

OUT OF THE PETRI DISH AND BACK TO THE PEOPLE: A CULTURAL APPROACH TO GMO POLICY

CARA V. COBURN

I. INTRODUCTION

The controversy over international marketing of genetically modified organisms (GMOs) continues to smolder, with the European Union (EU) and the United States as heated participants.¹ Beginning in late 2003, the EU showed signs of lifting its 1999 moratorium on the approval of GM foods.² After much fighting among EU countries and multinational producers of GM foods, on May 19, 2004 the European Commission gave Syngenta, a multinational agribusiness with 2004 sales of approximately US\$7.3 billion,³ permission to market a genetically modified strain of sweet corn called Bt-11.⁴ Although this green light marked the end of the official ban on GMO imports to the EU and has been followed by approval of other products, member countries continue to resist GMO imports to varying degrees.⁵ Much of the EU believes that in order to protect the health of its people and its environment, the marketing and distribution of GM foods must be strictly regulated. The United States, the most vocal of the pro-GMO countries and the largest producer of GM foods in the world,⁶ argues that GMO resisters are using flimsy science to support an unwarranted fear.

¹ The GMO issue is of concern worldwide. This article focuses on two players—the EU and the United States.

² See, e.g., *EU Delays Vote on GMO Ban Test Case*, AGENCE FRANCE PRESSE, Nov. 10, 2003, available at LEXIS, News Library see also *Commission Postpones GM Decision*, AGRA EUROPE, Jan. 16, 2004, at EP/4, available at LEXIS, News Library.

³ *About Syngenta*, SYNGENTA, <http://www.syngenta.com/en/index.aspx> (last visited Dec. 3, 2005).

⁴ *Transatlantic GMO Trade War Delayed*, EUOBSERVER.COM, Aug. 27, 2004, available at LEXIS, News Library.

⁵ The twenty-five EU member countries are Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom. Four additional countries—Bulgaria, Croatia, Romania, and Turkey—have applications pending. See *The European Union at a Glance*, Europa: Gateway to the European Union, available at http://europa.eu.int/abc/index_en.htm (last visited Jan. 16, 2005); see also Jean Lemierre, *The EBRD and Central Europe After EU Enlargement*, available at http://www.suomeneurooppaliike.fi/eurometri/2eurometri2003/em_ebrd.doc (last visited Jan 11, 2006).

⁶ Emily Marden, *Risk and Regulation: U.S. Regulatory Policy on Genetically Modified Food and Agriculture*, 44 B.C. L. REV. 733, 735 (2003) (noting that the

Furthermore, many in the United States doubt the sincerity of the health and environmental concerns of the EU countries. Rather, the GM proponents in the United States say, these countries are bluffing: their real fear is the market competition that GM food imports pose to domestically produced food. Thus, U.S. GMO supporters argue, GMO resisters are attempting to impose trade restrictions that violate the free trade tenets of the General Agreement on Tariffs and Trade (GATT)⁷ and the World Trade Organization (WTO)⁸.

The GMO debate highlights ongoing agricultural and food safety controversies for which there is little promise of resolution without a major shift in communication, negotiation, analysis, and policy. Injecting science into the current international regulatory framework is not the answer for dealing with the problem of how to reconcile concerns regarding GMOs with the WTO-GATT aim of free, unrestricted international trade. It is necessary to acknowledge that for the EU, GMO resistance is largely motivated by valid concerns not just for health and safety, but also for preserving food and farming heritage.

Given the current WTO-GATT reality, the United States and the EU have no choice but to share trade policy. Their economic interdependence is deep and has worldwide ramifications. The United States and the EU “enjoy the world’s largest commercial relationship and are each other’s largest trade and investment partners.”⁹ In 2003, when the EU consisted of only fifteen

United States dominates the agricultural biotechnology industry worldwide).

⁷ General Agreement on Tariffs and Trade, October 30, 1947, 61 Stat. A-11, T.I.A.S. 1700, 55 U.N.T.S. 194 [hereinafter GATT].

⁸ Marrakesh Agreement Establishing the World Trade Organization, April 15, 1994, 1867 U.N.T.S. 154 [hereinafter WTO Agreement]. Some view GATT and the WTO as putting corporate aims before the needs and concerns of the people. See, e.g., John Ralston Saul, *The Collapse of Globalism*, HARPER’S, March 2004, at 33, 37.

What particularly caught public attention around the world was the idea that national health and food rules would be treated not as the expression of a people concerned about what sorts of things it put in its collective stomach but rather as mere protectionism—unless backed by the hardest of hard scientific evidence. That sort of evidence was usually decades in coming. The precautionary principle and the citizen’s opinion were thus to be thrown aside in favor of an absolutist theory of commercial exchange.

Id.

⁹ *The European Union and the United States of America*, EUROLEGAL SERVICES, <http://www.eurolegal.org/uspoleur.shtml> (last visited Jan. 17, 2005).

member countries, compared to today's twenty-five members, total trade between the United States and the EU amounted to US\$593.2 billion.¹⁰ By the end of 2003, EU direct investment in the United States was US\$855.669 billion and U.S. direct investment in the EU was US\$844.698 billion, or 47.2 percent of total U.S. foreign direct investment (FDI).¹¹ Progress toward mutually acceptable policies regarding trade of GMOs is essential in maintaining this economic relationship.

Recognizing the cultural factors implicit in the GMO debate is a crucial step if the international community is to develop a mutually satisfactory legal framework for the production and marketing of food, and of all goods and services. This requires listening to consumers. As one author notes, “[i]nternational laws govern trade, but consumers truly control the international trade market.”¹² Only through honest expression of differing priorities, concerns, and reasoning regarding GMOs and open acknowledgement of these differences—which are based on historic and current culture, sociology, and economy—can the United States, the EU, and others establish a solid and enduring trade relationship.

This paper will discuss the history of the emergence of GMOs on the world market. It will then give a conventional assessment of the current GMO debate—the arguments for and against free flow of GMOs internationally. Next it will survey the international agreements into which the United States and EU are attempting to squeeze their respective GMO arguments and policies by looking at treaties, legislation, and past and current disputes. Finally, it will suggest a new approach to regulation that emphasizes cultural concerns at local, national, and international levels and attempts to move the United States, the EU, and the rest of the world beyond the current impasse.

II. EMERGENCE OF GMOs

A. TECHNOLOGICAL TWEAKING OF TRADITIONAL AGRICULTURE

For thousands of years, farmers around the globe have been developing crops suited to the growing conditions and tastes of

¹⁰ *Id.*

¹¹ *Id.*

¹² Michelle K. McDonald, *International Trade Law and the U.S.-EU GMO Debate: Can Africa Weather This Storm?*, 32 GA. J. INT'L & COMP. L. 501, 538 (2004).

their local regions.¹³ Natural selection and time yielded products that satisfied local nutritional, cultural, and environmental needs. In 1953, scientists discovered the structure of the DNA molecule.¹⁴ Every plant and animal carries its own variation of this molecule, which provides a genetic blueprint of the individual, in its cells. About forty years later, scientists in the United States found a way to use DNA to accelerate natural farming. They discovered that by injecting or infecting plant or animal cells with foreign DNA, the original cells would take on characteristics of the new genes.¹⁵ Suddenly, scientists were able to create new hybrid plant and animal species that exhibited unprecedented combinations of characteristics. The resulting novel food and pharmaceutical products created a patenting frenzy on the part of biotechnology companies to secure exclusive rights to their commercial use.

These modern products are referred to as “GMOs,” “LMOs” (living modified organisms), and “transgenic” or “bioengineered” products.¹⁶ The U.S. Food and Drug Administration (FDA) defines genetic modification as “the alteration of a plant using any technique, new or traditional.”¹⁷ The EU, on the other hand, describes GM foods with the term “novel foods,” which includes “foods and food ingredients containing or consisting of genetically modified organisms” and “foods and food ingredients produced from but not containing genetically modified organisms.”¹⁸ The EU’s definition of GM foods highlights a crucial difference in the United States’s and the EU’s attitudes toward GMOs. While for the United States, genetic modification is just a twist on or enhancement of traditional food production, for the EU, genetic modification creates “novel foods,” foods different from any they have grown or eaten.

¹³ Debi Barker, *Globalization and Industrial Agriculture*, in *THE FATAL HARVEST READER: THE TRAGEDY OF INDUSTRIAL AGRICULTURE* 249, 249 (Andrew Kimbrell ed., 2002).

¹⁴ *RECONCILING ENVIRONMENT AND TRADE* 571 (Edith Brown Weiss & John H. Jackson eds., 2001).

¹⁵ Darren Smits & Sean Zaboroski, *Trade and Genetically Modified Foods: GMOs: Chumps or Champs of International Trade?*, 1 *ASPER REV. INT’L BUS. & TRADE L.* 111, 112 (2001).

¹⁶ *RECONCILING ENVIRONMENT AND TRADE*, *supra* note 14.

¹⁷ George E.C. York, *Global Foods, Local Tastes and Biotechnology: The New Legal Architecture of International Agriculture Trade*, 7 *COLUM. J. EUR. L.* 423, 424 (2001).

¹⁸ *Id.*

B. WORLDWIDE MARKETING AND CONSUMPTION OF GMOs

In 1992, the FDA determined that, with a few exceptions for GMOs made of one or a combination of allergens, GMO crops would be treated the same as conventional crops.¹⁹ This was the year FDA approved Calgene Corporation's Flav'r Savr tomato, which was designed to have an extended shelf life and was the first commercial GM product.²⁰

At the 1994 Uruguay Round of GATT discussions, the WTO debated and adopted the Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPs Agreement").²¹ Under the influence of Monsanto and other GMO-touting corporations, TRIPs emerged as a vehicle for making huge profits off of GMOs by enabling corporations to patent GMO technologies.²² This incentive drove corporations—promising consumers a "brave new world of healthier, better-tasting GM foods"—to actively research, develop, and globally market GMOs.²³

In 1996, 1.7 million hectares²⁴ in the United States were planted with commercial GM crops; by 1999, that number had risen to 28.7 million hectares.²⁵ Since 1996, companies have developed over 4,000 varieties of GM soybeans, hundreds of varieties of GM corn, and hundreds of varieties of GM wheat.²⁶ The

¹⁹ Kim Brooks, *History, Change and Policy: Factors Leading to Current Opposition to Food Biotechnology*, 5 GEO. PUB. POL'Y REV. 153, 153 (2000).

²⁰ York, *supra* note 17, at 426.

²¹ Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, LEGAL INSTRUMENTS—RESULTS OF THE URUGUAY ROUND, 1869 U.N.T.S. 299 (1994) [hereinafter TRIPs Agreement].

²² See Barker, *supra* note 13, at 260. Barker recounts how Monsanto official James Enyart explained the TRIPs negotiations: "Industry has identified a major problem for international trade. It crafted a solution, reduced it to a concrete proposal, and sold it to our own and other governments. . . . The industries and traders of world commerce have played simultaneously the role of patients, the diagnosticians, and the prescribing physicians." *Id.*

²³ *Far Less Scary Than It Used to Be—Genetically Modified Food*, THE ECONOMIST, July 26, 2003, at 23, 24, available at LEXIS, News Library; see also Saul, *supra* note 8, at 37 (describing globalization as "a metaphor for choice [that] was organizing itself around not consumers but corporate structures, structures that sought profits by limiting personal choice").

²⁴ One hectare equals 2.4711 square miles.

²⁵ York, *supra* note 17, at 427.

²⁶ Steve Ennen, *GMOs Are Moving Too Fast; Behind the Hedges*, FOOD PROCESSING, Nov. 1, 2003, at S6.

value of all GM crops grown in the world is estimated at US\$44 billion, and the United States is the largest producer, with US\$27.7 billion worth of GM crops.²⁷ Given the prohibitively costly nature of biotech research and development, a few highly capitalized Northern multinationals have dominated agricultural GMO development.²⁸ In 2000, this included Monsanto, Dow, duPont, Bayer, and other chemical companies that had business deals with seed and breeding companies.²⁹ With exclusive rights to products and few competitors, these corporations exerted increasing control over the market.

Furthermore, GMO corporations have manipulated those who purchase GMOs. It has been reported that Monsanto and Pioneer, another of the multinational seed companies, colluded in the early to mid-1990s to charge customers elevated prices for their GM seeds.³⁰ In addition, under the “Roundup Ready Gene Agreement,” which Monsanto forced farmers to sign as a condition of purchasing the Roundup Ready soybean, farmers had to pay a \$5 “technology fee” surcharge for each pound of seed they purchased.³¹ The farmers could neither save the seeds for their own use nor sell or supply them or materials derived from them to any other person or entity.³² If any part of the agreement was violated, the farmer had to pay 100 times the value of damages.³³ Finally, for three years following signature of the agreement, Monsanto had the right to visit each farmer’s fields, regardless of the farmer’s presence or permission.³⁴ Missing from the agreement was any liability clause that might hold Monsanto responsible in the event that the seeds failed or caused ecological damage.³⁵ By marketing GMOs as something without which

²⁷ *Global GM Crops Valued at US\$44 Billion*, AGRA EUROPE, Dec. 17, 2004, at M/3, available at LEXIS, News Library.

²⁸ Vicente Paolo B. Yu III, *Compatibility of GMO Import Regulations with WTO Rules*, in RECONCILING ENVIRONMENT AND TRADE 575, 577 (Edith Brown Weiss and John H. Jackson eds., 2001).

²⁹ *Id.* at 576.

³⁰ *Marketplace Morning Report: More Controversial News About Genetically Modified Crops*. (Minn. Public Radio broadcast, Jan. 6, 2004), available at LEXIS, News Library.

³¹ VANDANA SHIVA, *STOLEN HARVEST: THE HIJACKING OF THE GLOBAL FOOD SUPPLY* 92 (2000).

³² *Id.*

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

farms cannot survive and forcing farmers to enter into such “contracts,” savvy multinational corporations have reaped enormous profits at the cost of farmer autonomy, choice, and dignity.

Meanwhile, the U.S. government supports GMOs. U.S. federal agencies have spent, and continue to spend, millions of dollars on international GMO marketing. The U.S. Department of Agriculture (USDA) spends about US\$60 million each year researching biotechnology, “educating” current and potential markets, conducting training programs, undertaking regulatory capacity building initiatives, and collaborating with researchers in LDCs.³⁶ Another significant promoter of GMOs is the U.S. Agency for International Development (USAID), the foreign assistance branch of the U.S. State Department. USAID spends about US\$7 million on cooperative research and development programs annually.³⁷ Having dedicated millions of dollars to GMO development and marketing, the U.S. government has an interest in generating worldwide demand for GMOs.

Within the United States, consumers have been less resistant than Europeans to GM crops and foods.³⁸ Other large countries, such as Canada and Argentina, have followed this trend.³⁹ However, given the scientific uncertainty regarding the safety of GMOs, a small event or discovery could lower this comfort level. For example, when GM corn designed to feed animals accidentally ended up on peoples’ plates, it raised consumer concerns and resulted in the destruction of hundreds of millions of dollars worth of corn and corn products.⁴⁰ Meanwhile, European arguments against GMOs are taking hold outside of Europe.⁴¹ Canadians, who have traditionally aligned with the United States in being relatively tolerant of GMOs, recently protested Monsanto’s new GM wheat.⁴² Other countries, developed and less

³⁶ York, *supra* note 17, at 440.

³⁷ *Id.*

³⁸ *Far Less Scary Than It Used to Be—Genetically Modified Food*, *supra* note 23, at 23.

³⁹ *Id.*

⁴⁰ *Id.* at 24.

⁴¹ *Id.* at 25.

⁴² See *Monsanto Goes Ahead With Approval Process for Genetically Modified Wheat*, Canadian Press Newswire, June 25, 2003, available at LEXIS, News Library. See also *Protesters Against Shipping Genetically Modified Food Suspended From Crane*, Canadian Press Newswire, Oct. 2, 2003, available at LEXIS, News Library.

developed, continue to raise voices and trade barriers against GMO products.

III. ARGUMENTS FOR AND AGAINST GMOs

A. OVERVIEW

The arguments for and against open marketing and consumption of GMOs focus on health, the environment, economics, and culture. GMO supporters assert that GMOs have the potential to be beneficial because they could replenish plant and animal resources that are dying out; could decrease environmental contamination by reducing the need for herbicides, insecticides, and fungicides; and could serve nutritional needs by creating high-yielding and sometimes pharmaceutically useful crops to feed hungry populations.⁴³ Some view GMOs as the key to curbing world hunger.⁴⁴ There is even the suggestion that smaller, local farmers could profit and thrive through researching, patenting, and marketing GMOs.⁴⁵

GMO resisters, on the other hand, doubt the touted benefits of GMOs and fear their potential negative impacts. Given the newness of GMOs, their effects on the environment and on health are largely unknown.⁴⁶ A primary fear is that no one

⁴³ Smits & Zaboroski, *supra* note 15, at 113. The notion of GMOs as the solution to hunger is controversial. See, e.g., Renato Gaglione, *Vatican Commentary Urges Greater Environmental and Social Awareness on GMO's*, WORLD NEWS CONNECTION, July 27, 2003, available at LEXIS, News Library (stating that experts believe that the world's current resources, if evenly distributed throughout the world, could feed each person 2,700 calories per day). President Bush himself has blamed the EC moratorium on new GMOs for contributing to famine in Africa. See *European Parliament Adopts Law of Labelling of Genetically Modified Foods*, WORLD NEWS CONNECTION, July 2, 2003, available at LEXIS, News Library.

⁴⁴ See, e.g., David R. Nicholson, *Agricultural Biotechnology and Genetically-Modified Foods: Will the Developing World Bite?*, 8 VA. J.L. & TECH. 7 (2003), available at <http://vjolt.net>. Much of this discussion takes on a paternalistic tone. "If the agricultural biotechnology industry is not able to win over the hearts and minds of the public, its potential will not be realized. This would indeed be a tragedy, particularly for those living in the developing world, who are most in need of agricultural improvements." *Id.* at 27.

⁴⁵ Smits & Zaboroski, *supra* note 15, at 113.

⁴⁶ See Brooks, *supra* note 19, at 161.

Perhaps the biggest challenge to these changes was that genetically modified products were marketed at the same time the life science industry was forming. The speed with which GM foods moved from a concept introduced to non-industry members to reality required almost immediate buy in . . . This sent an ominous message to consumers: We are going to use this technology regardless of what you want, so you had best accept it.

knows how human bodies might react to substances never encountered—let alone ingested—before. Furthermore, the flip side of the claim that GMOs are a key to world hunger is the fact that in the United States food technology has led to overproduction, which many blame for the obesity that plagues the country.⁴⁷ Also of great concern, particularly for less developed countries, is the potential for loss of biodiversity.⁴⁸ Finally, it is difficult to prevent the spread of traits from GM crops to non-GM crops, and this contamination could lead to “the emergence of resistance in plants to control measures, the production of super-viruses.”⁴⁹

In addition to environmental and health concerns, there are economic, social, and cultural ones. As GMO technology enables countries that at one time could not produce certain crops to suddenly produce them at high yields, traditional exporters of those crops may lose their foothold in the worldwide market.⁵⁰ Family farms, unable to break into large-scale production, could be swallowed whole by GMO superfarms. Furthermore, the potential for contamination, discussed above, could wreak economic havoc on a market where producers receive a premium for GM-free goods. One can imagine a scenario where non-GM farmers sue GM farmers for profit losses that occur when GM-free crops become contaminated with GM material. On a moral—or theological—level, there is a reluctance to tamper with nature.⁵¹ Finally, GMOs threaten tradition and culture in countries where food and agricultural heritage is key to daily existence.

Id.

⁴⁷ See Michael Pollan, *The (Agri)Cultural Contradictions of Obesity*, N.Y. TIMES, Oct. 12, 2003, § 6 (Magazine), at 44. Pollan writes, “We have been hearing a lot lately about how our agricultural policy is undermining our foreign-policy goals, forcing third-world farmers to compete against a flood tide of cheap American grain. Well, those same policies are also undermining our public-health goals by loosing a tide of cheap calories at home.” *Id.*

⁴⁸ Smits & Zaboroski, *supra* note 15, at 114.

⁴⁹ Neil E. Harl, *Biotechnology Policy: Global Economic and Legal Issues*, 12 WIL-LAMETTE J. INT’L L. & DISPUTES RES. 1, 4 (2004).

⁵⁰ Smits & Zaboroski, *supra* note 15, at 114.

⁵¹ *Id.* For a discussion of the Vatican’s views of GMO’s, see Gaglione, *supra* note 43. The commentary notes that beyond the environment and economic downsides of GMOs, there are consequences for populations that would no longer have traditional access to local produce. Furthermore, “[i]n traditional cultures, food is a central aspect of socialization: family members meet at the table, and it is here that the most important events are celebrated and that a feeling of belonging to the community is experienced to the full.”

B. HEALTH

GMO supporters claim that GM foods can be more nutritious than conventional foods.⁵² An example of these so-called “functional foods” is rice with enhanced levels of beta-carotene, designed with the hope that it will help to prevent blindness.⁵³ Supporters also say that GM processes can yield innovative pharmaceuticals to treat disease, vitamin and mineral deficiencies, and other health problems.⁵⁴

Scientific evidence regarding the effects of GMO consumption on human health is limited. So far, GMO testing prior to marketing has been done on rats, not humans.⁵⁵ Some generalize the current body of research to assert that there is no scientific evidence demonstrating that GM foods are a health threat.⁵⁶ Others are more skeptical, believing that the lack of positive evidence that GMOs are safe is enough to merit restricting production and consumption. “This is a technology based on moving genes from one organism to another, and it may have unpredictable consequences.”⁵⁷ One author noted:

Ultimately, scientific experimentation has proved the potential for dangerous health (allergenic, antibiotic resistance, and virus promotion) and environmental (genetic pollution and harm to wildlife) risks. The other side cannot negate this potential, but can only say, with equal scientific uncertainty, that they do not believe the potential risks will manifest themselves in a significant way.⁵⁸

At all levels of caution, most agree that health consequences of genetic manipulation cannot be accurately predicted and that there is at least some possibility of unintended, unexpected, and dangerous effects.⁵⁹ It has also been noted that as scientists mix

⁵² York, *supra* note 17, at 430.

⁵³ Smits & Zaboroski, *supra* note 15, at 113.

⁵⁴ York, *supra* note 17, at 430.

⁵⁵ Smits & Zaboroski, *supra* note 15, at 114.

⁵⁶ See, e.g., York, *supra* note 17, at 430.

⁵⁷ Charles Osgood, *Scientists Have Concern Over Genetically Modified Foods*, CBS NEWS TRANSCRIPTS, Jan. 13, 2005, available at LEXIS, News Library (quoting Dr. Margaret Mellon).

⁵⁸ Sarah Lively, *The ABCs and NTBs of GMOs: The Great European Union-United States Trade Debate—Do European Restrictions on the Trade of Genetically Modified Organisms Violate International Trade Law?*, 23 NW. J. INT'L L. & BUS. 239, 253 (2002).

⁵⁹ See York, *supra* note 17, at 433.

genes, new allergens and toxins are likely to appear where they have never appeared before.⁶⁰ There is even the concern that GMOs might hinder medical advancements. For example, in Burundi, where tuberculosis is widespread, there is fear that GMOs containing genes resistant to antibiotics could interfere with the curative effects of antibiotics designed to fight tuberculosis.⁶¹ What can be said conclusively is that there is not enough scientific information to assert that GMOs pose no short or long-term risks to human health.

C. ENVIRONMENT

As with the negative health consequences of GMOs, real and potential negative environmental consequences are just beginning to come to light. The sustainability of GM crops is of great concern.⁶² There is little debate that GMOs are destroying biodiversity of microorganisms, plants, insects, and animals.⁶³ As more GM crops are produced and demand for them increases, fewer indigenous agricultural crops are produced. Furthermore, as GMOs cross-pollinate with indigenous plants—either intentionally or inadvertently—the indigenous plants are outbred and die out.⁶⁴ With over 4,000 types of GM soybeans and hundreds of corn and wheat varieties on the market, this “outcrossing” is difficult to contain.⁶⁵

It is also possible that, without our knowing it, GMOs are doing large-scale harm to the environment by polluting it with unknown substances, as discussed above.⁶⁶ Furthermore, the need to transport large quantities of food long distances means increased fuel consumption, substantial packaging that generates waste, and destruction of human, animal, and plant habitat.⁶⁷ This moving of food around the globe also has the potential, if

⁶⁰ *Id.*

⁶¹ *Burundi: Food with Genetically Modified Organisms a “Two-Edged Sword,”* BBC MONITORING INTERNATIONAL REPORTS, Jan. 29, 2004, available at LEXIS, News Library, Global News Wire—Asia Africa Intelligence Wire.

⁶² York, *supra* note 17, at 432.

⁶³ *See, e.g.,* SHIVA, *supra* note 31.

⁶⁴ York, *supra* note 17, at 433.

⁶⁵ Ennen, *supra* note 26, at S6.

⁶⁶ *See* Barker, *supra* note 13, at 250. Barker notes that GMOs bring “unknown, potentially catastrophic danger in the form of biopollution.” *Id.*

⁶⁷ *See id.* at 250. The port of Los Angeles anticipates a 250 percent cargo increase within the next 15 years; in the EC, freight transport is expected to increase by 70 percent in the next decade; and it is predicted that in the decade following the

precautions are not taken, to lead to exotic species invasions and spread of bacteria and disease. Past lessons have proven the immediacy of this threat.⁶⁸

D. EUROPEAN CULTURE: FOOD AND HERITAGE

Europeans' fears of the potential negative health and environmental consequences of GMOs are strengthened by the special role that food plays in European society. Europeans prefer food practices that are traditional and closer to nature, instead of the practice of developing food from new technologies.⁶⁹ While for many in the United States bigger is better,⁷⁰ European consumers tend to value quality over quantity. In Europe and throughout the world—as art, literature, music, fashion, entertainment, imagery, habits, and cuisine tend toward U.S. models—local, regional, and non-U.S. national history and culture are being lost.⁷¹ The promotion of a global GM food culture furthers this shift. As Jeremy Rifkin, a U.S. consultant to EU leaders on biotech issues, said in response to Monsanto's attempt—failed, at the time—to sell GM its foods in Europe:

What Monsanto lost sight of is that food is a deep statement of culture in all the countries that make up Europe. The way people process and prepare food is the story of who they are. In a world of globalization, where people feel increasingly that they are losing control over so many aspects of their lives, the one place they feel they still have some control is the food they put on the table—and damned if they are going to give that up for globalization.⁷²

One way that the EU has attempted to preserve its food culture in the face of globalization is to push for WTO protection of

passing of NAFTA, truck transportation will increase to seven times its pre-NAFTA level. *Id.* at 258.

⁶⁸ *Id.* at 250, 258-259. The introduction of foot and mouth disease to Europe, which led to the killing of over a million farm animals in 2001, was traced to livestock imported from Asia. *Id.* at 259.

⁶⁹ York, *supra* note 17, at 445.

⁷⁰ Pollan, *supra* note 47, at 41.

⁷¹ See Helena Norberg-Hodge, *Global Monoculture: The Worldwide Destruction of Diversity*, in *THE FATAL HARVEST READER: THE TRAGEDY OF INDUSTRIAL AGRICULTURE* 58 (Andrew Kimbrell ed., 2002), for a discussion of how agricultural globalization is threatening biological and cultural diversity.

⁷² See William Greider, *A High-Level Food Fight; European Union Resists Genetically Modified Foods*, *THE NATION*, Nov. 3, 2003, at 16, available at LEXIS, News Library.

the names of certain products through the establishment of exclusive names called “geographic indicators” (GIs).⁷³ The EU wants to reserve “champagne” for producers from that region of France, “parma ham” for producers in Parma, Italy, and “sherry” for producers near Jerez in southern Spain.⁷⁴ These GIs would signal quality and history, putting products that are the result of years of cooperation between humans and the earth in special categories to designate their unique cultural and artistic value. Unfortunately, North American corporations, among others, see GIs as a threat and accuse the EU of veiled protectionism.⁷⁵ By denying special recognition for European specialty foods and instead pushing for the homogenization of food products and food culture, the United States risks contributing to the creation of a global market where mass-produced foods with mass recognition force unique regional products off the map.

Aversion toward risky food is another distinguishing feature of European food culture. For cultural and historical reasons, Europeans are more reluctant than people in the United States to take risks where food and health are concerned.⁷⁶ The EU’s approach to risk assessment differs from that of the United States. European countries, like many other countries in the world (but unlike the United States), have recently experienced widespread hunger due to wars and other domestic crises.⁷⁷ Having seen the harm that can come from the distribution of inadequately regulated food, they place great emphasis on safe food supplies⁷⁸ and are reluctant to embrace food produced through new and largely untested processes. Just recently, Europeans faced mad cow disease, the dioxin-contaminated chicken scare, and foot-and-mouth disease.⁷⁹ The United States foisted GMOs on European consumers at a time when they were still smarting

⁷³ *Protecting Names*, THE ECONOMIST, Aug. 2, 2003, available at LEXIS, News Library.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ See Christian Joerges, *Law, Science and the Management of Risks to Health at the National, European and International Level - Stories on Baby Dummies, Mad Cows and Hormones in Beef*, 7 COLUM. J. EUR. L. 1, 10 (2001).

⁷⁷ Smits & Zaboroski, *supra* note 15, at 117.

⁷⁸ *Id.*

⁷⁹ York, *supra* note 17, at 445.

from the effects of these food crises, and it is not surprising that Europeans view GMOs as offensive and frightening.⁸⁰

E. SUSTAINABLE DEVELOPMENT AND LESS DEVELOPED COUNTRIES

While the emphasis of this article is on developed countries and formal international relationships, the experiences of less developed countries (LDCs) and their attitudes toward GMOs provides a useful lens through which to view the standstill between the EU and the United States. Not only do GMOs threaten to render Europe's food culture extinct, but also in LDCs, GMOs undercut the prices of farmers' crops and force poor farmers out of business.⁸¹ For example, the United States now grows cotton cheaply and under enormous subsidies,⁸² leaving cotton farmers in West Africa unable to sell their crops because U.S. cotton has saturated the market.⁸³ Even if less developed countries did embrace GMO technology, it is unlikely that the big GMO-touting multinationals would develop GMO technology for African crops, given that the financial incentive—the promise of profit—is not there.⁸⁴

When confronted with the argument that GMOs are a solution to world hunger, LDCs express the view that inadequate capital resources, not poor farming methods, are the cause of hunger.⁸⁵ Many LDCs feel that, because the technology needed to produce GM crops is expensive, GMOs cannot address the problem of limited resources and, instead, GMOs draw capital away from the LDCs' proven, sustainable approaches to hunger alleviation.⁸⁶

⁸⁰ See, for example, Brooks, *supra* note 19, for a discussion of food scares in the UK and EC in the late 1980s, and their effects on consumer attitudes toward food technology and on consumer assessments of the risks and benefits of GMOs.

⁸¹ See *Genetically Modified Food*, INT'L HERALD TRIB., Oct. 14, 2003, Opinion section, at 8.

⁸² The federal subsidies that the United States paid to U.S. cotton farmers in the 2002 crop-year exceeded total U.S. sales of cotton in 2001 by \$300 million. *Harper's Index*, HARPERS, Nov. 2003, at 13.

⁸³ See *Genetically Modified Food*, *supra* note 81.

⁸⁴ *Id.* The article notes that while several LDCs are trying to develop improved local crops, their efforts "have been crippled by the biotech companies' control over the technology." *Id.*

⁸⁵ York, *supra* note 17, at 434.

⁸⁶ *Id.*

Furthermore, GMOs do not make cultural sense to many LDCs. For them, altering agricultural spaces or products is not just a matter of practicality; it has profound cultural consequences. Western societies tend to value agricultural products primarily for their utility and less for their spiritual or cultural value.⁸⁷ In many non-Western cultures, on the other hand, the people tie social well being directly to respect for nature and agriculture:

Land and products may have additional symbolic significance, apart from their most evident productive use. Gudeman (Gudeman and Rivera 1990) gives examples of this in Colombia, where metaphors used to describe agriculture indicate that land and crops are seen as a kind of living organism and not as mere means of production. In other parts of the world, land is often related to ancestors, and crops may be represented by certain spirits.⁸⁸

On a practical level, consumers in LDCs are more likely than Western consumers to use every part of a plant in order to get the most use out of it, since resources are so limited.⁸⁹ Consequently, while modifying a plant with GMO technology may appear to yield an improved product, it may actually take away crucial features that made the plant functional in ways that Western scientists and corporations do not understand. Furthermore, GMO herbicides may actually kill precious “weeds”—uncultivated plants that serve various needs of local people.⁹⁰ Where these communities see a bountiful variety of valuable plants, the biotech industry sees species to eliminate through GMO “improvements.”⁹¹

⁸⁷ Paul van der Aa, *Culture and Sustainable Agriculture*, in CULTURAL DYNAMICS IN DEVELOPMENT PROCESSES 223, 229 (Arie de Ruijter & Leiteke van Vucht Tijssen eds., 1995).

⁸⁸ *Id.* at 229.

⁸⁹ *Id.* at 230.

⁹⁰ In India, up to 150 different species of such weeds serve as medicine, food, or fodder; in West Bengal, 124 weeds that farmers collect from the rice fields hold economic value for them; and in a village in Tanzania, 80 percent of the vegetable dishes are prepared from uncultivated plants. SHIVA, *supra* note 31, at 104-105.

⁹¹ *Id.*

As in Europe, the governments of LDCs such as Mauritius,⁹² Uganda,⁹³ and Zambia⁹⁴ have made official statements and erected legal barriers to GMO imports. When Zambia was suffering from a severe food shortage in 2002, its government rejected the U.S. offer of assistance in the form of GM grain, fearing the shipment might include genetically modified corn.⁹⁵ The Bush administration criticized Zambia and accused the government of endangering its own people; meanwhile, international donors sent Zambia non-GM food, and the hunger crisis subsided.⁹⁶

This steadfast resistance to GMOs on the part of many LDCs exposes the people's intense fears of the health, environmental, and cultural costs of GMOs and their skepticism of the economic benefits of GMOs. For these countries, acceptance of GMOs could only come with a radical cultural and spiritual shift. Economic manipulation, political force, and shaky science are unlikely to bring about such a shift. Nor will such tactics appeal in the EU, where, as discussed above, food represents more than an industry and people feel a deep sense of agricultural heritage.

F. GMOs AND THE FREE TRADE DEBATE

Most of the countries in the world—developed and less developed—are WTO members.⁹⁷ Among these member countries,

⁹² *Law Underway in Mauritius Against GMO Products*, PANAFRICAN NEWS AGENCY (PANA) DAILY NEWSWIRE, Jan. 2, 2004, available at LEXIS, Global News Wire—Asia Africa Intelligence Wire. A spokesperson for Mauritius's Institute for Consumers' Protection (ICP) said, "[T]rading practices should be abandoned if risks for consumers' health are not totally eliminated." *Id.*

⁹³ *See Uganda Opposed to GM Seeds, Says Minister*, GLOBAL NEWSBANK, Sept. 21, 2003, available at <http://80-infoweb.newsbank.com.ezproxy.library.wisc.edu>; see also Opiyo Oloya, *GMOS: Monsanto Had Their Agenda*, NEW VISION, Sept. 17, 2003, available at LEXIS, Global News Wire.

⁹⁴ *Zambia: Genetically Modified Foods* (PBS television broadcast, Jan. 23, 2004); see also John Bohannon, *Zambia Rejects GM Corn on Scientists' Advice*, SCIENCE, Nov. 8, 2002, at 1153, available at LEXIS, News Library.

⁹⁵ *Zambia: Genetically Modified Foods*, *supra* note 94.

⁹⁶ *Id.*

⁹⁷ The WTO had 148 members as of Oct. 13, 2003. See World Trade Organization *Members and Observers*, http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm (last visited Jan. 17, 2005). There are about 192 independent countries in the world. EARTH MAPBOOK: ENVIRONMENTAL ATLAS 144 (1998). Some accounts put the number at 193, while the number of members of the United Nations is 191; as of May 3, the U.S. State Department recognized 192 countries. See Matt Rosenberg, *How Many Countries Are in the World?*, <http://geography.about.com/cs/countries/a/numbercountries.htm> (last visited Jan. 17, 2005).

there is sharp disagreement as to what economic globalization should aim to accomplish. For the president of Nabisco, the goal is “a world of homogenous consumption,” a monoculture in which the world’s people speak one language, wear the same clothes, and eat the same foods, shipped from some central production point to consumers everywhere.⁹⁸ According to the preamble of the WTO Agreement, the goal is higher standards of living, full employment, and growth in production and demand, all “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.”⁹⁹

A large part of the foundation of the WTO and its dream of liberalized international trade is the theory of comparative advantage, first articulated in the late 1800s by British economist David Ricardo. Comparative advantage states that the global economy benefits when individual countries focus their production in areas where they have a comparative, as opposed to an absolute, advantage in production.¹⁰⁰ The theory encourages specialization in all areas of trade and calls for the elimination of barriers to international trade. It bolsters the case for the mass agricultural production that GMO supporters envision.

Conversely, the arguments for protectionism raise questions regarding the impact—especially the cultural impact—of GMOs. Economic nationalists point out that free trade has dangerous distributive effects, causing the weakest in society to fall even further behind, and that it limits national autonomy and negatively impacts domestic welfare.¹⁰¹ Others say that free trade damages social cohesion as it exacerbates socioeconomic disparity, making people less dependent on one another at the local level and more dependent on decision makers and suppliers far

⁹⁸ Norberg-Hodge, *supra* note 71, at 58.

⁹⁹ See WTO Agreement pmb., *supra* note 8.

¹⁰⁰ See generally MARK BLAUG, *RICARDIAN ECONOMICS: A HISTORICAL STUDY* (1973); see also SAMUEL HOLLANDER, *THE ECONOMICS OF DAVID RICARDO* 462 (1979).

¹⁰¹ See Robert Gilpin, *The Political Economy of International Relations*, in *INTERNATIONAL TRADE LAW: THEORY AND PRACTICE* 117, 117 (Raj Bhala ed., 2nd ed. 2001).

away.¹⁰² As free trade calls for communities to abandon self-reliance, embrace dependence, accept material self-interest as the driver of humanity, and swallow the belief that bigger is better, it leads to a loss of local, regional, and national sovereignty.¹⁰³ It segregates communities, separating producers from consumers, bankers from depositors, farmers from kitchens, governments from citizens, and decision makers from those affected by decisions.¹⁰⁴ Some believe that the main impact of the WTO and its free trade agenda is to dismantle environmental, health, and safety rules and regulations that citizens have worked long and hard to secure.¹⁰⁵

IV. CURRENT LEGAL AND POLITICAL FRAMEWORKS

A. DOMESTIC POLICIES

Faced with uncertainty regarding the safety of GMOs, the governments of the United States and the EU have responded differently. The U.S. approach emphasizes the potential benefits that GM technologies offer consumers and the economy and deemphasizes the scientific mysteries of the process of genetic modification, an approach in line with U.S. policy to foster innovation by allowing for the development and market mainstreaming of technologies unless scientific risk has been proven.¹⁰⁶ This means there is substantial U.S. government support for GMO research and development, as discussed above, and little regulation.

EU nations—and much of the rest of the world—adhere to the “precautionary principle,” avoiding or limiting a technology if there is a lack of certainty about its safety.¹⁰⁷ Within the EU, states have implemented the precautionary principle with different degrees of urgency. In 1990, the EU passed a directive requiring member states to regulate GMOs in laboratories and other contained environments.¹⁰⁸ As is typical, the EU left it to

¹⁰² Dani Rodrik, *Has Globalization Gone Too Far?*, in *INTERNATIONAL TRADE LAW: THEORY AND PRACTICE* 106, 106-7 (Raj Bhala ed., 2nd ed. 2001).

¹⁰³ See David Morris, *Free Trade—The Great Destroyer*, in *INTERNATIONAL TRADE LAW: THEORY AND PRACTICE* 79, 80 (Raj Bhala ed., 2nd ed. 2001).

¹⁰⁴ *Id.*

¹⁰⁵ See Ralph Nader, *Introduction: Free Trade & The Decline of Democracy*, in *INT'L TRADE LAW: THEORY AND PRACTICE* 108, 108 (Raj Bhala ed., 2nd ed. 2001).

¹⁰⁶ Marden, *supra* note 6, at 734.

¹⁰⁷ See, e.g., *id.*

¹⁰⁸ *Belgium, Spain Warned by EU over Genetically Modified Micro-Organism Laws*, AFX EUROPEAN FOCUS, Jan. 6, 2004, available at LEXIS, News Library.

each country to determine its own means of carrying out the directive.¹⁰⁹ Belgium and Spain¹¹⁰ have been the most open to GMOs, with Germany not far behind.¹¹¹ At the most cautious end of the spectrum is Italy. In late 2003, the country announced its intention to defy EU law by passing national legislation that would put stringent limits on the accidental presence of GM material in seeds—limits that are much more restrictive than the thresholds that the European Commission has proposed.¹¹²

B. INTERNATIONAL TREATIES: THE WTO AND RELATED AGREEMENTS

The WTO, with its many provisions related to agriculture and health and its broad membership that includes the United States and the EU as key players, frames the GMO debate. The WTO's current agricultural policy began to emerge in 1994, the

¹⁰⁹ Balancing EU policy and state sovereignty is an ongoing challenge.

The European Union (EU) is a family of democratic European countries, committed to working together for peace and prosperity. It is not a State intended to replace existing states, but it is more than any other international organisation. The EU is, in fact, unique. Its Member States have set up common institutions to which they delegate some of their sovereignty so that decisions on specific matters of joint interest can be made democratically at European level [sic].

The European Union at a Glance, supra note 5.

¹¹⁰ Belgium and Spain still have not passed national legislation to meet the directive, and the European Court of Justice has reprimanded them. *Belgium, Spain Warned by EU over Genetically Modified Micro-Organism Laws, supra* note 108. In Belgium, the government is debating a proposal to import GM corn, which could lead to the end of Belgium's five-year moratorium on GMOs. *Brussels Has Delayed Adopting a Proposal to Allow the Import of a Genetically Modified Sweet Maize From Swiss Firm Syngenta—a Move that Would Signal an End to the EU's Five-Year Ban on New Approvals, FARMERS WEEKLY*, Jan. 16, 2004, at 2, available at LEXIS, News Library.

¹¹¹ Germany has begun to draft a national law that would allow commercial cultivation of GM crops. *Germany Drafting Law to Regulate Genetically Modified Crops, CHANNEL NEWSASIA*, Jan. 12, 2004, available at LEXIS, News Library. However, the law would include strict rules for contamination of non-GM crops and for labeling. *German Farm Ministry Approves GM Law, AGRA EUROPE*, Jan. 16, 2004, at N/3, available at LEXIS, News Library.

¹¹² *Italy to "Go it Alone" on GM Seed Thresholds, Agra Europe*, Oct. 10, 2003, at EP/4, available at LEXIS, News Library. The Italian law would allow for no more than 0.1% GM material in conventional seeds, and organic seed could contain no detectable GM material. The European Commission has proposed maximum levels of 0.3% to 0.7% and expressed the view that a zero threshold is unrealistic. *Id; see also Italian Minister Concerned Over GM Co-Existence "Risks," AGRA EUROPE*, Jan. 23, 2004, at EP/6, available at LEXIS, News Library.

year of the Uruguay Round and a time when U.S. GMO development and marketing were just gaining speed. Uruguay Round participants aggressively pursued agricultural policy changes. Some viewed the Round as the unfortunate beginning of an ongoing push to establish free-trade farming and food policies at the expense of farmers, consumers, and the environment.¹¹³

In any case, the Uruguay Round yielded a new international free-trade organization, the WTO, and a number of agreements that members have since attempted to use to bolster their positions on GMOs. The preamble to the WTO Agreement laid out lofty hopes for the organization: raise the standard of living of members, ensure employment and economic growth, and expand production and trade of goods and services—all “while allowing for the optimal use of the world’s resources in accordance with the objective of sustainable development.”¹¹⁴ Several WTO agreements emerged as grounds for handling GMO policy: the Agreement on Agriculture (AOA),¹¹⁵ the Agreement on the Application of Sanitary and Phytosanitary Standards (SPS Agreement)¹¹⁶, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs Agreement),¹¹⁷ and the Technical Barriers to Trade (TBT Agreement).¹¹⁸ A brief examination of these agreements exposes their inadequacy in addressing the GMO conflict between the United States and the EU.

The AOA aims to bring agricultural trade, which historically has been relatively protectionist, more in line with GATT and the trend toward fewer tariff and non-tariff barriers to trade. The AOA targets subsidies in particular. Echoing the Uruguay Round, the AOA introduction states that members’ “long term

¹¹³ Barker, *supra* note 13, at 255.

¹¹⁴ WTO Agreement pmb., *supra* note 8.

¹¹⁵ Agreement on Agriculture, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, LEGAL INSTRUMENTS—RESULTS OF THE URUGUAY ROUND, 1867 U.N.T.S. 410 (1994) [hereinafter AOA].

¹¹⁶ Agreement on the Application of Sanitary and Phytosanitary Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, LEGAL INSTRUMENTS—RESULTS OF THE URUGUAY ROUND, 1867 U.N.T.S. 493 (1994) [hereinafter SPS Agreement].

¹¹⁷ TRIPs Agreement, *supra* note 21.

¹¹⁸ Agreement on Technical Barriers to Trade, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, LEGAL INSTRUMENTS—RESULTS OF THE URUGUAY ROUND, 1868 U.N.T.S. 120 (1994) [hereinafter TBT Agreement].

objective . . . ‘is to establish a fair and market-oriented agricultural trading system and that a reform process should be initiated through the negotiation of commitments on support and protection and through the establishment of strengthened and more operationally effective GATT rules and disciplines.’”¹¹⁹ The AOA’s “reform process” has failed to relax the tensions of the GMO debate.

The SPS Agreement builds on the AOA. Its main goal is to ensure that nations do not use unfounded claims of threats to health, safety, and the environment to restrict the importing and exporting of agricultural goods.¹²⁰ Article 5.7 of the SPS Agreement states the precautionary principle:

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 measure 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.¹²¹

Some view the SPS as a tool for promoting free trade, but others see it as encouraging an overall lowering of food safety standards as WTO members harmonize their rules and regulations.¹²²

The TRIPS Agreement relates less directly to agriculture, but since GMO technology drives GMO development, intellectual property policies play a large role in their commercialization. Under the TRIPS Agreement, WTO members have adopted an intellectual property rights system based on the U.S. model and covering copyright, trademark, and patent protection. TRIPS has fueled the profit motivation of U.S. corporations by enabling

¹¹⁹ SPS Agreement, *supra* note 116, ¶ 2.

¹²⁰ Raj Bhala, *Note on Free Trade Principles, Technical Standards, and MRAs, in INTERNATIONAL TRADE LAW: THEORY AND PRACTICE* 565, 565-567 (Raj Bhala ed., 2nd ed. 2001).

¹²¹ SPS Agreement, *supra* note 116, art. 5.7.

¹²² *See, e.g.,* Barker, *supra* note 13, at 261.

them to patent GM plants and seeds and reap great profits from their sale.¹²³

The TBT Agreement encourages the harmonization of technical standards for products such as cars, electricity, computers, and food.¹²⁴ Its backbone is the assumption that technical differences among like products impede the free flow of goods internationally.¹²⁵ The TBT Agreement encourages mutual recognition agreements (MRAs), under which two or more countries agree to recognize the testing and related standards used in each country for products.¹²⁶ If the United States and the EU could agree on the testing standards GMOs must meet before they can be sold on the market, the GMO problem would be solved. This is unlikely to happen, as there is a tension between the TBT Agreement's harmonization aim and the legitimate need for technical differences based on market, geography, climate, consumer tastes and needs, and other factors. In the past, the United States has complained bitterly about European attempts to get the United States to adopt European-style meat and poultry inspection methodologies.¹²⁷ Given the struggles between the United States and the EU to agree on meat inspection, it is not surprising that harmonization of standards for GMO testing is at a standstill. The cultural divide between U.S. and EU consumers is just too great.

C. EXCEPTIONS

Accompanying the AOA, SPS, TRIPS, and TBT Agreements are the GATT Article XX exceptions.¹²⁸ Article XX provides grounds for violating GATT Article III's national

¹²³ See *id.*, at 259-61. Barker notes that TRIPS is forcing new attitudes toward nature and food on Members. Many countries have for hundreds of years viewed natural resources as elements of the "commons"—freely available to all and "part of the cultural, spiritual, and biological inheritance of all people." Under the WTO and TRIPS, "virtually all life forms and resources can be turned into commodities available for corporate ownership." *Id.* at 260.

¹²⁴ Bhala, *supra* note 120.

¹²⁵ *Id.*

¹²⁶ *Id.* at 567.

¹²⁷ *Id.* at 570. Bhala notes that U.S. Secretary of Agriculture Dan Glickman complained that Europeans wanted harmonization "all the way down to where we locate bathrooms in our plants and what color we paint the walls. . . . It's that ridiculous." *Id.*

¹²⁸ GATT, *supra* note 7, art. XX.

treatment obligation.¹²⁹ Article III, the backbone of many of the WTO agreements, prohibits a member from using regulatory measures to favor domestic goods over imported ones.¹³⁰ Under national treatment, once a product is imported into a country, it must be treated the same as like products that are produced domestically.¹³¹ Three of the Article XX exceptions relate to international trade in GMOs. Article XX(b) serves as the traditional justification that the EU gives for anti-GMO policies. It allows for restricting imports “to protect human, animal, or plant life or health.”¹³² But since the United States believes that clear scientific evidence of harmful health and environmental effects of GMOs is a prerequisite to a valid restriction to protect human, animal, and plant life, it is unlikely that the United States and the EU would agree on whether XX(b) justifies restricting GMO imports into the EU. Article XX(g) allows for restrictions for the “conservation of exhaustible natural resources.”¹³³ Here, as with XX(b), the United States and the EU would not be expected to agree on whether or not GMO imports might threaten exhaustible natural resources.¹³⁴

Limited scientific evidence and differing attitudes toward that evidence seem to make it impossible for the United States and the EU to agree on the validity of applying exceptions based

¹²⁹ GATT, *supra* note 7, art. III.

¹³⁰ See generally GATT Dispute Panel Report Concerning Japan—Taxes Alcoholic Beverages, WT/DS8/R 111 (July 11, 1996).

¹³¹ *Id.* National treatment is a frequent area of dispute because it implicates national policies, such as environmental and health regulations, that may not have been designed to restrict imports yet have a protectionist effect. Erik Ibele, Lecture for International Trade Law Class (Sept. 24, 2003).

¹³² GATT, *supra* note 7, art. XX(b).

¹³³ GATT, *supra* note 7, art. XX(g).

¹³⁴ An overarching question regarding the WTO today is what its mission really is and what its policy boundaries should be. Steve Charnovitz, *Symposium: The Boundaries of the WTO: Triangulating the World Trade Organization*, 96 A.J.I.L. 28 (Jase E. Alvarez ed., 2002). In April of 2001, the WTO Director-General, Mike Moore, urged governments to consider a broader agenda of issues not necessarily included in WTO agreements at the time. *Id.* In response, a powerful group of Member countries issued a communiqué that said “non-trade issues such as labour standards and environmental conditionalities should not be included in the WTO agenda.” *Id.* This ongoing tension culminated in the rapid disintegration of talks at the WTO Ministerial Conference that was to take place in Cancun, Mexico in September 2003.

on health and environmental concerns to GMO import restrictions. However, Article XX(f) might offer a key to legal EU restrictions on GMO imports.¹³⁵ It allows for exceptions “for the protection of national treasures of artistic, historical, or architectural value.”¹³⁶ If the EU can show that its food products have cultural value, XX(f) suggests that it might have a valid basis for national and EU-wide policies that favor these local and regional foods over imported GM foods. The issue, then, is how to demonstrate this link between agriculture and human culture.

D. FORMAL DISPUTES

1) *Food Safety Disputes in the WTO*

WTO members have brought dozens of formal disputes regarding food and agriculture policy before the WTO Dispute Settlement Body (DSB).¹³⁷ Of the four claims specifically involving GMOs, the earliest came in 2000 and involved Thailand’s dispute of Egypt’s import ban on canned tuna with soybean oil.¹³⁸ Three years later, Argentina, the United States, and Canada each brought claims against the EU. These disputes are pending, and their outcomes may point the GMO debate in a new direction or signal a continuing standstill.

The Meat Hormones dispute,¹³⁹ which preceded all four of these GMO disputes, set the stage for them. In 1996, the EU banned imports of meat from cattle that had been treated with certain growth hormones. The United States and Canada each submitted complaints that the EC was violating the SPS agreement. The DSB Panel found that because the EC did not give a sufficient scientific basis for its ban, the action violated the SPS

¹³⁵ By “legal,” I mean restrictions that do not violate GATT-WTO.

¹³⁶ GATT, *supra* note 7, art. XX(f).

¹³⁷ See *Dispute Settlement*, THE WORLD TRADE ORGANIZATION, http://www.wto.org/english/docs_e/legal_e/ursum_e.htm#understanding (last visited Feb. . 27, 2005). For a discussion of WTO disputes as they relate to risk and GMOs, see Starla L. Borg, *Waiting For the River: The United States and the European Union, Heads Up and High Stakes in the WTO—Genetically Modified Organisms in Interational Trade*, 43 WASHBURN L.J. 681 (2004).

¹³⁸ Egypt—Import Prohibition on Canned Tuna with Soybean Oil—Request for Consultations by Thailand, Dispute Settlement Body, WT/DS205/1 (Sept. 27, 2000). Specifically, Thailand claimed that Egypt’s measure violated Articles I, XI, and XIII of the GATT and Articles 2, 3, 5, Annex B, and Paragraphs 2 and 5, of the SPS Agreement. *Id.*

¹³⁹ EC Measures Concerning Meat and Meat Products (Hormones) – AB – 1997 – 4: Report of the Appellate Body, WT/DS26/AB/R &, (Jan. 26, 1998) [hereinafter Meat Hormones Report].

agreement. The EC appealed, and the Appellate Body affirmed the ruling against the EC, saying that the EC cannot use the precautionary principle embodied in Article 5:7 of the SPS Agreement as an excuse for not putting forth a scientifically-based risk assessment.¹⁴⁰

However, the Appellate Body indicated that it is somewhat flexible in evaluating actions that countries take when concerned with the health risks of products. In this way, the report fleshed out some of the options for resisting GMOs. The Appellate Body indicated that the SPS Agreement allows countries to take food safety measures that are stricter than international standards as long as those measure are based on scientific evidence.¹⁴¹ Of course, what constitutes valid “scientific evidence” is the controversial question. What the Appellate Body did say regarding scientific evidence is that the science that a country uses to support its ban can be based on a minority view rather than on what the mainstream majority accepts.¹⁴² In other words, the report acknowledged that different parties might do different risk assessments and that this does not make one view less valid than another, as long as the assessments are scientific. Unfortunately, the Beef Hormones ruling, in the end, provided little guidance for resolving subsequent disputes over GMOs.

2) *Pending GMO Disputes in the WTO*

On August 8, 2003, Argentina, the United States, and Canada each requested establishment of a Panel to investigate the EC’s restrictions on GMO imports. All three countries had been consulting with the EC since June of 2003 but were unable to resolve their conflicts. One of Argentina’s disputes was against

¹⁴⁰ The precautionary principle allows for provisional restrictions in situations where science has not kept up with development and, therefore, marketing of a product might affect human or animal health. See SPS Agreement, *supra* note 116. Article 5:7 reads “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.” *Id.* art. 5:7.

¹⁴¹ *Note on the Aftermath of the Beef-Hormones Case and the Challenge of GMOS*, in INTERNATIONAL TRADE LAW: THEORY AND PRACTICE 1704, 1704 (Raj Bhala ed., 2nd ed. 2001).

¹⁴² *Id.*

the EC's de facto moratorium on the approval of agricultural GMO products, which the EC set in 1998.¹⁴³ Although the moratorium has been lifted, EC restrictions on GMO imports continue in other forms, and Argentina's dispute is ongoing. Still under consideration are Argentina's claims of "undue delays" in the EC's finalizing consideration of applications by Argentina for approval of agricultural biotechnology products and Argentina's dispute of outright bans by the EC member states on agricultural GMO products, which Argentina asserts infringe on both WTO rules and Community legislation.¹⁴⁴ Argentina claims that the EC's actions have violated WTO agreements and have adversely affected agricultural GMO exports from Argentina.¹⁴⁵

The United States and Canada have similar claims against the EC.¹⁴⁶ The United States, like Argentina, disputed the moratorium and disputes other import bans, which it claims are imposed on products that the EC has already approved for import and marketing.¹⁴⁷ The United States claims that the EC's measures violate specific WTO agreements and "nullify or impair the benefits accruing to the United States directly or indirectly" under these agreements.¹⁴⁸ Canada's claim is almost identical to that of the United States. Canada cites EC violations of specific WTO agreements and nullification and impairment of benefits to Canada under these agreements and under Article XXIII:1(b) of

¹⁴³ European Communities—Measures Affecting the Approval and Marketing of Biotech Products—Request for the Establishment of a Panel by Argentina, Dispute Settlement Body, WT/DS293/17 (Aug. 8, 2003).

¹⁴⁴ *Id.*

¹⁴⁵ Specifically, Argentina claims the EC is violating Articles 2.2, 2.3, 5.1, 5.2, 5.5, 5.6, 7, 8 and 10.1 and Annexes B(1) and (5) and C(1)(a), (b), (c), (d) and (e) of the SPS Agreement; Article 4.2 of the AOA; Articles I.1, III.4, X.1, X.3(a) and XI.1 of the GATT 1994; and Articles 2.1, 2.2, 2.8, 2.9, 2.11, 5.1, 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.6, 5.8 and 12 of the TBT Agreement. *Id.*

¹⁴⁶ European Communities—Measures Affecting the Approval and Marketing of Biotech Products—Request for the Establishment of a Panel by the United States, Dispute Settlement Body, WT/DS291/23 (Aug. 8, 2003) [hereinafter U.S. Panel Request]; European Communities—Measures Affecting the Approval and Marketing of Biotech Products—Request for the Establishment of a Panel by Canada, Dispute Settlement Body, WT/DS292/17 (Aug. 8, 2003) [hereinafter Canada Panel Request].

¹⁴⁷ U.S. Panel Request, *supra* note 146.

¹⁴⁸ *Id.* The United States claims the EC is violating SPS Agreement Articles 2.2, 2.3, 5.1, 5.2, 5.5, 5.6, 7 and 8, and Annexes B(1), B(2), B(5), C(1)(a), C(1)(b), and C(1)(e); GATT 1994 Articles I:1, III:4, X:1, and XI:1; AOA Article 4.2; and TBT Agreement Articles 2.1, 2.2, 2.8, 2.9, 2.11, 2.12, 5.1.1, 5.1.2, 5.2.1, 5.2.2, 5.6 and 5.8.

the GATT 1994.¹⁴⁹ Canada specifically names four EC member states—France, Greece, Austria, and Italy—that have national measures against the importation, marketing, or sale of biotech products that Canada says had already been approved prior to the October 1998 imposition of the moratorium.¹⁵⁰

The Panel investigating these three disputes against the EC indicated that it expected to issue its final report to the parties by the end of March 2005, but as of December 2005 no report had been circulated.¹⁵¹ The Panel's decision will be pivotal in the GMO debate. These disputes against the EC "present unique issues not addressed in prior SPS disputes, including the recent emergence of bioengineering technology, the tremendous amount of public concern associated with their safety, and the uncertainty of scientific evidence justifying or mitigating such public concern."¹⁵² Furthermore, the Panel's decision will address conflicts between the new Cartagena Protocol, discussed below, and the SPS Agreement, thereby affecting the flow of GMOs worldwide.¹⁵³

3) *Disputes in the European Court of Justice*

Disputes are also being brought in the European Court of Justice (European Court) on behalf of individual countries and groups of countries. The European Court recently ruled that an EC member state can temporarily restrict or suspend the use or sale of GM food if it decides, based on detailed information rather than mere suppositions or generalities, that the food poses

¹⁴⁹ Canada Panel Request, *supra* note 146. Canada claims the EC is violating Articles 2.2, 2.3, 5.1, 5.2, 5.5, 5.6, 7, 8, and paragraphs 1, 2 and 5 of Annex B, and paragraphs 1(a), 1(b), 1(c), and 1(e) of Annex C of the SPS Agreement; Articles 2.1, 2.2, 2.8, 2.9, 2.11, 2.12, 5.1, 5.2.1, 5.2.2, 5.2.3, 5.6 and 5.8 of the TBT Agreement; Articles I:1, III:4, X:1 and XI:1 of the GATT 1994; and Article 4.2 of the AOA.

¹⁵⁰ *Id.*

¹⁵¹ *Dispute Settlement: The Disputes*, WORLD TRADE ORGANIZATION, http://www.wto.org/english/tratop_e/dispu_e/dispu_status_e.htm#2003 (last visited Jan. 24, 2005).

¹⁵² 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, 377 (2004).

¹⁵³ *See id.* at 376-377.

a suspected risk to human health or the environment.¹⁵⁴ The European Court also decided, in a recent case that the Italian government brought against Monsanto, that a food containing GM ingredients must be labeled as such.¹⁵⁵ Compared to the WTO DSB, the European Court has shown more tolerance toward GMO resistance.

E. RISK ASSESSMENT WITHIN THE WTO

Different approaches to risk assessment by WTO member countries have added tension to the GMO conflict. The WTO-GATT framework focuses on risk assessment as a tool for making sound policy decisions regarding GMOs. However, the EU and the United States assess risk differently, which is not surprising given that risk assessment is largely driven by cultural concerns.¹⁵⁶ Individuals and governments can attempt to transform dangers into calculable risks through the use of scientific data, yet more than science goes into risk assessment.¹⁵⁷ It also factors in “normative, political, and ethical considerations.”¹⁵⁸ Thus a dilemma exists: “the ‘law’ cannot resolve the cognitive dimension of risks; ‘science’ cannot provide answers to the normative dimensions.”¹⁵⁹

Justice Harry Blackmun of the U.S. Supreme Court addressed this tension as it related to the issue of expert scientific courtroom testimony in a criminal trial: “[T]here are important differences between the quest for truth in the courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly . . .”¹⁶⁰ In the GMO debate, scientific information is limited, and cultural issues stand out, making it impossible to draft a legal agreement that embodies “truth.” Consequently, different countries—the United States and the countries in the EU—arrive at different determinations of risk,

¹⁵⁴ *Court Rules in Favour of Restricting Suspect GMOs*, CHEMISTRY & INDUSTRY, Sept. 15, 2003, at 4.

¹⁵⁵ *Id.*

¹⁵⁶ See, e.g., Joerges, *supra* note 76; see also Vern R. Walker, *The Myth of Science as a “Neutral Arbiter” for Triggering Precautions*, 26 B.C. INT’L & COMP. L. REV. 197 (2003).

¹⁵⁷ Joerges, *supra* note 76, at 2-3.

¹⁵⁸ See *id.*

¹⁵⁹ *Id.*

¹⁶⁰ *Daubert v. Merrell Dow Pharm. Inc.*, 509 U.S. 579, 596-97 (1993).

and the law fails in specifying how GMO regulations should incorporate this conflicting risk assessment.

It follows that decision makers cannot base their regulations on science alone, for the conflicts are loaded with cultural concerns that the people and policy makers cannot ignore.¹⁶¹ This tension is exacerbated by the reality that often those who make decisions purportedly based on science either are unaware of the inherently political and cultural nature of their analyses and choices or are aware of it but refuse to acknowledge it openly.¹⁶² This is dangerous, for it leads to non-transparent policy-making and unaccountability. The decision-makers are not who we think they are, and the decisions are not based on what we are told they are based on.¹⁶³ Consumers of GMOs—the people—lose out.

V. RECHARACTERIZING THE DEBATE

A. BEYOND THE WTO: THE CARTAGENA PROTOCOL ON BIOSAFETY

In January of 2000, 129 countries adopted the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (hereinafter the Protocol),¹⁶⁴ and on September 11, 2003, the Protocol entered into force.¹⁶⁵ As of January 17, 2005, 111 countries had ratified or acceded to the Protocol.¹⁶⁶ The Protocol follows over ten years of negotiations on the movement of

¹⁶¹ See, e.g., Joerges, *supra* note 76; see also Walker, *supra* note 156.

¹⁶² See Walker, *supra* note 156, at 198-99. Walker writes “Deciding that a particular finding about the risk is warranted, given the evidence, cannot be a policy-neutral determination. . . factfinders, and even scientists, sometimes mask those non-scientific decisions about warrant in language that sounds scientific.” *Id.* at 198.

¹⁶³ *Id.* at 228.

¹⁶⁴ Terence P. Stewart & David S. Johanson, *A Nexus of Trade and the Environment: The Relationship Between the Cartagena Protocol on Biosafety and the SPS Agreement of the World Trade Organization*, 14 *COLO. J. INT’L ENVTL. L. & POL’Y* 1, 1 (2003). Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Jan. 29, 2000, U.N. doc. UNEP/CBD/ExCOP/1/3, reprinted in 39 *I.L.M.* 1027, available at <http://www.biodiv.org/biosafety/protocol.asp> [hereinafter the Protocol].

¹⁶⁵ Patrick J. Vallyly, *supra* note 152, at 369.

¹⁶⁶ *Cartagena Protocol on Biosafety: Status of Ratification and Entry Into Force*, CONVENTION ON BIOLOGICAL DIVERSITY, <http://www.biodiv.org/biosafety/signinglist.aspx?sts=rtf&ord=DT> (last visited Jan. 24, 2005).

GMOs across international borders¹⁶⁷ and embodies the international legal community's response to the GMO debate.¹⁶⁸ The purpose of this UN agreement is to standardize rules regarding movement of GMOs across international borders and to protect biodiversity and human health on a global level.¹⁶⁹ The rules, which are to take into account risks to human health, are to provide "adequate" protection from GMOs so as to prevent environmental harm.¹⁷⁰ Although the CPB is viewed primarily as an international environmental agreement, because of the pressing need to balance environmental and trade concerns, trade is a major component.¹⁷¹

Five conflicting groups of countries are involved in CPB negotiations: the Miami Group (Argentina, Australia, Canada,¹⁷² Chile, the United States, and Uruguay) opposes most GMO regulation; the Like-Minded Group (most developing countries), the Compromise Group (Japan, Mexico, Norway, Singapore, South Korea, Switzerland, and New Zealand), and countries of the Central and Eastern European bloc support some regulation; and the EC wants to regulate and limit GMO production and trade.¹⁷³

The United States has not ratified the Protocol and contends that the Protocol, which contains precautionary language that differs from that of the SPS Agreement, violates WTO obligations.¹⁷⁴ Currently, under Article 10 of the Protocol, which

¹⁶⁷ See Stewart & Johanson, *supra* note 164, at 1.

¹⁶⁸ Deepa Badrinarayana, *To Trade Or Not to Trade . . .*, 32 ENVTL. L. REP. 10,512, 10,512 (2002).

¹⁶⁹ *Questions and Answers on the Regulation of GMOs in the EU*, RAPID, Jan. 28, 2004, available at LEXIS, News Library.

¹⁷⁰ Smits & Zaboroski, *supra* note 15, at 124. Badrinarayana explains that the Protocol "provides a mechanism to mitigate the risk associated with trade in GMOs." Badrinarayana, *supra* note 168.

¹⁷¹ See Stewart & Johanson, *supra* note 164, at 4.

¹⁷² Greenpeace spokesperson Eric Darier told reporters at a Canadian news conference that Canada should not follow the United States's lead in opposing the Cartagena Protocol: "Instead of focusing on WTO and issues related to trade, Canada should in fact ratify this biosafety protocol and certainly not follow the U.S. at the WTO to force feed Europeans to eat GMOs when they don't want it." Ross Marowitz, *Canadian Priorities Wrong in Refusing to Ratify GMO Treaty*, *Says Greenpeace*, CANADIAN PRESS NEWSWIRE, Sept. 10, 2003, available at LEXIS, News Library.

¹⁷³ Smits & Zaboroski, *supra* note 15, at 124.

¹⁷⁴ See Stewart & Johanson, *supra* note 164, at 4-5; see also Sabrina Safrin, *Treaties in Collision? The Biosafety Protocol and the World Trade Organization Agreements*, 96 A.J.I.L. 606, 607 (2002). The United States has signed the Protocol.

deals with how countries decide whether or not to allow importation of a GMO, “[l]ack of scientific certainty . . . shall not prevent that Party from taking a decision, as appropriate, with regard to the import of the living modified organism . . . in order to avoid or minimize such potential adverse effects.”¹⁷⁵ In other words, the Protocol allows states to reject GMO imports in situations where no scientific evidence on the potential impact of the proposed GMO import exists.¹⁷⁶ The SPS’s version of the precautionary principle is more limiting than this; it only allows WTO members to temporarily exercise the precautionary measure, and it requires them to undertake ongoing research and review of the situation.¹⁷⁷ If the country cannot gather information supporting the temporary ban, it must lift the ban. The Protocol and the SPS Agreement’s conflicting levels of precaution are unsurprising, given the SPS Agreement’s emphasis on free trade versus the Protocol’s emphasis on the environment.¹⁷⁸

While U.S. negotiators have claimed that they do not oppose adoption of some form of a precautionary principle, they have effectively rejected the level of caution favored by all negotiating groups other than the Miami Group by insisting that the Protocol’s precaution provision be relaxed to represent “part of a science-based approach.”¹⁷⁹ The Protocol is therefore another embodiment of the cultural debate regarding risk assessment that lies at the heart of GMO policy conflicts. Adding to the tension, the EU swiftly incorporated the Protocol into its new set of regulations regarding traceability and labeling of GMOs, in spite of the U.S. rejection of the Protocol.¹⁸⁰

¹⁷⁵ Article 10.6 reads in full: “Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from taking a decision, as appropriate, with regard to the import of the living modified organism in question. . . in order to avoid or minimize such potential adverse effects. The Protocol, *supra* note 164, art. 10.6.

¹⁷⁶ See Valley, *supra* note 152, at 373.

¹⁷⁷ Stewart & Johanson, *supra* note 164, at 30.

¹⁷⁸ See Valley, *supra* note 152, at 372.

¹⁷⁹ See *U.S. Official Says Biosafety Could be Reached in Montreal*, INSIDE U.S. TRADE, Jan. 25, 2000.

¹⁸⁰ See *Questions and Answers on the Regulation of GMOs in the EU*, *supra* note 169.

B. CURRENT PROPOSALS AND LABELING

In September 2003, the EU passed two directives that laid out new rules for GMO regulations.¹⁸¹ The objective of the directives, called the GMO Food and Feed Regulation, is to ensure protection of the internal market while guaranteeing a high level of protection of human and animal health, environmental welfare, and consumer' interests.¹⁸²

The key provisions of the directives are regulations calling for prior authorization, traceability, and labeling of GM food and feed.¹⁸³ Anyone wishing to export a new GM food must first apply to one of the EU Member states.¹⁸⁴ The proposal then goes through several levels of consideration before final approval is granted or denied.¹⁸⁵ The traceability rules mandate documentation throughout the entire production process and commercial life of a GMO.¹⁸⁶ This paper trail is later used for enforcement purposes.¹⁸⁷

While labeling to indicate the presence of GMOs in a product has been mandatory since 1997, the new regulation significantly expands past rules by requiring labeling even when the amount of GMOs in a product are undetectable.¹⁸⁸ In addition, the labeling rules apply to animal feed, not just to human food, which makes problems like the Starlink corn crisis less likely.¹⁸⁹

¹⁸¹ Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on Genetically Modified Food and Feed, 2003 O.J. (L 268) 1; 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, 2003 O.J. (L 268) 24, available at <http://europa.eu.int/eur-lex/en/index.html> [hereinafter GMO Food and Feed Regulation].

¹⁸² Joanne Scott, *European Regulation of GMOs and the WTO*, 9 COLUM. J. EUR. L. 213, 216 (2003).

¹⁸³ See *id.* (providing a detailed, technical discussion of the proposal).

¹⁸⁴ David Joy, *E.U. Issues New GMO Regulations*, FOOD PROCESSING, Dec. 1, 2003, at 20, available at LEXIS, News Library.

¹⁸⁵ *Id.*

¹⁸⁶ John Fagan, *New EU Regs on GMOs: Genetically Modified Organisms in Foods is a Touchy Subject*, PREPARED FOODS, Jan. 1, 2004, at NS15, available at LEXIS, News Library.

¹⁸⁷ Joy, *supra* note 184.

¹⁸⁸ See *Questions and Answers on the Regulation of GMOs in the EU*, *supra* note 169; see also Fagan, *supra* note 186, at NS15.

¹⁸⁹ *Questions and Answers on the Regulation of GMOs in the EU*, *supra* note 169. In the United States, GM corn intended only for animal feed ended up in human

Essentially, any food or feed that consists of, contains, or is produced from GMOs must be labeled as such.¹⁹⁰ The only exemptions from the labeling requirements are, first, animal products that come from animals that ingest GM feed or GM medicine and, second, GM products that are not used as food ingredients but rather might be used in food processing.¹⁹¹

The EU Commission has said these new rules, which became enforceable in April 2004,¹⁹² complete the EU's regulatory framework on the authorization, labeling, and traceability of GMOs.¹⁹³ Acceptance of the regulations was viewed as an important step toward lifting of the EU's *de facto* moratorium on approval of new GMOs.¹⁹⁴

Although the labeling rules have passed and the moratorium has been lifted, it appears that the GMO debate is far from over. Opponents in the United States, backed by the biotech industry, have responded to the EU's GMO Food and Feed Regulation by asserting that the law is impractical and violates the WTO and by insisting that GMOs are safe.¹⁹⁵ They dispute what they view as unfair stigmatization of GM foods.¹⁹⁶ For the biotech industry, the regulation is a burden, "a major blow to the genetic food industry."¹⁹⁷ In the industry's view, multinational food producers

food. See Rebecca M. Bratspies, *Myths of Voluntary Compliance: Lessons From the Starlink Corn Fiasco*, 27 WM. & MARY ENVTL. L. & POL'Y REV. 593, 595 (2003).

¹⁹⁰ *Questions and Answers on the Regulation of GMOs in the EU*, *supra* note 169.

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ *EU Commission Adopts System to Identify, Trace GMOs in Food, Animal Feed*, AFX EUROPEAN FOCUS, Jan. 16, 2004, available at LEXIS, News Library.

¹⁹⁴ Scott, *supra* note 182, at 214. The new labeling recommendations have not received complete support from all EU member states. In Germany, where Social Democrats and Greens recently gained a strong foothold in Parliament, the push for labeling is strong; France continues to be moderately supportive of it; but England openly opposes it. Alan Guebert, *EU Will Label Food For Genetically Modified Content*. LINCOLN JOURNAL STAR, Nov. 3, 2002. Opponents to importing the GM corn are France, Austria, Luxembourg, Denmark, Portugal, and Greece; in favor are the UK, the Netherlands, Finland, Spain, Sweden, and Ireland; Germany, Belgium, and Italy have not voted. *Id.*

¹⁹⁵ *EU Commission Adopts System to Identify, Trace GMOs in Food, Animal Feed*, *supra* note 193.

¹⁹⁶ Joy, *supra* note 184.

¹⁹⁷ See William Greider, *supra* note 72, at 16 (quoting Jeremy Rifkin, an American who consults with EU leaders on biotech issues).

will have to have two strains of production, processing, and distribution—a GM-free one for Europe and GM-fearing Asian nations like Japan and South Korea, and another one for the United States and other countries that accept GM foods.¹⁹⁸ The USDA has openly criticized the EU's GMO Food and Feed Regulation, saying it has resulted in consumer misperceptions, market uncertainty, and greater demands on regulatory systems and has forced producers to change marketing, change ingredient sourcing and product formulas, and invest less in biotech research and development.¹⁹⁹ A spokesperson from the U.S. grocery industry expressed anxiety that the EU's ideas may spread: "Other countries are emulating the EU rules. The EU is a model for the rest of the world. If the United States does not act, other countries will erect non-science barriers to trade."²⁰⁰

In the United States, labeling is currently voluntary. This is in keeping with the United States's traditional philosophy on food technology that says that GM foods are safe if testing reveals no material differences in quality, safety, or nutritional composition of the foods.²⁰¹ The FDA's labeling guidelines are designed to ensure labels are honest and not misleading. Labels can say things like "derived through biotechnology" or "bioengineered" but not "GM free," "GMO," or "modified."²⁰² While there have been both supply and demand side arguments

¹⁹⁸ See *id.*

¹⁹⁹ See Stephen Clapp, *Traceability, Labeling Called Impediment to Global Trade*, Pesticide & Toxic Chemical News, Dec. 15, 2003, at 6, available at LEXIS, News Library, IAC Newsletter Database (quoting USDA official Bobby Richey). Ironically, another criticism of the GMO Food and Feed Regulation is that the data, detection, and reporting requirements are "not achievable at the current state of scientific knowledge." See Peter Berry Ottaway, *New EU GMO Regs in Force—Major Impact on Producers Expected*, NUTRACEUTICALS INTERNATIONAL, NOV. 2003, available at LEXIS, News Library.

²⁰⁰ Clapp, *supra* note 199 (quoting Karil Kochenderfer, New Technologies Director at the Grocery Manufacturers of America). In Canada, the grocery industry recently reached some agreement on the labeling of food products to indicate that they do or do not contain GMOs. Producers may voluntarily label their products "Free of genetically engineered ingredients," as long as they can prove this statement. However, labels such as "may contain GMOs" or "may not contain GMOs" will not be allowed. Such vague labels might suggest uncertainty regarding the safety of GMOs, an uncertainty that the Canadian government, like the U.S. and Argentinian governments, does not want to acknowledge. See George H. Condon, *A Different Way to Look at Labelling of GMOs*, CANADIAN GROCER, Nov. 2003, at 82.

²⁰¹ York, *supra* note 17, at 441.

²⁰² *Id.*

against labeling,²⁰³ U.S. consumers want more information about what they are eating. According to the U.S. Department of Agriculture (USDA), 99 percent of people in the United States want the labels of GM foods to clearly identify that the product is bioengineered.²⁰⁴

Many of the U.S. consumers who want labeling of GM foods are concerned not just with food safety; they also have cultural and social reasons for wanting labels, which should not be ignored.²⁰⁵ Indeed, the push for labeling is receiving more attention from U.S. policy makers.

Although ethical and moral grounds may be impossible to quantify through scientific studies, they are arguably a component of many policy decisions and must not be discounted. Regardless of why they do not wish to consume genetically modified foods, a great number of people would prefer not to eat them. In response to this concern, a number of states and cities have attempted to require labeling, and federal bills are pending in Congress that would mandate labeling.²⁰⁶

A key feature of the EU's GMO Food and Feed Regulation is that it explicitly allows countries to weigh non-scientific factors, in addition to scientific ones, in determining whether or not to allow the marketing of a new GM food.²⁰⁷

Importantly, this procedure involves more than a straightforward scientific evaluation of the safety of the genetically modified food. There is an opportunity for the Member States to block approvals of new genetically modified foods (as they have been doing for years), and the regulation explicitly invites consideration of other legitimate factors, meaning factors other than food safety.²⁰⁸

²⁰³ See, e.g., *id.* at 442. From the perspective of producers, some argue that mandatory labeling raises costs 10 to 30 percent. Those who support GMOs argue, on behalf of consumers, that labeling could scare away consumers for no reason.

²⁰⁴ *Id.*

²⁰⁵ See Matthew Rich, *The Debate Over Genetically Modified Crops in the United States: Reassessment of Notions of Harm, Difference, and Choice*, 54 Case W. Res. L. Rev. 889, 907 (2004).

²⁰⁶ *Id.* at 907-8.

²⁰⁷ See Joy, *supra* note 184.

²⁰⁸ *Id.* However, the regulation does not specify what these other factors are. GMO Food and Feed Regulation, *supra* note 181.

However, the regulation does not specify what these other factors are.²⁰⁹ If the EU expressed the social and cultural factors that it incorporates into risk management, the United States might be led to at least confront and address their validity. This could be the beginning of a dialogue, and dialogue could be a step toward compromise. Otherwise, labeling will be just another battle in the ongoing GMO war.

C. A NEW APPROACH: ACKNOWLEDGING GMOs AS A CULTURAL ISSUE

Those who have faith in the current WTO regulatory framework believe that the solution to the GMO standstill between the EU and the United States is convincing the EU that U.S. assertions defending the safety of GMOs are objective and sound.²¹⁰ Others believe that handling GMOs with some legal tool outside of the WTO is necessary and could benefit not just consumers, but also corporations who market GMOs.²¹¹ In any case, it seems unquestionable that “the U.S. must make more constructive and efficient use of international organizations and agreements.”²¹² This means taking part in treaty negotiations that recognize the legitimate concerns of participating nations and signing onto transparent, thoughtful, and relevant agreements.

What this calls for is a new approach to GMO policy-making, one that openly acknowledges cultural differences and factors these into risk assessment and regulation. “It is often hard to

²⁰⁹ The regulation says: “It is recognized that, in some cases, scientific risk assessment alone cannot provide all the information on which a risk management decision should be based, and that other legitimate factors relevant to the matter under consideration may be taken into account.” GMO Food and Feed Regulation, *supra* note 181, ¶ 32.

²¹⁰ See, e.g., York, *supra* note 17, at 469. York writes “The U.S. must provide European consumers, through their national regulators and politicians, with a convincing showing that American manufactured GM products have been subjected to health and environmental risk assessment and that the potential production and economic risks attached to first generation GMOs have been resolved. . . .”

²¹¹ *Linking Trade and Sustainable Development: Roundtable Discussion*, 18 AM. U. INT’L L. REV. 1303, 1311 (2003). Professor Robert L. Howse of the University of Michigan Law School said “you will ultimately not shove these products down the throats of Europeans, so trying to resolve the matter in the WTO. . . is likely only to buy you ill will and bad blood and is not likely to make people eat any more GM modified [sic] food than they are eating now.” *Id.*

²¹² York, *supra* note 17, at 470.

quantify social costs, but this doesn't mean they are insignificant."²¹³ In order to understand these cultural and social factors, the United States must attempt to educate itself on European farming and food heritage and to understand how essential this is to European society.

One way of doing this might be to heed the voices of the people, not just of corporations, scientists, and politicians. Giving the public a greater say in policy is one way to raise consumer confidence in GMOs.²¹⁴ This must include public input not just on scientific issues,²¹⁵ but also on cultural issues.²¹⁶ Such public participation could take different forms, including direct decision making, providing the information on which decisions are based, identifying factors that others might consider in making decisions, soliciting public opinion, facilitating productive dialogue, and helping to inform and educate participants.²¹⁷ Whether this public participation occurs on the local, regional, national, or international level depends on the issue.²¹⁸ For example, GM food safety might best be addressed at the national level, in a single forum, while the environmental and economic impact of GM crops, which is more likely to be affected by local and regional conditions, might be more appropriately addressed in a more local forum.²¹⁹ Agricultural heritage and food culture as they relate to GMO policy might be addressed at the local, regional, and national levels, depending on the specific issue.

²¹³ David Morris, *supra* note 103, at 83.

²¹⁴ See Gary E. Marchand & Andrew Askland, *Symposium: Confidence—Building Measure For Genetically Modified Foods. Potential Public Consultation and Participation Mechanisms*, 44 JURIMETRICS JOURNAL 99, 101 (2003).

²¹⁵ See *id.*

²¹⁶ Regarding U.S. GMO policy, one author writes “On a fundamental level, regulation of genetically modified crops should occur as a response to the growing concerns voiced by both the general public, as well as members of the scientific community.” Rich, *supra* note 205, at 914.

²¹⁷ Marchand & Askland, *supra* note 214. Informing and educating must be objective. Multinationals have huge budgets for research and for disseminating info, and there is great profit incentive for them to demonstrate the safety and downplay the risks of GMOs. One author suggests that Monsanto, Syngenta, and other GMO multinationals could see significant economic returns if they engage in a massive advertising campaign to “inform” the public of the benefits of GMOs. See Wallace E. Huffman, *The Public Good Value of Information From Agribusiness on Genetically Modified Foods*, AM. J. OF AGRIC. ECON., Dec. 1, 2003, at 1309, available at LEXIS, News Library. Whether this “information” would be educational or manipulative is a fair question.

²¹⁸ Marchand & Askland, *supra* note 214, at 134.

²¹⁹ *Id.*

In the end, both the United States and the EU need to honestly assess and to communicate the cultural, social, and economic interests that factor into their attitudes and policies toward GMOs. This requires listening not just to scientists, businesspeople, and politicians, but also to the people who produce and consume food every day. With a better understanding of each other's various motivations and concerns, the United States and the EU would be armed to negotiate an agreement that is mutually acceptable and enduring. While the substance of such an agreement is beyond the scope of this article, it can be said that it might take the form of another WTO agreement that bridges the cultural gaps in the existing WTO agreements that have been applied to food safety disputes so far.

VI. CONCLUSION

GMOs continue to make international headlines. Each week the news is rife with examples of disagreement between the EU and the United States regarding how freely GMOs should flow across national borders. This paper has surveyed the debate and demonstrated that much of the discussion focuses on attempts to scientifically assess the potential positive and negative impact of GMOs on human health and the environment and to balance that with economic expectations. It has suggested that this overlooks the real impasse: culture.

For the EU, food culture is not about corporate culture or the culture in a Petri dish; it is about the history and attitudes of the people. While food tends to represent economic growth in the United States, in EU countries it represents heritage. The U.S. and the EU governments can begin to negotiate a solid agreement regarding international trade in GMOs if both powers recognize that implicit in the GMO debate is this sharp cultural contrast. Accordingly, the views and concerns of the people of the EU and the United States—the consumers of GMOs—must play a central role in policy making. When regulations begin to respect consumer choice and to incorporate the ways in which the people of the EU and the United States value economy, history, and culture differently, the emerging legal framework will have legitimacy throughout the international community and will serve as a model for other international trade disputes.