biological Diversity, List of Parties, <http://www.cbd.int/convention/parties/list.shtml> (last visited June 11, 2009).

³¹ See CRS REPORT, *supra* note 23, at 4.

³² For example, Directive 2001/18/EC sets forth measures for assessing human health and environmental risks before any GM product can be released into the environment or marketed. Most significantly, this Directive allows a temporary ban of GM products if evidence can be provided exposing risks to human health or the environment. Council Directive 2001/18/EC, 2001 O.J. (L106). See Strauss, *Importing Caution*, *supra* note 3, at 176–81; see also Regulation (EC) No. 1830/2003 of the European Parliament and Council on the Traceability and Labeling of Genetically Modified Organisms and Regulation (EC) No. 1829/2003 of the European Parliament and Council on Genetically Modified Food and Feed, 2003 OJ (L268), 24 & 25; European Commission, Questions and Answers on the Regulation of GMOs in the European Community, http://ec.europa.eu/food/food/biotechnology/gmfood/qanda_en.pdf (last visited June 11, 2009).

³³ Article 5.1 of the SPS Agreement, *supra* note 19, states that “[m]embers 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.” See Debra M. Strauss, *Feast or Famine: The Impact of the WTO Decision Favoring the U.S. Biotechnology Industry in the EU Ban of Genetically Modified Foods*, 45 AM. BUS. L.J. 775, 794 (2008) (analyzing this decision and its implications in detail) [hereinafter Strauss, *Impact of the WTO*].

³⁴ Moreover, the EU member states sought to rely upon Article 5.7 of the SPS Agreement, *supra* note 19, which provides an exception to the risk assessment requirement:

In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available 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.

The WTO Panel rejected their argument that a risk assessment could not be performed due to insufficient scientific evidence, relying on the fact that the EU had itself performed such an assessment. The Panel’s reasoning “misunderstands the very nature of scientific uncertainty that led to the EC legislation

Despite these regulatory differences, in May 2006 the WTO made a ruling against the EU and its individual member states in several respects.³⁵ Although the EU had legitimate concerns about the scientific uncertainties of GM foods, the WTO ultimately decided it had implemented protectionist policies that were not based on conclusive scientific research and detailed risk assessments, and thereby not covered under the SPS Agreement.³⁶ The WTO distinguished between state regulations that address harms, and those designed for discriminatory purposes to “protect local industries from the effects of global competition or to achieve other competitive advantages in contravention of trade agreements.”³⁷ Most significantly, the WTO’s decision diverged from the internationally accepted precautionary principle of the Cartagena Protocol, which asserts that countries can ban biotechnology products if there is significant scientific uncertainty.³⁸

It is important to note that the WTO has reached similar decisions promoting free trade over scientific uncertainty in the past. In 1996, the United States and Canada filed a complaint with the DSB against the EU’s ban of beef imports containing any growth hormones on the grounds that the ban violated the SPS Agreement.³⁹ Although the EU contended the hormones were a potential consumer health risk, the WTO overruled the EU’s ban as a violation of the SPS Agreement. The ban lacked scientific certainty, was not in line with Codex’s international standards, and was not supported by a thorough risk assessment.⁴⁰ Instead, the WTO suggested that the EU was relying on social value judgments and

authorizing these provisional measures.” See Strauss, *Impact of the WTO*, *supra* note 33, at 794-96.

³⁵ WTO, Reports of the Panel, European Communities—Measures Affecting the Approval and Marketing of Biotech Products, WT/DS291, WT/DS292, and WT/DS293 (Sept. 29, 2006); Strauss, *Impact of the WTO*, *supra* note 33, at 790-803 (discussing details of the ruling); see also WTO, Summary of the Dispute to Date, DS291, http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds291_e.htm (last visited June 12, 2009); WTO, Summary of the Dispute to Date, DS292, http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds292_e.htm (last visited June 12, 2009); WTO, Dispute Settlement, DS293, http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds293_e.htm (last visited June 12, 2009).

³⁶ Granville-West, *supra* note 4, at 47.

³⁷ Edward A. Morse, *Sound Science and Trade Barriers: Democracy, Autonomy, and the Limits of the SPS Agreement* 1 (2007) <<http://ssrn.com/abstract=982626>>.

³⁸ See ROCHESTER, *supra* note 18, at 110.

³⁹ See Appellate Body Report, European Communities—Measures Concerning Meat and Meat Products, WT/DS26/AB/R, WT/DS48/AB/R (Jan. 16, 1998); Decision by the Arbitrators, European Communities—Measures Concerning Meat and Meat Products, WT/DS26/ARB (July 12, 1999).

⁴⁰ Justin J. Kastner & Rosa K. Pawsey, *Harmonizing Sanitary Measures and Resolving Trade Disputes through the WTO-SPS Framework*, 13 FOOD CONTROL 49, 51 (2002). See Appellate Body Report, EC Measures Concerning Meat and Meat Products (Hormones) (Feb. 13, 1998), WT/DS26/AB/R; WT/DS48/AB/R (stating that, although Article 5.7 may reflect a precautionary approach, “the principle has not been written into the SPS Agreement as a ground for justifying SPS measures that are otherwise inconsistent with the obligations of Members set out in particular provisions of that Agreement”); see also Patrick J. Vallely, *Tension Between the Cartagena Protocol and the WTO: The Significance of Recent WTO Developments in an Ongoing Debate*, 5 CHI. J. INT’L L. 369 (2004) (analyzing the recent Appellate Body decision against Japan concerning import restrictions on apples, including its impact on the conflicts between the Protocol and the SPS Agreement).

cultural norms that opposed meat with residues of growth hormones. Although controversial, the implementation of this decision will, in theory, lead to more international regulatory harmonization and free trade.⁴¹

B. *The Shift Towards Global Governance*

As detailed in the previous section, the WTO's decision favoring free trade of GMOs over technological precautions has key implications for the future of globalization, the role of markets, and the possibility of global governance. Overall, the ruling determines "how food safety, public health, and environmental health measures should be applied to international trade."⁴² Arguably, the decision will open up the world economy to the potential benefits of GM foods and increase international trade levels, through the flows of GM goods and capital for funding biotechnological processes. The move towards free trade is consistent with today's increased globalization, international trade, and the mobility of goods, capital, and technologies that have fundamentally changed our international political economy.

The WTO did not take a stance on the scientific implications, health, or safety of GM foods, and it did not look at labeling and monitoring requirements; rather, it only reached a decision about free trade policies.⁴³ Extension of the decision could imply that the trade and regulations of GM foods are international issues subject to international regulatory bodies, such as the WTO and the WHO, as well as international standards such as those promulgated by the Codex Commission. Through the WTO's decision, Codex is further legitimized as an international organization with power and responsibility to make key decisions about food safety. The WTO's decision also expanded upon international norms by decisively going against the precautionary principle in application to the free trade of GMOs.⁴⁴ In this respect, each nation-state does not have the right to implement barriers to trade, but states can still make decisions on some domestic issues, such as how GM foods are labeled and monitored once they are imported. According to Thomas Friedman, this

⁴¹ In practice, however, the implementation has not proceeded smoothly; the EU failed to comply and the U.S. issued retaliatory sanctions. See, e.g., Daniel Pruzin & Gary G. Yerkey, *WTO Approves U.S., Canada Sanctions on EU of \$ 124.5 Million in Beef Hormone Dispute*, 16 INT'L TRADE REP. 1158, 1158 (1999) (depicting the WTO approval of trade sanctions imposed upon the EC by the United States and Canada because of the EC's refusal to remove the import ban on hormone treated beef); Daniel Wüger, *The Never-Ending Story: The Implementation Phase in the Dispute Between the EC and the United States on Hormone-Treated Beef*, 33 LAW & POL'Y INT'L BUS. 777, 804 (2002) (observing that some "see the whole dispute settlement system and the WTO as endangered if the example provided by the EC is followed by other countries because the advantage the WTO offers, i.e., the binding settlement of trade disputes would be rendered void"). See generally Marsha Echols, *Bioethics Symposium: National and Global Implications of Genetically-Modified Organisms: Law, Ethics & Science: The WTO Biotechnology Dispute*, 34 CUMB. L. REV. 445, 462-63 (2003/2004) (noting that the DSU offers no alternative to acceptance of the recommendation, precluding a diplomatic or compromise result).

⁴² Strauss, *Impact of the WTO*, *supra* note 33, at 784.

⁴³ *Id.* at 788-89, 813.

⁴⁴ *Id.* at 784.

is the “golden straightjacket” because states must remove import restrictions and become more open to biotechnology.⁴⁵ Other countries beyond the EU will be less likely to ban GMOs or place restrictive labeling standards on GM foods, given the WTO’s decision.⁴⁶ Proponents of biotechnology claim that, particularly in developing countries, GMOs could help solve other global issues, such as world poverty and hunger, by improving food supplies, nutritional values, and agricultural conditions, but many of these claims have proven to be unfounded.⁴⁷

Because genetic engineering is a new technology, there are still uncertainties as to where GMOs will fit within the international regulatory framework. Perhaps the WTO is not the proper organization to make decisions on the safety, security, and scientific uncertainties of GM foods. The WHO or the FAO could potentially be more appropriate bodies, because they take scientific evidence into consideration when determining international policies. While in the United States the Food and Drug Administration (FDA) determines both food policy and science, in the EU these tasks are split between the European Food Safety Authority (EFSA) for scientific evidence and the European Commission for determining matters of policy.⁴⁸ If one of the existing international organizations is not appropriate, responsibility for GM foods could span multiple international bodies each with specific spheres of authority, or a new transnational regulatory agency could be created as a scientific and policy-making entity to focus more specifically on the global food supply.⁴⁹

In the future, perhaps similar rulings by the WTO and other international regulatory agencies will increase the level of free trade and global governance in the

⁴⁵ ROCHESTER, *supra* note 18, at 122.

⁴⁶ Strauss, *Impact of the WTO*, *supra* note 33, at 811-12.

⁴⁷ A study commissioned by the World Health Organization (WHO) noted several expected benefits, including the potential for increased agricultural productivity and improved nutritional values, along with “reduced agricultural chemical usage and enhanced farm income, and improved crop sustainability and food security, particularly in developing countries.” WHO STUDY, *supra* note 5, at iii; *see also* Tzu-Ming Pan, *Current Status and Detection of Genetically Modified Organism*, 10 J. FOOD & DRUG ANALYSIS 229, 230 (2002) (citing the goals of reducing hunger by increasing food productivity, conserving the environment by reducing pesticide and herbicide use, enhancing nutritional content, and improving food quality). However, the WHO study also noted limitations in these benefits and identified several risks in this technology for human health and the environment, including: direct health effects (toxicity), tendencies to provoke allergic reaction (allergenicity), heightened development of resistant insects, outcrossing of transgenes, and cross-contamination that may lead to genetically modified crops as the dominant species. WHO STUDY, *supra* note 5, at 12, 20, 54. *But see* Strauss, *Ethical Implications*, *supra* note 5, at 8–9 (discussing the failed promise of this technology, which misunderstands the multiple causes of world poverty and hunger, and presenting an ethical framework in support of labeling and monitoring).

⁴⁸ Ian Sheldon, *Food Principles: Regulating Genetically Modified Crops after the 2006 WTO Ruling*, 14 BROWN J. WORLD AFF. 121, 124 (2007).

⁴⁹ *See* Debra M. Strauss, *The Application of TRIPS to GMOs: International Intellectual Property Rights and Biotechnology*, 45 STAN. J. INT’L L. 1, 43-46 (forthcoming 2009) (discussing the limits of each current international organization and proposing either a collaboration of these organizations or the establishment of a new regulatory body to focus on safety and efficacy apart from policy, with the goal of promoting not only trade but innovation for the public benefit) [hereinafter Strauss, *International Intellectual Property Rights*].

domain of food safety, security, and biotechnology. With increased harmonization of GM food regulations across countries and an emphasis on multilateralism, countries will be more likely to come together to create one international body or agency with the ultimate authority in this domain. Increased global governance could improve international cooperation in discovering new applications of biotechnology and using GM foods to solve global poverty and hunger. Also, state borders and the specific country origins of GM foods could become less meaningful because of the interconnectivity of GM food products. As a result, the WTO's decision could be viewed as a step forward in sustaining globalization, international cooperation, regulatory harmonization, and increasing the future potential of global governance.

C. *The Power of States to Respond*

Based on the perspective that the WTO did make a sound decision that moves towards the future formation of global governance, states do still have some opportunities to implement regulatory changes according to their specific cultures and norms. The U.S. government and biotechnology industry have heralded the decision to lift the EU's de facto ban and promote the free trade of GM foods. The decision clears trade barriers and creates more opportunities for GM food research, development, and production. As U.S. Ambassador Peter Allgeier stated, "the findings of the panel uphold the principle of science-based policymaking over unjustified, anti-biotech policies."⁵⁰ The United States strongly supports large and powerful corporations, such as Monsanto, DuPont, and Dow Chemical.⁵¹ The United States does not favor having stricter restrictions and regulations, but seeks to promote the U.S. Department of Agriculture's funding for biotechnology research and development.⁵²

In the EU, new regulations call upon the European Food Safety Authority to justify GM food permit applications and take more diverse GM products into consideration.⁵³ No longer can the EU implement what some have called economic protectionism, because the entities that resisted GM crops were those who "had an interest in preserving access to non-GM agricultural markets."⁵⁴ The EFSA closely monitors GM foods for effects on health and the environment, and assesses the scientific quality of each food application. After passing the EFSA's risk assessment, the GM product must be approved by the European Commission and the majority of member states.⁵⁵ Strict labeling and traceability requirements maintain segregation at all stages of production,

⁵⁰ Strauss, *Impact of the WTO*, *supra* note 33, at 803.

⁵¹ Falkner, *supra* note 25, at 104.

⁵² See Strauss, *Impact of the WTO*, *supra* note 33, at 812.

⁵³ *Id.* at 809-10.

⁵⁴ Falkner, *supra* note 25, at 104.

⁵⁵ Sheldon, *supra* note 48, at 124.

shipping, processing, and storage.⁵⁶ The EU has increased transparency and sped up the approval process, while still maintaining stringent food safety and security; it has not conformed its regulatory system to adhere to all of the U.S. biotechnology industry's interests. Because the laissez-faire approach of the United States is not spreading to the European Union, states still have the right to maintain some of their own regulatory processes, showing that perhaps a sustainable level of international harmonization can occur without the complete convergence of all state regulations.

IV. DECREASED ECONOMIC NATIONALISM IMPEDES STATE SOVEREIGNTY

An exclusively pro-trade stance fails to adequately take into account competing interests such as public safety and the common good. In this sense, globalization removes from the citizens more direct control over their inalienable rights and cultural identities. From this contrasting view, the article will next examine the declining authority of states, the weakening of international agreements and precedents, the influences of multiple actors on state sovereignty, and the cultural differences that hinder global governance.

A. *The Declining Authority of States*

As discussed previously, the WTO has the ability to supersede its member states' national laws and policies to support free trade.⁵⁷ Rather than increasing the future potential of global governance, the WTO's decision "threatens internal governance processes and impacts national sovereignty"⁵⁸ because governments have lost control over core responsibilities to protect domestic health, food safety, and the environment. There is asymmetry in the current system because, while food laws are geographic and reflect nation-state values, the economy is global and the WTO has the authority to regulate trade. States who are members of the WTO will now be compelled to alter their decision making processes on importing GM products. In the EU, harmonization of laws is already difficult to achieve, because member states have to conform their laws to a single standard, thus balancing the autonomy of member states and consistency of laws.⁵⁹ GM food donated to African countries as aid has also taken away from governmental control, because "shipments were often

⁵⁶ See Strauss, *Impact of the WTO*, *supra* note 33, at 813; *Foreign Agriculture Service U.S. Mission to the European Union: Biotechnology*, Dec. 1, 2006, <http://useu.usmission.gov/agri/GMOs.html> (last visited June 12, 2009); see also Ignacio Carreno, *The New European Community Rules on the Labeling of Allergen Ingredients in Foodstuffs*, 60 FOOD & DRUG L.J. 375 (2005); Margaret Rosso Grossman, *Traceability and Labeling of GM Crops, Food, and Feed in the European Union*, 1 J. FOOD L. & POL'Y 43 (2005).

⁵⁷ ROCHESTER, *supra* note 18, at 131.

⁵⁸ Morse, *supra* note 37, at 2.

⁵⁹ Strauss, *Impact of the WTO*, *supra* note 33, at 809 ("[T]he EU and its member states seek to maintain a delicate balance between consistency of the laws and autonomy of its member states with some power to navigate their own national interests."). See, e.g., *EU Alters GMO Assessments to Satisfy Resistant Member States*, ENS, Apr. 12, 2006, <http://www.ens-newswire.com/ens/apr2006/2006-04-12-04.asp>.

in contravention of the national regulations of the recipient country.”⁶⁰

As the primary international organization in the area of food and agriculture, the FAO has supported a cautious approach that legitimizes the role of member states in controlling the safety of their food supply. This policy is evidenced by its statement that:

FAO is constantly striving to determine the potential benefits and possible risks associated with the application of modern technologies to increase plant and animal productivity and production. However, the responsibility for formulating policies towards these technologies rests with the Member Governments themselves.⁶¹

An expansion of the WTO’s decision “could prevent national and local governments from setting their own environmental and human health regulations in cases where scientific uncertainty exists.”⁶² In this respect, “governments have been left with responsibility without power,” and states have less control over “the levers of economic management.”⁶³

According to Robert Gilpin’s definition of economic nationalism, “economic activities are and should be subordinate to the interests of the state.”⁶⁴ However, the WTO’s decision clearly favors the biotechnology industry over states, and the ruling could “be used to pressure governments to force their markets and fields open to agricultural biotechnology.”⁶⁵ There is resistance to the WTO’s rejection of the precautionary principle and the ability of states to safeguard their domestic food supply under the SPS Agreement as international standards, clearly showing the “clash between the integrating forces of the world economy and the centrifugal forces of the sovereign state.”⁶⁶ There has even been criticism that the standards determined by the Codex Commission give preferentiality to supporting trade and biotechnology, over protecting consumer interests and safety.⁶⁷ Additionally, because civil society is fragmented and there are different cultural perspectives on GM foods not taken into account by the WTO’s decision, it will be difficult in the long run to reach one global regulatory standard.⁶⁸

⁶⁰ Clapp, *supra* note 24, at 471.

⁶¹ FAO, *supra* note 7.

⁶² Julia Watson, *Eat to Live: Europe, WTO in food fight*, UPI, Feb. 10, 2006, available at <http://www.tradeobservatory.org/headlines.cfm?refID=78529>, at 1.

⁶³ Philip Stephens, *Why Global Capitalism Needs Global Rules*, FINANCIAL TIMES, Sept. 18, 2008, available at <http://www.ft.com/cms/s/0/1959ac9c-8594-11dd-a1ac-0000779fd18c.html>.

⁶⁴ ROCHESTER, *supra* note 18, at 116. See generally ROBERT GILPIN, *THE POLITICAL ECONOMY OF INTERNATIONAL RELATIONS* (1987).

⁶⁵ Strauss, *Impact of the WTO*, *supra* note 33, at 777.

⁶⁶ See ROCHESTER, *supra* note 18, at 122.

⁶⁷ See Morse, *supra* note 37, at 6.

⁶⁸ See Zurek *supra* note 6, at 361.

B. Weakened International Agreements and Precedents

The WTO's free trade stance on GM foods goes against previously established international treaties and standards, such as the precautionary principle and the Cartagena Protocol.⁶⁹ Although the United States does not follow these policies, many countries in Europe, Latin America, and Asia have adopted them.⁷⁰ By undermining these established international agreements and committees, the WTO's decision has detracted from state sovereignty while at the same time stepping away from universally accepted forms of global agreements.

In 2003, the Cartagena Protocol on Biosafety became a key international agreement on preventative measures and GM foods.⁷¹ The treaty "obliges exporters to provide information on internationally traded GMOs and to seek the prior approval of importing countries."⁷² The precautionary principle has been both soft law common practices and legitimate hard law, such as reflected in the Cartagena Protocol. The EU applied the precautionary principle to GMOs, with the result that for technology with scientific risks and uncertainty, the burden of proof of safety falls onto the technology developer, considering the new technology harmful until proven safe.⁷³ The United States holds the opposite viewpoint, that new GM products are assumed to be safe until proven harmful.⁷⁴ The U.S. perspective is that the precautionary principle is simply an approach or soft law, rather than international hard law, and the United States did not sign the Protocol.⁷⁵ When the United States filed its case against the EU, essentially this "was sending a message to developing countries not to use their rights under the Biosafety Protocol, the first legally binding international agreement that affirms the sovereign right of countries to reject or ban GMOs on the basis of the precautionary principle."⁷⁶

In rejecting the EC's argument that it take into consideration the rules of environmental international law, the WTO narrowly interpreted the Vienna Convention to exclude these multilateral environmental treaties as irrelevant to its decision on GM foods.⁷⁷ Under its reasoning, these environmental treaties "need

⁶⁹ See *supra* notes 30-31, 38-39, and accompanying text.

⁷⁰ An increasing number of Asian, African, and Latin American countries have developed their own biosafety regulations, including stringent labeling and importing restrictions. "Trade-related market opposition has emerged against the introduction of GM rice in India and GM soybeans in China, among others." Falkner, *supra* note 25, at 104-05.

⁷¹ Falkner, *supra* note 25, at 99.

⁷² *Id.* at 105.

⁷³ Morse, *supra* note 37, at 7.

⁷⁴ *Id.*

⁷⁵ Sheldon, *supra* note 48, at 130.

⁷⁶ Strauss, *Impact of the WTO*, *supra* note 33, at 811 (GREENPEACE INTERNATIONAL, GREENPEACE BRIEFING: WORLD TRADE ORGANISATION DISPUTE OF GENETICALLY ENGINEERED ORGANISMS, May 2006, at 1) (noting Sri Lanka's decision to drop plans for a moratorium on GM foods in response to U.S. threats to file a similar action with the WTO) .

⁷⁷ *Id.* at 796-98. See Vienna Convention on the Law of Treaties, art. 31(3)(c), May 23, 1969, 1155 U.N.T.S. 331, 8 I.L.M. 679 (entered into force Jan. 27, 1980). Article 31(3)(c), states that "any relevant rules of international law applicable in the relations between the parties" shall be considered in

only be taken into account in the improbable situation where all members of the WTO have ratified that particular agreement.”⁷⁸ Critics have observed that “[t]o avoid such fragmentation of treaties in international law, a wiser approach would be to embrace the international instruments that have set out to address specific environmental areas and have evidenced such widespread support.”⁷⁹

The WTO’s resolution against the Cartagena Protocol and the precautionary principle as international agreements on environmental and food governance could weaken the legitimacy of these agreements and further remove authority from states that are more hesitant towards accepting GM foods without heavy regulations. Overall, favoring a laissez-faire, free market approach weakens the ability for states to use the precautionary approach to meet domestic health and environmental objectives.

C. *The Influences of Multiple Actors on State Sovereignty*

In addition to the decreased authority of states and the lack of legitimacy for the precautionary principle and Cartagena Protocol, states have also lost sovereignty because of the fragmentation of civil society. According to Paul Argenti, “Multinational corporations and NGOs now have control of much of the agenda formerly dictated by governments.”⁸⁰ There are multiple actors participating in the GM food debate, such as international organizations, non-governmental organizations (NGOs), and transnational corporations (TNCs). As Robert Falkner writes:

It points to the growing influence of nonstate actors, and campaign groups in particular, in world politics; the ability of environmental concerns and consumer values to shape global markets; and the limits of U.S. power in defining the emerging global governance architecture for environment and food safety.⁸¹

NGOs have taken a strong stance on this issue by speaking out against the WTO’s authority to legislate on environmental and food issues. The reactions of the NGOs demonstrate the weakened legitimacy and future credibility of the WTO. NGOs believe that “the WTO is a trade body with no expertise on the environment.”⁸² Prior to the release of the WTO’s decision, fifteen public interest groups from four continents released an amicus curiae brief to articulate that the

interpreting a given treaty.”

⁷⁸ Strauss, *Impact of the WTO*, *supra* note 33, at 817.

⁷⁹ *Id.* at 819.

⁸⁰ Paul A. Argenti, *Collaborating with Activists: How Starbucks Works with NGOs*, 47 CAL. MGMT. REV. 91, 93 (2004).

⁸¹ Falkner, *supra* note 25, at 100.

⁸² GREENPEACE INTERNATIONAL, GREENPEACE BRIEFING: WORLD TRADE ORGANISATION DISPUTE ON GENETICALLY ENGINEERED ORGANISMS, May 2006, at 4, available at <http://www.greenpeace.org/raw/content/international/press/reports/eu-and-us-ge-dispute-at-wto.pdf>.

“impatience of biotech companies and WTO rules should not be allowed to overrule the legitimate right of countries to make their own decisions about the safety of GM products.”⁸³ The brief sided with the EU’s precautionary approach and the risks of scientific uncertainty. Friends of the Earth, Greenpeace, and other environmental groups clearly believe that there should be restrictions on GMOs to protect people and the environment, and that governments should not be coerced into accepting GM foods.⁸⁴ After the WTO released its decision, Greenpeace and Friends of the Earth joined the international “Bite Back: WTO Hands Off Our Food!” campaign, a coalition calling for the right of farmers, consumers, governments, and the Cartagena Protocol, rather than the WTO, to make food safety decisions.⁸⁵ These groups have argued that the ruling is “a major step back for the democratic rights of national and local governments to set their own environmental and health regulations when there is scientific uncertainty.”⁸⁶

Transnational corporations and industry associations, such as the Council of Biotechnology Information, Biotechnology Industry Organization, and CropLife International, are key political actors that remove authority and power from states.⁸⁷ Biotechnology firms actively interact with governments to shape the national regulations of GMOs and ensure their preferences are taken into account.⁸⁸ TNCs can sponsor joint research activities and crop trials with governments, such as in 2001 when Monsanto teamed up with the Kenya Agricultural Research Institute to test the resistance of GM sweet potatoes to insects.⁸⁹ Even the U.S. Department of Agriculture has partnered with biotechnology companies to develop the highly controversial “Terminator” technology, genetically engineered sterile seeds that have been banned by the United Nations (U.N.) as potentially hazardous to the future of the global food supply.⁹⁰ In order to increase GM exports, TNCs have created alliances with governmental agencies and try to promote GM foods in the context of key governmental goals, such as the reduction of poverty. At the core, biotech companies can tailor their arguments on the benefits of GM foods to resonate with policymakers and favorably influence states’ decisions.

⁸³ Robyn Eckersley, *A Green Public Sphere in the WTO?: The Amicus Curiae Interventions in the Transatlantic Biotech Dispute*, 13 EUR. J. INT’L REL. 329, 344 (2007).

⁸⁴ See Strauss, *Impact of the WTO*, *supra* note 33, at 804.

⁸⁵ Eckersley, *supra* note 83, at 348.

⁸⁶ GE Food Alert, *WTO to Europe: Accept GMOs or else?*, <http://www.gefoodalert.org/> (last visited June 17, 2009); see also Press Release, Institute for Agriculture and Trade Policy, *WTO Ruling on Genetically Engineered Crops Would Override International, National and Local Protections: Preliminary Ruling Favors U.S. Biotech Companies Over Precautionary Regulation* (Feb. 7, 2006), http://www.iatp.org/iatp/library/admin/uploadedfiles/WTO_Ruling_on_Genetically_Engineered_Crops_Wou.pdf; Strauss, *Impact of the WTO*, *supra* note 33, at 814.

⁸⁷ Williams, *supra* note 9, at 2.

⁸⁸ *Id.* at 15.

⁸⁹ *Id.*

⁹⁰ “Terminator” technology was developed as a joint venture between the U.S.D.A. and Delta and Pine Land Company, which has since been purchased by Monsanto. See U.N. Convention for Biological Diversity (CBD), *Agricultural Biodiversity Genetic Use Restriction Technologies (GURTs)*, <http://www.biodiv.org/programmes/areas/agro/GURTs.aspx>; Ban Terminator, *The Issues*, <http://www.banterminator.org/The-Issues/Introduction> (last visited Aug. 10, 2009).

D. Cultural Differences Hinder Global Governance

Another critical argument that supports allowing each state to regulate its own policy on GM foods, rather than be subject to the WTO's decisions in this sensitive area, points to the different cultural perspectives on genetic engineering technology. These differences are manifested in the people's trust of the government, their appetites for risk given scientific uncertainty, and their views on food safety. According to this perspective, "the WTO fails to adequately account for culture values and therefore will have difficulty implementing the decision."⁹¹ Because the WTO's decision on the trade of GM foods does not account for the essential cultural differences between states, perhaps GM foods should be only regulated on a nation-by-nation basis.

In the United States, people have more faith in the government, trust its regulatory agencies, and generally support biotech companies.⁹² Unless there are more severe food scares in the future, the FDA will most likely continue to classify GM foods as "substantially equivalent" to non-GM foods.⁹³ The National Research Council has even criticized the U.S. Department of Agriculture for not requiring inspections of the field-test experiments for GM crops and for being unaware of the testing that was taking place.⁹⁴ Positive consumer attitudes towards GM foods are also prevalent in Canada and Argentina, the next two largest producers of GM foods, and these countries accordingly lack traceability and labeling requirements.

Consumers in the EU are more risk adverse and demand stringent laws to protect their health and safety. An EU poll in 2006 determined that more than half of European consumers considered genetically engineered foods to be dangerous.⁹⁵ Additionally, EU consumers have more distrust for corporations and agencies in adequately determining food policy because of historical food scares, such as the outbreak of mad cow disease in the 1990s.⁹⁶ These consumers favor NGOs over the

⁹¹ Zurek, *supra* note 6, at 347.

⁹² *Id.* at 350. When surveyed, the vast majority of Americans admit that they know very little about government regulation of GM foods – just 18% say they know either a great deal (3%) or some (15%), while 74% know either not too much (32%) or nothing at all (42%). However, among those who claimed to have heard about biotech regulation, pluralities of voters favor increased regulation of GM foods and that increased regulation could actually lead to increased consumer confidence in GM foods. See The Melman Group, Memorandum to the Pew Initiative on Food & Biotechnology, Review Of Public Opinion Research, Nov. 16, 2006, at 3, 5-6, available at http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Public_Opinion/Food_and_Biotechnology/2006summary.pdf.

⁹³ The FDA asks the industry to compare the compositions of GM and non-GM crops; when they are not significantly different the two are regarded as "substantially equivalent," and no additional labeling or animal testing is required. See Strauss, *Importing Caution*, *supra* note 3, at 174, 183 ("Substantial equivalence is an unscientific concept, however, that has never been properly defined or provided with a legal standard for implementation.").

⁹⁴ See Watson, *supra* note 62, at 1.

⁹⁵ *EU to Hold Firm on Modified Seeds despite WTO*, INT'L HERALD TRIBUNE, May 12, 2006, available at <http://www.tradeobservatory.org/headlines.cfm?refID=80837>.

⁹⁶ See Zurek, *supra* note 6, at 358.

biotechnology industry, and believe in the potential dangers of GM foods rather than the potential benefits.⁹⁷ Consequently, the EU's de facto ban on GM foods could be interpreted as a reaction to consumer sentiment, political pressures, and the common belief in the precautionary principle. The European attitude towards food also differs from that of Americans, because Europeans view food as more of an expression of unique cultures, nationalities, and regions.⁹⁸ Europeans strive to keep their historical cultures, rather than giving in to globalization and "McDonaldization."⁹⁹ African countries are likewise resistant to accept GM foods because GMOs are contrary to their traditional farming methods and could potentially harm ecosystems. Farmers in these countries do not want to become overly reliant on the U.S. biotech industry or be exposed to new risks.

The WTO trade dispute on GMOs could potentially reflect "U.S. unilateralism in biosafety politics"¹⁰⁰ because the U.S. biotech firms have attempted to change the cultures in other countries and the U.S. government has supported the interests of the biotech industry. An example of the cultural misunderstanding can be seen when in the mid-1990s, Monsanto launched a \$5 million advertising campaign to support biotech products in Europe, without fully realizing that the consumers' perspective was not anti-scientific or irrational, but merely a reflection of cultural views towards food safety and environmental issues.¹⁰¹ The WTO's decision undermines the authority of states to best serve the interests of their citizens, and clearly supports the U.S. dominance in policymaking and economics. The EU is caught between pressure from its citizens to highly regulate and even ban GM foods, and pressure from the WTO and transnational corporations not to impose stringent regulations.

Because the WTO is focused only upon markets and free trade, it does not take into consideration crucial societal values or cultural preferences.¹⁰² Cultural differences make it more difficult to form international policies on GM foods that can eventually lead to a new form of global governance. Because of these cultural differences, it is "unrealistic to expect a fully harmonized global standard for biosafety regulation."¹⁰³ Perhaps overcoming these cultural differences and reaching a global consensus will only occur in the event of an extreme crisis that either necessitates the use of GM foods to reduce poverty and malnourishment, or exposes GM foods as scientifically harmful to health, safety, and the environment.

⁹⁷ See, e.g., Granville-West, *supra* note 4, at 48.

⁹⁸ Zurek, *supra* note 6, at 360.

⁹⁹ *Id.* at 361.

¹⁰⁰ Falkner, *supra* note 25, at 106.

¹⁰¹ *Id.* at 105.

¹⁰² Zurek, *supra* note 6, at 361.

¹⁰³ Falkner, *supra* note 25, at 108.

V. CONCLUSION

As globalization impacts food regulations, the potential problems include the obscuring of national identities, the diminishing of state autonomies, and the favoring of agribusiness over consumer safety in the international regulations that result.¹⁰⁴ This is certainly the case with the WTO's decision on GM foods that supports free trade, global markets, and biotechnology companies over cultural values, international agreements, and local traditional producers. The WTO's decision stands in opposition to the preferences of consumer groups, NGOs, and certain governments, so that global regulations propagate at the expense of state sovereignty and control. Essentially, "the world community denounces the fact that this trade organization, which has no authority to legislate, is making decisions in the context of a trade dispute between a few parties on the future of the food supply of all."¹⁰⁵ The WTO places economic considerations ahead of concerns for health, science, safety, and the environment. Its excessive support of the U.S. and biotech companies' unilateral perspectives will weaken the WTO's future credibility and legitimacy, further complicating the enforceability of its rulings. By making judgments and decisions on the validity of health and environmental issues, the WTO legislated beyond its regulatory scope of international trade.

In addition, the WTO weakened the application of the SPS Agreement, Cartagena Protocol, and precautionary principle to the international trade of GMOs by favoring risk assessment practices over recognition of some scientific uncertainty.¹⁰⁶ The decision undermines strong, well-established international consensuses. Moreover, the ruling could set a precedent against state regulations that are in accordance with multilateral environmental agreements.¹⁰⁷ These detrimental changes may prove to be a step back in international policymaking, the establishment of global governance and regulatory standards, as well as the future of multilateral environmental and trade agreements.

The WTO could have forged a path in its decision more by way of a compromise that would be sustainable in the long run. Mandatory labeling and traceability requirements of genetically modified ingredients could be such a solution, even though multinational corporations would bear most of the labeling costs. Mandating labeling of internationally traded GM foods would help address cultural differences and risk factors, while still allowing free trade and economic markets to control the process. The Codex, FAO, and WHO could work together to establish these labeling guidelines that would serve as a risk management tool and provide consumers with more information on the presence of GM ingredients and

¹⁰⁴ Zurek, *supra* note 6, at 364.

¹⁰⁵ Strauss, *Impact of the WTO*, *supra* note 33, at 824.

¹⁰⁶ Post, *supra* note 17, at 1271.

¹⁰⁷ See Strauss, *Impact of the WTO*, *supra* note 33, at 819; see also Ryan L. Winter, *Reconciling the GATT and WTO with Multilateral Environmental Agreements: Can We Have Our Cake and Eat It Too?*, 11 COLO. J. INT'L. ENVTL. L. & POL'Y 223, 224 (2000) (observing that "the GATT/WTO and MEAs are based on divergent policy objectives, creating an inconsistent, overlapping body of international law").

warnings about potential allergens.¹⁰⁸ If the collaboration of already established international organizations is not sufficient, perhaps a new regulatory body could be established in the future to incorporate both the economic and scientific aspects of GMOs into its policies.¹⁰⁹

Although this article focuses upon GM foods, the issue of international regulations extends beyond food markets and raises the broader question of whether international laws and institutions should supersede state regulations to manage global trade and investment. The international political economy has already been significantly transformed by globalization and technological advances such as genetic engineering. In the future, the move towards more global governance and transnational agreements will by necessity serve to compromise the power of states. However, it will be difficult to reach a universal consensus on issues such as genetically modified foods that involve economic, scientific, political, cultural, environmental, and health issues. Policymakers should query whether the outcome would indeed further the ultimate goals of the safety and sustainability of the global food supply.

¹⁰⁸ See Zurek, *supra* note 6, at 366.

¹⁰⁹ See Strauss, *International Intellectual Property Rights*, *supra* note 49, at 45-46; *see supra* notes 48-49 and accompanying text.