

# Preserving Biological Diversity in North America: TLCAN and the Implications of the CEC's Transgenic Maize Report

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## Summary

Biodiversity plays a fundamental role in the survival of species and humans. It provides us with the necessary means to survive on earth. Biodiversity is being depleted due to overpopulation, invasive species and the potential threats of biotechnology. In North America, issues of biodiversity preservation have been addressed in the NAFTA forum by the Commission for Environmental Cooperation. This environmental organization produced a Report in which acknowledged the challenges in preserving biological diversity, the potential threats of Living Modified Organisms in this region, and the clash between environmental preservation and international trade.

*Key words:* NAFTA, NAAEC, biodiversity preservation in North America, LMOs.

## 1. Overview

Since its creation, the North American Free Trade Agreement (NAFTA) has been considered one of the greenest trade agreements for its environmental provisions and for the creation of an environmental side agreement that promotes environmental cooperation and law enforcement among the parties, namely, the North American Agreement on Environmental Cooperation (NAAEC).<sup>2</sup> NAFTA's

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<sup>2</sup> North American Agreement on Environmental Cooperation (NAAEC), Sept. 14, 1993, Can.-Mex.-U.S., 32 I.L.M. 1480 (entered into force Jan. 1, 1994).

environmental agreement provides for the creation of the Commission for Environmental Cooperation (CEC) to reconcile trade and the environment in this region and to 'green' the North American Free Trade Agreement.<sup>3</sup>

Similar to the World Trade Organization (WTO) Agreements, NAFTA contains provisions on Sanitary and Phytosanitary (SPS) measures allowing states to choose their sanitary level for the protection of human, animal or plant life or health, and encourages them to base such measures on international standards and on scientific evidence.<sup>4</sup> NAFTA's SPS provisions converge, and at times seem to clash, in the preservation of species and the environment with those of Multilateral Environmental Agreements (MEAs), such as the United Nations Convention on Biological Diversity (CBD) and the Cartagena Protocol on Biosafety (Cartagena Protocol). Issues regarding genetic modification and the preservation of biodiversity have been addressed under the NAFTA forum by means of NAFTA's environmental institution, the Commission of Environmental Cooperation (CEC).

The CEC addressed a complaint regarding the introduction of transgenic maize from the United States into Mexican landraces. The maize was intended for human consumption but was planted by farmers who follow ancient traditions such as saving seeds for future seasons.<sup>5</sup> It produced a report based on Article 13 of the NAAEC, which allows the Secretariat to address environmental matters related to the cooperative functions of the Agreement. The CEC Maize Report recognized Mexico's richness in biological resources, but noted that this country was unable to monitor the introduction of transgenic maize and that it was unable to enforce a moratorium on transgenic maize imports.

The study of NAFTA in the context of Living Modified Organisms (LMOs) is of paramount importance because it establishes, *inter alia*, phytosanitary rules in North America that impact the transit and movement of these organisms and, like WTO trade Agreements, it covers issues on trade in LMOs that are also dealt with in the Cartagena Protocol. The rest of the Chapter is therefore, focused on the NAFTA regime and its contribution to the potential of biodiversity preservation through its environmental provisions, particularly as regards instituting sanitary and phytosanitary measures by State parties.

Section 2, next, provides an introduction to biodiversity, biotechnology and LMOs. Following that, Section 3 discusses the regime of environmental protection

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<sup>3</sup> *Ibid.* art. 8.

<sup>4</sup> North American Free Trade Agreement (NAFTA), Dec. 17, 1992, Can.-Mex.-U.S., 32 I.L.M. 298 (entered into force Jan. 1, 1994). art. 712.

<sup>5</sup>Maize and Biodiversity: The Effects of Transgenic Maize in Mexico: Key Findings and Recommendations. Commission for Environmental Cooperation of North America (CEC), (2004), online: <<http://www.cec.org/maize>>. This independent report was prepared by the Secretariat of the CEC according to Article 13 of the North American Agreement of Environmental Cooperation (NAAEC). at 21.

created by the NAAEC and the central role of the CEC in ensuring its observance. It is argued that the CEC could play a more substantial role in preserving Mexico's biological diversity. For Mexico, the impact of the functioning of the CEC is, thus far, most remarkably demonstrated in the Transgenic Maize Report. Section 4 analyses the CEC's Transgenic Maize Report in terms of its findings on the potential effects of the unmonitored and unregulated introduction of transgenic maize into Mexican agriculture. It also sums up the Reports' main recommendations, the reactions of the NAFTA parties to it, and above all, its exposure of policy, institutional and regulatory weaknesses in Mexico's structure of environment and resources preservation.

In the concluding Section 5, it is argued that free trade promotion obligations under NAFTA have, as illustrated by the Maize Report, made observation of environmental protection obligations a balancing act. In the result, the potential effectiveness of the NAAEC, could hardly ensure serious biodiversity preservation efforts in Mexico for their own sake.

## **2. Biodiversity, Biotechnology and Living Modified Organisms**

Biological diversity is essential for maintaining the earth's balance. Vegetation and plants preserve nutrients and essential elements in the soil.<sup>6</sup> Clearing vegetation not only decreases soil productivity but also affects the stability of climate.<sup>7</sup> Biodiversity plays a role in the survival of ecosystems against environmental shocks. Healthy ecosystems help control most pests and dramatically improve the possibilities of reconstruction in the event of a fire or natural disaster.<sup>8</sup>

Since its birth, 'biodiversity' has been defined in different ways. According to some, there are about eighty-five definitions of this term.<sup>9</sup> Definitions of biodiversity vary from 'variety of life', 'life on earth' to the most comprehensive definition contained in the Biodiversity Convention.<sup>10</sup> Biodiversity for others is a complex concept that can be explained but not defined.<sup>11</sup> In spite of the variations in the definition of the concept, there are certain points on which academics agree.

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<sup>6</sup> Singh, B.K., *Biodiversity: Conservation and Management*, (Jaipur, India: Mangal Deep, 2004) at 70-73.

<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*

<sup>9</sup> Gaston, J. Kevin & John Spencer, *Biodiversity: An Introduction*, (United Kingdom: Blackwell, 2004) at 3-4.

<sup>10</sup> Perlman, Dan L. & Adelson, Glenn, *Biodiversity: Exploring Values and Priorities in Conservation*, (Cambridge, Massachusetts: Blackwell Science, 1997) at 7-8. See also CBD, *supra* note 1 art. 2.

<sup>11</sup> *Ibid.* at 11-12.

First, diversity is an essential element in the preservation of species and organisms.<sup>12</sup> Second, biodiversity is closely related to our survival and existence;<sup>13</sup> third, biological resources are being depleted,<sup>14</sup> and lastly, human activities are causing this depletion.<sup>15</sup>

Biodiversity is defined in Article 2 of the United Nations Convention on Biological Diversity (CBD) as:

The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.<sup>16</sup>

There are two elements in this definition that are of paramount importance: variability of organisms and levels of biodiversity. Diversity of organisms can be seen from two angles, namely, the variety of similar species,<sup>17</sup> such as the different types of sharks; and taxonomic diversity, that is the presence of a bigger group in a species classification. There are seven groups according to which species can be classified: Kingdom, Phylum, Class, Order, Family, Genus, and Species.<sup>18</sup>

Overpopulation, invasive species and Living Modified Organisms have been identified as potential threats to biological diversity. Overpopulation infringes upon ecosystems, species and genetic diversity.<sup>19</sup> An increase in population intensifies the consumption of natural resources, the generation of waste and the transformation of natural ecosystems in urban zones and landing areas.<sup>20</sup> Invasive species are also a powerful factor in the depletion of biological resources. They are introduced to different environments by human beings. These factors are considered in turn.

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<sup>12</sup> Solbrig, O.T. & Endeb Van (eds.), *Biodiversity and Global Change*, (Wallinford, UK: Cab International, 1994) at 41.

<sup>13</sup> Reaka-Kudla, Wilson, Don E. (eds), *Biodiversity II: Understanding our Biological Resources*, (Washington D.C. Joseph Henry Press, 1997) at 15-24.

<sup>14</sup> Raven Peter (ed), *Nature and Human Society*, (Washington D.C: National Academy Press, 1997) at 46-60. See also Gaston, J. Kevin, *supra* note 65 at 107-109

<sup>15</sup> *Ibid.* at 303-305.

<sup>16</sup> United Nations Convention on Biological Diversity (CBD), June 5, 1992, 31 I.L.M. 818, (entered into force Dec. 29, 1993) Mexico ratified the CBD on March 11, 1993.

<sup>17</sup> Gaston, J. Kevin & John Spencer, *supra* note 8 at 4-5.

<sup>18</sup> Nixon, Joshua "Taxonomy", Michigan State University, (2006), online: <<http://www.msu.edu/~nixonjos/armadillo/taxonomy.html>>.

<sup>19</sup> *Ibid.*

<sup>20</sup> Secretariat of the Environment and Natural Resources (SEMARNAT), Mexico's Environmental Statistics (2005), at 24-25, online: <<http://www.semarnat.gob.mx/informacionambiental/pages/sniarn.aspx>> at 24-25.

The introduction of alien species, other than habitat destruction, is considered the most important threat to biodiversity.<sup>21</sup> Some consider this as the threat of the new millennium.<sup>22</sup> Species become invasive when they are transported to a different environment in which they alter ecological systems and prey on native species. These species hold the potential to negatively affect terrestrial and aquatic biological diversity by disrupting and destroying ecosystems and by limiting the ability of native species to exist and reproduce.<sup>23</sup>

Although traditional farmers manipulated crops, the development of biotechnology seems to be inextricable from genetic manipulation. Biotechnology is defined in Article 2 of the CBD as "any technological application that uses biological systems, living organisms or derivatives thereof, to make or modify products or processes for specific use."<sup>24</sup> Biotechnology is closely related to genetic engineering and to biodiversity. It relates to genetic engineering because it deals with the process of manipulating genes across organisms and species.<sup>25</sup> It also relates closely to biological diversity because biotechnology employs genetic material essential to manipulate organisms.<sup>26</sup> Thus the existence of biotechnology corporations largely depends on the availability of such biological resources.<sup>27</sup>

Overall, a relationship can be seen between biodiversity and biotechnology. Biodiversity provides biotechnology with particular characteristics of species required to engineer 'improved' organisms. Its preservation is essential for the development of this technology.

### 3. The North American Free Trade Agreement

This Agreement was created in accordance with the international trade regime established in Article XXIV of the General Agreement on Tariffs and Trade.<sup>28</sup> NAFTA, in relation to GATT, represents a regional agreement in North America to

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<sup>21</sup> Bergmans, Wim & Blom, Esther, *Invasive Plants and Animals: Is there a way out?*, (Netherlands: IUCN, 2001) at 19.

<sup>22</sup> Cox, George W., *Alien Species and Evolution: The Evolutionary Ecology of Exotic Plants, Animals, Microbes, and Interacting Native Species*, (Washington: Island Press, 2004) at 4-5.

<sup>23</sup> *Ibid.*

<sup>24</sup> CBD, *supra* note 15 art. 2.

<sup>25</sup> Kumar, Har D., *Biodiversity and Sustainable Conservation*, (Enfield, New Hampshire: Science Publishers, 1999) at 18-19.

<sup>26</sup> Bosselmann, Klaus, *The International Legal Regime Concerning Biotechnology and Biodiversity*, (1996) 7 *Colo. J. Int'l Env'tl. L. & Pol'y* 111. at 116 (LEXIS).

<sup>27</sup> Sanjay, Sharma & Nguan Oliver, "The biotechnology industry and strategies of biodiversity conservation: The influence of managerial interpretations and risk propensity", (1999) 8 *Business Strategy and the Environment* 1 at 47.

<sup>28</sup> General Agreement on Tariffs and Trade (GATT), Oct.30, 1947, 61 Stat. A-11 T.I.A.S. 1700 U.N.T.S. 194, as modified by Marrakech Agreement of the World Trade Organization, Annex 1A, *Legal Instruments of the Uruguay Round vol.1*, 33 I.L.M. 1154 (1994). Art. XXIV (5). Regarding regional agreements, this Article provides "Accordingly, the provisions of this Agreement shall not prevent, as between the territories of contracting parties, the formation of a customs union or of a free-trade area or the adoption of an interim Agreement necessary for the formation of a customs union or of a free-trade area."

further international trade.<sup>29</sup> It is a comprehensive Agreement that reduces gradually tariffs among the parties. It regulates market access, rules of origin, energy, agriculture, investments, intellectual property, labor and the environment.<sup>30</sup>

NAFTA is, for some, the most environmentally conscious trade Agreement in force because several of its provisions refer to the environment.<sup>31</sup> In the preamble of this Agreement, the three North American parties, Canada, the United States and Mexico, stated their environmental objectives:

To promote sustainable development... to strengthen the development and enforcement of environmental laws and regulations.<sup>32</sup>

In addition, NAFTA's Article 904 on Standards-Related Measures, refers to the environment and to the protection of human health. This Article on the rights and obligations of the Parties provides that:

Each Party may, in accordance with this Agreement, adopt, maintain or apply any standards-related measure, including any such measure relating to safety, the protection of human, animal or plant life or health, the environment or consumers, and any measure to ensure its enforcement or implementation.<sup>33</sup>

The aforementioned provision refers to measures other than sanitary and phytosanitary (SPS) measures as a way to deal with the preservation of human health and the environment.<sup>34</sup> NAFTA specifically refers to its relationship with MEAs. On this matter, Article 104 states that provisions of the Convention on

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<sup>29</sup> NAFTA's Article 101 provides that this Agreement was created in consistency with Article XXIV of the General Agreement on Tariffs and Trade. NAFTA, *supra* note 3 art. 101.

<sup>30</sup> Winham, Gilbert & Grant, Heather, "NAFTA: An Overview" in Barry, Donald, Dickerson, Mark, Gaisford, James, (eds), *Towards a North American Community? Canada, the United States, and Mexico*, (Boulder: Westview Press, 1995) at 15. See also Izquiereo, Jordan, "Progress by Mexico in Selected Areas and the North American Free Trade Agreement" (1998), 31 *Transportation Law Institute* at 331-332. (Lexis).

<sup>31</sup> Hufbauer, Gary C., (et al), *NAFTA and the Environment: Seven Years Later*, (Washington, DC: Institute for International Economics, 2000) at 5.

<sup>32</sup> NAFTA, *supra* note 3 see preamble.

<sup>33</sup> *Ibid.* art. 904. See Ludwizewski, Raymon & Seley, Peter, "Green Language in the NAFTA: Reconciling Free Trade and Environmental Protection" in Bello, Judith, Holmer, Alan, Norton, Joseph, (eds) *The North American Free Trade Agreement: A New Frontier in International Trade and Investment in the Americas*, (Washington: American Bar Association, 1994) at 375-377.

<sup>34</sup> *Ibid.*

International Trade in Endangered Species of Wild Fauna and Flora (CITES),<sup>35</sup> the Montreal Protocol on Substances that Deplete the Ozone Layer of 1987<sup>36</sup> and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal of 1989<sup>37</sup> will prevail over those of NAFTA in cases of disagreements "to the extent of the inconsistency, provided that where a Party has a choice among equally effective and reasonably available means of complying with such obligations."<sup>38</sup>

NAFTA contains provisions related to SPS measures which are based on the WTO SPS Agreement<sup>39</sup> and encompass the following principles: parties are forbidden from discriminating and from imposing disguised barriers to trade.<sup>40</sup> NAFTA's SPS measures in Chapter 7 allow a State party to choose its level of protection when implementing phytosanitary measures. Article 712 on the matter provides that:

Each Party may, in accordance with this Section, adopt, maintain or apply any sanitary or phytosanitary measure necessary for the protection of human, animal or plant life or health in its territory, including a measure more stringent than an international standard, guideline or recommendation.<sup>41</sup>

According to NAFTA, State parties must base their protection standards on scientific principles and on risk assessment.<sup>42</sup> The assessment of risks adopted in NAFTA must be based on methodologies and techniques set by North American or international standardizing institutions,<sup>43</sup> on relevant scientific evidence and inspection, sampling and testing methods.<sup>44</sup> In addition to satisfying the risk assessment requirements when adopting an SPS measure, State parties are obliged to establish such levels of protection only as necessary to achieve their goals and

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<sup>35</sup> Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), *opened for signature* Mar. 3, 1973, 27 U.S.T 1087, 993 U.N.T.S 243.

<sup>36</sup> Montreal Protocol on Substances That Deplete the Ozone Layer, Sept. 16, 1987, 26 I.L.M. 1541 (1987).

<sup>37</sup> Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Mar. 22, 1989, 28 I.L.M. 657, 1673 U.N.T.S. 57, online: <<http://www.basel.int/text/con-e.pdf>>.

<sup>38</sup> NAFTA, *supra* note 3 art. 104.

<sup>39</sup> Meilke, Karl, "An Appraisal of the SPS Provisions of the North American Free Trade Agreement" (2001) U.S. Agency for International Development, online: <[http://www.satradehub.org/CXA\\_html/docs/reports/An%20appraisal%20of%20the%20SPS%20provisions%20on%20the%20NAFTA.pdf](http://www.satradehub.org/CXA_html/docs/reports/An%20appraisal%20of%20the%20SPS%20provisions%20on%20the%20NAFTA.pdf)>. at 7.

<sup>40</sup> *Ibid.* at 7-8.

<sup>41</sup> NAFTA, *supra* note 3 art. 712.

<sup>42</sup> *Ibid.*

<sup>43</sup> Four regional and international standards are recognized by NAFTA: the Codex Alimentarius Commission, the International Office of Epizootics, the International Plant Protection Convention, and the North American Plant Protection Organization.

<sup>44</sup> NAFTA, *supra* note 3 art. 715.

keeping in mind economic and technical factors and minimizing, as far as possible, negative effects on trade.<sup>45</sup>

Non-discrimination is also an essential component of the establishment of SPS measures. States are required to provide equal treatment between their goods and goods from another State party, or between goods of another Party and like goods of any other State, where identical or similar conditions prevail.<sup>46</sup> Similar to the WTO's SPS Agreement, NAFTA allows states in cases of lack of scientific evidence, to impose provisional SPS measures for a 'reasonable period of time', thus allowing them to obtain scientific evidence regarding the SPS measure.<sup>47</sup>

NAFTA also created a Sanitary and Phytosanitary Commission composed of the representatives of the three countries.<sup>48</sup> This Commission consults parties with regard to SPS measures and has the authority to constitute *ad hoc* committees and groups of experts to address any concerns of NAFTA members. Under the procedural rules of the Phytosanitary Commission, State parties alleging violations of this section by another party or parties have the burden of establishing the inconsistency.<sup>49</sup>

Overall, clashes over LMO regulation can potentially take place before the NAFTA forum. This trade Agreement, similar to the WTO's SPS Agreement, encourages states to base their level of protection on international standards and on scientifically-based risk assessments. However, due to the small membership and to the geographical location of the parties, NAFTA provides more room for interaction and technical cooperation among its members.

In sum, NAFTA seems to provide support and guidance for parties regarding the establishment of SPS measures. The application of the Cartagena Protocol in North America, if it is based on strict scientific standards, is likely to be deemed compatible with NAFTA's provisions as long as such measures are based on a scientifically-based risk assessment and on non-discriminatory measures.

Mexico, a party to NAFTA and to the Cartagena Protocol faces enormous pressure to balance its obligations under these Agreements, especially in light of the powerful economic and commercial influence of two of the world's biggest LMO producers, the United States and Canada. This regional relationship is likely to influence not only Mexico's policy but also the country's legislative and institutional structures. One example of such regional influence is the North American

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<sup>45</sup> *Ibid.* art. 712.

<sup>46</sup> *Ibid.* art. 712 (4).

<sup>47</sup> *Ibid.* art. 715 (4).

<sup>48</sup> *Ibid.* art. 722.

<sup>49</sup> *Ibid.* arts.722-723.



Biotechnology Initiative among the three NAFTA countries which will focus of the following section.

## 2.1 The North American Biotechnology Initiative (NABI)

The North American Biotechnology Initiative is an example of the implementation of NAFTA SPS measures and of the influence of the Cartagena Protocol with non-parties. This initiative was undertaken at the same time as the CEC's Advisory group began the analysis of the effects of transgenic maize in Mexico. NABI comprises Mexico Canada<sup>50</sup> and the United States as members. It aims to provide uniform documentation requirements for the export and import of LMOs for Food Feed, or Processing (FFPs).<sup>51</sup> This Agreement was signed in October of 2003 to harmonize SPS measures since the United States is not party to the Cartagena Protocol and Canada has not ratified this Protocol.<sup>52</sup>

The documentation Agreement is based on Article 24 of the Cartagena Protocol which, regarding the transfer of LMOs, provides that:

Transboundary movements of living modified organisms between Parties and non-Parties shall be consistent with the objective of this Protocol. The Parties may enter into bilateral, regional and multilateral agreements and arrangements with non-Parties regarding such transboundary movements. The Parties shall encourage non-Parties to adhere to this Protocol and to contribute appropriate information to the Biosafety Clearing-House on living modified organisms released in, or moved into or out of, areas within their national jurisdictions.<sup>53</sup>

The objective of the documentation Agreement under NABI on LMO-FFPs is to provide the parties with notification that the export "may contain" LMO-FFPs.

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<sup>50</sup> Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Feb. 23, 2000), Entered into force 11 September 2003, online: <<http://www.biodiv.org/biosafe/BIOSAFETY-PROTOCOL.htm>>. (Mexico ratified the Cartagena Protocol on September 11, 2003 ). Canada signed the Cartagena Protocol on April, 19,2001. See Cartagena Protocol on Biosafety (Montreal, 29 January 2000), Status of Ratification and Entry Into Force, online: <<http://www.biodiv.org/biosafety/signinglist.aspx?ts=rtf&ord=dt>>.

<sup>51</sup> Documentation Requirements for Living Modified Organisms for Food or Feed, or for Processing (LMO/FFP's), (October, 2003), online: <[http://www.agr.gc.ca/itpd-dpci/english/topics/bsp\\_trilateral.htm](http://www.agr.gc.ca/itpd-dpci/english/topics/bsp_trilateral.htm)>. See also Workshop on Technical Cooperation and Information Exchange on Safety in Agricultural Biotechnology, North American Initiative Biodiversity Initiative, (China, December 2003), online: <<http://www.inspection.gc.ca/english/sci/biotech/capac/pdf/rdeab7.pdf>>. at 11-12.

<sup>52</sup> Documentation Requirements for Living Modified Organisms for Food or Feed, or for Processing (LMO/FFP's), *Ibid.*

<sup>53</sup> Cartagena Protocol, *supra* note 49 art. 24.

These notification requirements will be employed with exports that contain more than 5 percent of the commodities that are of transgenic origin.

The implementation of NABI, ideally has the potential to aid Mexico in implementing the Cartagena Protocol by alerting this country to the potential presence of LMO-FFPs. The effectiveness of the initiative, however, similar to the CBD and to the Cartagena Protocol, will depend on Mexico's will to allocate the required financial resources and to create the structure needed at the point of entry to classify the large amounts of maize imports it receives from the United States. A study of the 2004 CEC's Transgenic Maize Report in Section 4 will allow us to see the recommendations produced and the prospects for biodiversity preservation that those recommendations offer if they are followed. It will also give us a sense of progress of NABI since its creation in 2003. The institutional context for that Report is the function of the CEC working under NAAEC. To this the discussion now turns.

### **3. The NAAEC and the Commission for Environmental Cooperation**

The NAAEC was created under political pressure due to the contamination that the manufacturing program of U.S companies (*The Maquiladora Program*) had visibly caused along the Mexican border.<sup>54</sup> The NAAEC, then, was created as a side Agreement to green NAFTA and to balance trade interests with environmental protection in North America.<sup>55</sup>

NAAEC's objectives are outlined in Article 1, which among others, provides for increasing cooperation among the parties to protect the environment including wild flora and fauna.<sup>56</sup> It also aims to strengthen cooperation for the development and improvement of environmental laws, regulations, procedures, policies and practices and to promote transparency and public participation in the development of environmental laws, regulations and policies.<sup>57</sup>

NAAEC sets out series of principles for achieving its objectives. It acknowledges that parties have freedom to choose levels of protection and to develop their environmental policies, but encourages them to "ensure that their laws and regulations provide for high levels of environmental protection and that they shall strive to continue to improve those laws and regulations."<sup>58</sup> It asks parties to enforce their environmental laws by

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<sup>54</sup> Weiss, Aimee L., "An Analysis of the North American Agreement on Environmental Cooperation" (1998) 5 ILSA J. Int't & Comp. L. 185. at 195.

<sup>55</sup> *Ibid.* at 195-196.

<sup>56</sup> NAAEC, *supra* note 1 art. 1.

<sup>57</sup> *Ibid.*

<sup>58</sup> *Ibid.* art. 3.

Appointing and training inspectors; monitoring compliance and investigating suspected violations, including through on-site inspections; seeking assurances of voluntary compliance and compliance agreements; promoting environmental audits; using licenses, permits or authorizations.<sup>59</sup>

One of the major achievements of the NAAEC is the establishment of the Commission of Environmental Cooperation of North America.<sup>60</sup> The CEC is a Ministerial Commission similar to a free trade commission.<sup>61</sup> This institution is controlled by a Council made up of representatives of Mexico, Canada and the United States. The Council serves as a forum for the discussion of matters related to the environment within the scope of the NAAEC. It oversees the CEC's Secretariat and addresses the differences among these three countries regarding the interpretation of this Agreement.<sup>62</sup>

The role of the CEC in protecting the environment and particularly in North America, according to the NAAEC, can be performed in two ways. One is the promotion of environmental protection by means of public reports under Article 13,<sup>63</sup> which focuses on activities within NAFTA's jurisdiction. An example of this is the Mexican Transgenic Maize Report,<sup>64</sup> developed by the Secretariat due to public concerns of transgenic sequences in Mexico's native maize.

The other procedure is to promote national compliance with domestic environmental laws of NAFTA parties by means of a public complaint procedure outlined in Article 14 of NAAEC.<sup>65</sup> The complaint procedure of the CEC was crafted to allow North American non-governmental organizations (NGOs) and citizens to file public complaints regarding the effective application of a party's environmental law.<sup>66</sup> NAAEC Article 14 (1) establishes that complaints must meet two important considerations: that the complaint is aimed at promoting enforcement and, that the complaint provides sufficient information to substantiate the claimant's assertions.<sup>67</sup>

In addition to these requirements, the CEC considers several aspects of requesting a response from the Party, such as if national private remedies have been exhausted, if harm has been brought to the complainant, and if such

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<sup>59</sup> *Ibid.* art. 5.

<sup>60</sup> Bolinger, Christopher N., "Assessing the CEC on its record to date," (1997) 28 *Law and Pol'y in Int'l. Bus.* 1107. at 1107-1108. (Proquest).

<sup>61</sup> Johnson, Pierre Marc, & Beaulieu, Andre, *The Environment and NAFTA: Understanding and Implementing the New Continental Law* (Peterborough, Ontario: Island Press, 1996) at 131.

<sup>62</sup> NAAEC, *supra* note 1 art. 10.

<sup>63</sup> *Ibid.* art. 13.

<sup>64</sup> See *Maize and Biodiversity: The Effects of Transgenic Maize in Mexico*, *supra* note 4.

<sup>65</sup> NAAEC, *supra* note 1 arts. 14-15.

<sup>66</sup> *Ibid.*

<sup>67</sup> *Ibid.* art. 14 (1).

complaint may further the objectives set forth in NAAEC such as: to foster the preservation and improvement of the environment; to promote sustainable development; to increase cooperation; to support the environmental goals and objectives of the NAFTA and to strengthen cooperation on the development and improvement of environmental laws, regulations, procedures, policies and practices.<sup>68</sup> Successful complaints brought before the CEC may culminate in factual records that outline the background of the problem, the actions of the Party and the facts relevant to the complaint.<sup>69</sup> The factual record can be made public by a two-thirds vote of the Council's members.<sup>70</sup>

The CEC's public complaint procedure in the case of LMOs presents several problems. The harm requirement of Article 14(2)<sup>71</sup> to request a response from the party that allegedly did not enforce its environmental law is not likely to be met since scientific evidence is not yet conclusive on the effects of LMOs on human health and on the environment. Acquiring such information can potentially represent a burden for individuals, particularly in Mexico, due to the socioeconomic conditions in this country. Consequently, the supporting documentation requirements required in Article 14 (1) are not likely to be met. Lastly, even if a complaint is accepted, it could take years for a decision to be reached since the CEC's Council lacks time constraints or procedural timelines, particularly in regard to revising and analyzing legal drafts related to a complaint.<sup>72</sup>

Although the CEC has tangentially addressed issues posed by LMOs, it is simply a political organization that reflects the will of the three countries and which was created to further NAFTA objectives. This Environmental Commission lacks autonomy since recommendations and environmental initiatives must be approved by the Council.<sup>73</sup> In this context, it would be fair to say that the CEC has limited capacity to deal with the threats posed by LMOs and to preserve biodiversity in North America. Even so, that limited capacity, especially in terms of reporting on environmental concerns, can be utilized to good effect. The Transgenic Maize Report demonstrates this, and we look at that next.

#### **4. The Transgenic Maize Report**

##### *The Context*

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<sup>68</sup> *Ibid.* art. 1.

<sup>69</sup> Commission for Environmental Cooperation of North America, *Bringing Facts to the Light*, (2002) at 1-2.

<sup>70</sup> *Ibid.*

<sup>71</sup> NAAEC, *supra* note 1 art. 14 (2).

<sup>72</sup> *Ibid.* art. 14 (1).

<sup>73</sup> *Ibid.* art. 10.

In September 2001, Mexican government officials first reported contamination of traditional maize by transgenic sequences.<sup>74</sup> In 2002, the Mexican government confirmed contamination of 13% of maize varieties in 11 indigenous communities.<sup>75</sup> Transgenic maize was also found in storage facilities of the government's Food Distribution Agency (DICONSA).<sup>76</sup> A petition was filed in April, 2002 with the CEC by various indigenous communities in the Mexican State of Oaxaca and several NGOs from the NAFTA parties.<sup>77</sup> This petition included concerns over the introduction and planting of transgenic maize in that country and requested an evaluation of the possible environmental impacts of transgenic maize; an analysis of the gene flow in the native communities where maize was planted, and the degree and source of contamination and recommendations to address such harm.<sup>78</sup>

Due to the inherent difficulty in proving claims regarding impacts on biodiversity by LMOs, indigenous groups and NGOs were unable to bring the grievance under the public complaint procedures of Article 14 of the NAAEC.<sup>79</sup> They did, however, succeed in influencing public opinion and ultimately in getting the CEC's Secretariat to pursue a report under NAAEC Article 13. The Report was intended to include, *inter alia*, two program areas within the CEC, namely, Environment, Economy and Trade.<sup>80</sup>

The Secretariat took into account in developing this Report, the issue of "insufficient knowledge on the impact of emerging technologies, such as the use of transgenic material, and that this issue was one of North America's most important concerns to biodiversity."<sup>81</sup> The Secretariat gathered an advisory group composed of scientists and biodiversity experts to consider the issue for purposes of the Report.<sup>82</sup>

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<sup>74</sup> Maize and Biodiversity: The Effects of Transgenic Maize in Mexico, *supra* note 4 at 32.

<sup>75</sup> *Ibid.*

<sup>76</sup> *Ibid.*

<sup>77</sup> *Ibid* at 33.

<sup>78</sup> *Ibid.* at 34.

<sup>79</sup> The requirements under NAAEC Article 14 under the complaint procedure are the following: (a) Written complaint in a language designated by that Party in a notification to the Secretariat; (b) identify the person or organization making the submission; (c) provide sufficient information to allow the Secretariat to review the submission, including any documentary evidence on which the submission may be based; (d) aimed at promoting enforcement rather than at harassing industry; (e) indicating that the matter has been communicated in writing to the relevant authorities of the Party and indicates the Party's response, if any; and (f) filed by a person or organization residing or established in the territory of a Party. NAAEC, *supra* note 1 art. 14.

<sup>80</sup> Memorandum of the Secretariat to the CEC Council, June 14, 2002, online: <  
<http://www.cec.org/files/PDF/memo-maize2e.pdf>>.

<sup>81</sup> *Ibid.*

<sup>82</sup> Advisory group, online  
:<<http://www.cec.org/news/details/index.cfm?varlan=english&ID=2502>>.

#### 4.1 The Scope of the Maize Report

Under Article 13 of the NAAEC, the CEC Report was to analyze the potential impacts of the cultivation of transgenic maize on Mexico's native varieties and the potential alteration in their genetic composition.<sup>83</sup> The advisory group commissioned to conduct the Report strove to analyze the risks and benefits to "interested and affected parties in and to maize biodiversity in Mexico."<sup>84</sup>

To achieve this goal, the Report focused on examining the potential problems related to direct and indirect gene flow from transgenic varieties of maize and on the conservation of maize biodiversity near its center of origin.<sup>85</sup> Several discussion papers were developed, chapters were submitted to the peer review process, symposiums were organized and public participation took place. The findings of the Report were meant to aid the CEC Secretariat in its analysis to enable it provide recommendations to the three NAFTA parties.<sup>86</sup>

The following section deals with an analysis of the Transgenic Maize Case. It describes issues dealt with in the Report such as gene flow; the effects of transgenic maize on biodiversity and human health; socioeconomic impacts; Mexico's policy on transgenic maize and recommendations by the CEC's advisory group.

#### 4.2 Gene Flow

The Advisory group pointed out that extreme poverty, large dependence on agriculture and significant indigenous communities in Mexico were important factors that needed to be taken into account in assessing not only 'gene flow' but also in general the effects of transgenic maize in that country.<sup>87</sup> Regarding gene flow, the advisory group acknowledged that this constitutes a vital factor in the *in situ* conservation of maize. It pointed out that farmers often trade seeds and allow cross-pollination between different strains of maize and that despite the improvement of maize through gene flow, farmers have always been able to select and perpetuate the diverse varieties of landraces and cultivars in Mexico.<sup>88</sup>

The advisory group noted that the transgenic maize planted by farmers entered Mexico via imports from the United States. It also mentioned that 25 percent of the imported maize from the United States is of transgenic origin.<sup>89</sup> It

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<sup>83</sup> Maize and Biodiversity: The Effects of Transgenic Maize in Mexico, *supra* note 4 at 8.

<sup>84</sup> *Ibid.*

<sup>85</sup> *Ibid.* at 8-9.

<sup>86</sup> *Ibid.*

<sup>87</sup> *Ibid.* at 15.

<sup>88</sup> *Ibid.*

<sup>89</sup> *Ibid.* at 16.

pointed out that the transgenic maize in question was distributed by the Mexican Food Distribution Agency (DICONSA) and that it is a well known fact that many small scale farmers plant transgenic maize distributed from that governmental Agency.<sup>90</sup> It also acknowledged that *ex situ* and *in situ* conservation strategies were necessary to maintain and preserve the rich genetic diversity found in Mexican landraces.<sup>91</sup>

#### **4.3 Transgenic Maize, Biodiversity and Human Health**

The advisory group noted that local and indigenous farmers play a fundamental role in the preservation of maize biodiversity<sup>92</sup> and that Mexican landraces are the product of a dynamic process, a result in which nature and human selection are substantial factors. Furthermore, on the effects of transgenic maize on biodiversity, the advisory group noted that “neither negative nor positive effects of transgenic maize on the plants and animals occurring with them in the maize fields have been reported” and that additional scientific tests needed to be done to assess the effects of transgenic maize on Mexican maize varieties.<sup>93</sup>

The advisory group affirmed that due to the biological characteristics of traditional varieties of maize, transgenic or not, they are very unlikely to spread into neighboring communities. The Advisory group noted that the effect of transgenic maize on non-target insects in maize fields is still unknown.<sup>94</sup>

Regarding the effects of transgenic maize on human health, the advisory group noted that there was not sufficient evidence that transgenic crops were either beneficial or harmful to human beings but that the high consumption of maize in Mexico needed to be taken into account in future introductions of new varieties of transgenic maize.<sup>95</sup>

#### **4.4 Transgenic Maize and Socioeconomic Impacts**

The advisory group acknowledged that there are about 59 races of maize in Mexico<sup>96</sup> and that this grain has significant, symbolic and cultural and spiritual

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<sup>90</sup> *Ibid.*

<sup>91</sup> *Ibid.*

<sup>92</sup> *Ibid.*

<sup>93</sup> *Ibid.* at 19.

<sup>94</sup> *Ibid.* at 19.

<sup>95</sup> *Ibid.* at 21.

<sup>96</sup> Turrent Antonio & Serratos Antonio, *Maize and Biodiversity: The Effects of Transgenic Maize in Mexico, “Context and Background on Maize and its Wild Relatives in Mexico,”* (2004), Secretariat of the Commission for Environmental Cooperation of North America. at 29.

values for Mexicans.<sup>97</sup> It also pointed out that Maize is associated with a deity and that parts of the maize plant such as the kernel, ear or leaves were captured in murals or integrated in sculptures of Mexican indigenous groups.<sup>98</sup>

The advisory group also noted that in the southern Mexican State of Oaxaca, some farmers considered the presence of transgenes in maize as an unacceptable risk for their farming activities and to the cultural, symbolic and spiritual value of maize.<sup>99</sup> In other rural areas of the country, the introduction of transgenic maize is also considered a "contamination."<sup>100</sup>

In addition, the group acknowledged that Mexico was not self-sufficient in maize production and that the maize industry was regulated under a very complicated scheme including millers, importers, transporters, tortilla production, etc. It noted that traditional and indigenous farming accounted for two-thirds of maize production in the country.<sup>101</sup> It stressed that Mexican farmers, as part of their cultural identities and community traditions, exchange seeds for future planting, experiment with maize landraces, and that indigenous groups had *in situ* conservation systems to preserve some traditional varieties of maize.<sup>102</sup>

The advisory group noted too that herbicide tolerance and insect resistance varieties of modified maize had not demonstrated, per se, to be beneficial to Mexican farmers more than traditional varieties of maize.<sup>103</sup> It stressed that transgenic maize was introduced into Mexico from the United States and that there had been no formal process of consultation with the interested stakeholders. It recognized that there was a general sentiment of distrust of government officials and there was miscommunication about the benefits and risks of such maize in Oaxaca.<sup>104</sup>

#### **4.5 Mexico's Policy on Transgenic Maize**

At the time transgenic maize was introduced, it was obvious that Mexican policy on the issue was deficient or non-existent. In any case, financial and institutional resources were lacking to properly monitor the introduction of this maize into Mexico. On these matters, the advisory group acknowledged that Mexico lacked monitoring mechanisms to ensure the protection of Mexican maize. It also mentioned that the introduced and planted transgenic maize did not undergo

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<sup>97</sup> *Ibid.*

<sup>98</sup> *Ibid.* at 5-6.

<sup>99</sup> Maize and Biodiversity: The Effects of Transgenic Maize in Mexico, *supra* note 4 at 21.

<sup>100</sup> *Ibid.* at 21.

<sup>101</sup> *Ibid.*

<sup>102</sup> *Ibid.*

<sup>103</sup> *Ibid.*

<sup>104</sup> *Ibid.*



appropriate risk assessment for environmental, social, health and economic risks.

<sup>105</sup> In addition, it was affirmed by the advisory group that:

The official Mexican government positions regarding transgenic maize and the roles and responsibilities of specific government departments to regulate transgenic maize are either unknown or not understood by the public.<sup>106</sup>

Overall, the advisory group acknowledged that Mexico lacked the capacity to undertake scientific research, regulatory assessment and policy enforcement on the issue.<sup>107</sup>

#### 4.6 Recommendations

Based on its key findings and considering background papers and public input, the advisory group made recommendations to the three NAFTA parties on gene flow, the preservation of biodiversity, health and sociocultural matters. Regarding gene flow, it recommended that Mexico should minimize the import of transgenic maize by strengthening the maize moratorium imposed on commercial planting of transgenic maize or by milling the transgenic maize at the point of entry.<sup>108</sup>

The advisory group recommended that effective programs for *in situ* and *ex situ* preservation of maize were needed in the country and that traditional forms of gene flow, derived from traditional farming, should be protected since they promote the foundation of food security and genetic diversity in Mexico's landraces.<sup>109</sup> It concluded that further research was needed to determine the effects of transgenic maize in Mexico's native landraces and varieties of maize.<sup>110</sup>

Regarding biodiversity, the advisory group recommended that capacity building be supported in Mexico to allow this country to conduct scientific studies of maize cultivation and maize improvement.<sup>111</sup> It recommended that the genetic structure of maize should be monitored on a permanent basis due to the importance of this grain in the country. It noted that maize cultivation should include a consideration of the potential risks and benefits of this activity on small

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<sup>105</sup> *Ibid.* at 25.

<sup>106</sup> *Ibid.*

<sup>107</sup> *Ibid.*

<sup>108</sup> *Ibid.* at 27-28.

<sup>109</sup> *Ibid.*

<sup>110</sup> *Ibid.*

<sup>111</sup> *Ibid.*

scale farmers and that they should be involved in the development of new agricultural practices from the very beginning of the process.<sup>112</sup>

Regarding human health, the advisory group recommended that further studies be performed, particularly on the high human intake of transgenic maize commodities in Mexico and that the production of maize that is not compatible with human consumption be prohibited from being planted or imported.<sup>113</sup> Regarding sociocultural matters, the advisory group noted that to lessen the risks associated with transgenic maize imports from the United States, maize should be labeled as “may contain GMOs.”<sup>114</sup> It also suggested that imported transgenic maize be directed to mills for processing to avoid further risks.<sup>115</sup>

The advisory group recommended that harmonization is necessary in addressing biosafety risks and that this objective could be achieved under the North American Biotechnology Initiative (NABI). It asked that this initiative be implemented and that exchange of information among the three NAFTA countries is necessary so that no products are released without the knowledge of the three governments.<sup>116</sup> It also recommended that the Mexican government should initiate a consultation process with the farmers regarding the risks and benefits of transgenic maize. It urged the Mexican government to create programs to educate farmers regarding the dangers of planting transgenic commodities. In addition, it encouraged the three NAFTA parties to create an information exchange mechanism to coordinate GMO regulation efforts in the three countries and to communicate decisions among the three countries.<sup>117</sup>

Additionally, the Report highlighted the convergence of trade and environmental protection: on the hand, Mexico's obligations to preserve its vast biological resources, and on the other, its need to abide by NAFTA obligations. The Report demonstrated the lack of consensus and how political the topic of LMO regulation is in North America. This factor came out clearly in the angry response of the three NAFTA parties when the Report recommended that Mexico should reconsider transgenic maize imports from the United States.<sup>118</sup>

On the subject of the Transgenic Maize Report, the government of Canada stated that there were discrepancies between the key scientific findings and some recommendations on the issue of gene flow.<sup>119</sup> It argued that the gene flow recommendations implied that all traits derived from transgenes presented the

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<sup>112</sup> *Ibid.*

<sup>113</sup> *Ibid.* at 30.

<sup>114</sup> *Ibid.* at 31.

<sup>115</sup> *Ibid.*

<sup>116</sup> *Ibid.*

<sup>117</sup> *Ibid.*

<sup>118</sup> *Ibid.* at 41,46, 47.

<sup>119</sup> *Ibid.*

same risks, and that this otherwise lumps it with the effect of the gene flow that occurs between other non-transgenic varieties.<sup>120</sup> It accusatorily pointed out that “without the inputs that have informed the development of these recommendations, it was difficult to reconcile this apparent discrepancy.”<sup>121</sup>

The United States of America, on the same matter, noted: “We are deeply disappointed that the CEC Secretariat has produced a report under NAAEC Article 13 that ignores key science about biotechnology and fails to focus on efforts that will preserve maize genetic diversity, the stated goal of the report.”<sup>122</sup> In its view, an improvement on the implementation of Article 13 of the NAAEC was needed.<sup>123</sup>

Lastly, Mexico criticized the Report and suggested that several judgments were included in it regarding Mexican culture and Mexican politics: “In the regions of maize landrace cultivation, there is recent cultural memory and political history among the indigenous peoples of perceived inequity and injustice at the hands of Mexicans of Spanish origin, Americans, and powerful elites.”<sup>124</sup>

Notwithstanding the disapproving views of the three governments, the CEC’s Transgenic Maize Report is of paramount importance. It acknowledges the importance maize has for Mexican culture and the necessity of preserving maize biodiversity in that country. It also evidenced the deficiencies in Mexico’s policy, legislation and environmental institutions, not only in the preservation of such an important grain of maize, but also in the preservation of biodiversity in general. This is shown throughout the report in comments on institutional deficiencies and observations about the lack of coordination between Mexico’s Food Distribution Agency DICONSA and other relevant institutions that have related authority in the area of concern in issue.

The Report shows that transgenic maize imports did not undergo risk assessment and public consultations did not take place regarding the potential effects of transgenic maize on traditional farmers and agriculture. Also, farmers who follow the tradition of saving seeds for future seasons and who regularly plant maize from that distribution agency were not warned or educated on the potential effects of planting transgenic commodities.

In the Report, it was also shown that the absence of biosafety legislation was sought to be compensated with a moratorium on planting transgenic maize, but such a measure, unfortunately, could not be enforced. The failure to enforce the moratorium demonstrated Mexico’s lack of monitoring mechanisms, financial

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<sup>120</sup> *Ibid.*

<sup>121</sup> *Ibid.*

<sup>122</sup> *Ibid.*

<sup>123</sup> *Ibid.*

<sup>124</sup> *Ibid.*

resources, and a comprehensive policy on handling transgenic maize in the country. These issues raise important questions regarding the capacity of this country to preserve its biological resources in keeping with its obligations under the Cartagena Protocol and the CBD.

## 5. Conclusion

The preceding discussion demonstrates that under the NAFTA regime, environmental protection is an important component of trade. The creation of the NAAEC with its implementation under the CEC institutionalizes it. In practice, however, we saw that there is a careful balance between encouraging free trade and observing science-based SPS standards set up by each State against international yardsticks to protect biological resources, among others.

This paper demonstrates that efforts to preserve biodiversity are still in their infancy due to the tension between trade promotion and environmental protection obligations. These clashes at the international and regional levels hinder the application of the MEAs such as the CBD and the Cartagena Protocol, and non-political implementation of the NAAEC. In sum, Mexico is trapped in a dilemma between preserving its biological resources and achieving economic development through abiding by the TLCAN.<sup>125</sup> The Transgenic Maize Case discussed in this paper illustrates the dilemma.

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<sup>125</sup> Indeed, it must be observed that environmental regime effectiveness is measurable by various criteria. Essentially, such a regime must show a fair correlation between national environmental conduct and the practical demands of environmental treaty obligations. see Young, Oran R., (ed) "The Effectiveness of International Environmental Regimes: Causal Connections and behavioural Mechanisms," (Cambridge, Massachusetts, Institute of Technology, 1999).