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Glossary

United States Executive Agencies

APHIS	Animal and Plant Health Inspection Service
EPA	Environmental Protection Agency
FAS	Foreign Agricultural Service
FDA	Food and Drug Administration
OABTTA	Office of Agriculture, Biotechnology, and Textile and Trade Affairs
OSTP	Office of Science and Technology Policy
USDA	United States Department of Agriculture
USTR	United States Trade Representative

Mexican Executive Agencies

CIBIOGEM	Interministerial Commission on Biosafety of Genetically Modified Organisms
CNBA	National Biosafety Committee for Agriculture
CONABIO	National Commission for Knowledge and Use of Biodiversity
CONACYT	National Council of Science and Technology
INEEC	National Institute of Ecology
INIFAP	National Institute of Forestry, Agricultural and Animal Research
SAGARPA	Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food
SEMARNAT	Secretariat of Environment and Natural Resources
SENASICA	National Service of Agro-Alimentary Health, Safety and Quality, formerly SNICS

Mexican Political Parties

PAN	National Action Party
PRD	Party of Democratic Revolution
PRI	Institutional Revolution Party
PVEM	Green Ecological Party of Mexico

Mexican Producer Groups

ANEC	National Association of Commercial Businesses for Farm Producers
CECCAM	Center of Studies for the Change in the Mexican Countryside
CNA	National Livestock Council
ECNAM	The Countryside No Longer Stands Up
UNIPRO	Producers Union
UNORCA	National Union of Autonomous Regional Farmers
UNOSJO	Union of Organizations of the Sierra Juárez Oaxaca

Mexican Scientific Institutions

AMC	Mexican Academy of Science
CIMMYT	International Center for the Improvement of Maize and Wheat
CINVESTAV	Center of Research and Advanced Studies, National Polytechnic Institute
CIS	Center for Scientific c Research in Yucatán
CP	Postgraduate College at the University of Chapingo
IB	Institute of Biotechnology at the National Autonomous University of Mexico
IT	Technological Institute of Celaya
PRONASE	National Seeds Producers
UNAM	National University of Mexico

International Non-Governmental Organizations

ETC	Erosion, Technology and Concentration
FOE	Friends of the Earth

Mexican Non-Governmental Organizations

CASIFOP	Center for Social Analysis, Information, and Popular Formation
CEC	Commission of Environmental Cooperation
CEMDA	Mexican Center of Environmental Rights
Cenami	National Center for Support to Indigenous Missions
GEA	Group of Environmental Studies
UCCS	Union of Scientists Committed to Society
UGAM	Union of Environmental Groups

International Organizations

CBD	Convention on Biological Diversity
FAO	Food and Agriculture Organization
ISAAA	International Service for the Acquisition of Agri-Biotech Applications
LES	Licensing Executives International
OECD	Organization for Economic Cooperation and Development
REDBIO	Technical Cooperation Network on Plant Biotechnology in Latin America and the Caribbean
WTO	World Trade Organization

US Domestic Non-Governmental Organizations

BIO	Biotechnology Industry Organization
CSPI	Center for Science in the Public Interest
IFIC	International Food Information Council
UCS	Union of Concerned Scientists

Miscellaneous

AAFC	Agriculture and Agri-Food Canada
ABIA	American Bio-Industry Alliance
ASTA	American Seed Trade Association
CGIAR	Consultative Group for International Agricultural Research
ENGOs	Environmental NGOs
FOBESII	Bilateral Forum on Higher Education, Innovation and Research
GEMAA	Generic Event Marketability and Access Agreement
GM	Genetically modified
GMOs	Genetically modified organisms
IVLP	International Visitor Leadership Program
LBGMOs	Law of Biosafety of Genetically Modified Organisms
MNCs	Multinational corporations
NABI	North America Biotechnology Initiative
NAFTA	North America Free Trade Agreement
NGOs	Nongovernmental organizations
NOMs	Mexican Official Norms
PPT	Permanent Peoples' Tribunal
SPS	Sanitary and Phytosanitary Measures
STAC	Seed Treatment Application Center
TRIPs	Trade-Related Intellectual Property Rights
US	United States

Chapter 1
Introduction

I have always been interested in food issues and how food policy may change in a positive or negative way people's quality of life. I have a food science background which introduced me to innovative food technologies and how they can impact consumers' lifestyle. For example, food scientists always dreamed about developing a non-browning apple to produce a clear and appealing fruit juice. Now, thanks to biotechnology and genetic engineering this is possible. However, some new food developments such as genetically modified (GM) foods are still controversial, stigmatized, and questioned by groups that put forward political, cultural, and economic objections. Advances in biotechnology have shown that different types of GM foods may solve diverse problems in agriculture or nutrition. Nevertheless, there is an ongoing debate about GM foods safety, reliability, and convenience, with GM food proponent groups who highlight advantages, whereas skeptical groups of this technology emphasize the disadvantages of GM foods. Moreover, from my master degree studies I learned that the United States (US), as a global power, has the ability to influence other states in order to pursue its national interests. As a strategic partner and neighbor of Mexico, the US plays an important role in inducing not only common policies but also in shaping the political environment in which the Mexican government designs its policies of biosecurity.

Mexico has wide and unique biodiversity that environmental scientists and some nongovernmental organizations (NGOs) want to protect. Despite this, the Mexican government's policies of GM foods have moved from a precautionary approach to the promotion and commercialization of agricultural biotechnology, possibly at the risk of narrowing Mexico's biodiversity. The Law of Biosafety of Genetically Modified Organisms (LBGMOs) was approved in 2005, allowing GM foods cultivation. Furthermore, in accordance with the North America Free Trade Agreement (NAFTA), in 2008 Mexico liberalized all agricultural product imports, including GM maize from the US.

In this thesis, I argue that international and domestic actors have influenced the development of the GM food policy in Mexico. Therefore, Mexico's policy change toward the acceptance of GM foods cannot be studied in isolation from the international arena because some of the actors involved are transnational. Indeed, this "intermestic" issue involves both international and domestic state and non-state actors influencing each other. The activities of state and non-state actors channeled through states' diplomatic affairs and assets to develop transnational support of their interests manifest public diplomacy.

Therefore, through public diplomacy theory and a proposed model, I will explore how different stakeholders in Mexico, whether government agencies, multinational corporations (MNCs) or NGOs, play a part in the US public diplomacy strategies. Thus, this research argues that policy change in Mexico is best explained by studying the US diplomatic efforts to promote GM foods, including US state and non-state actors involved in public diplomacy strategies, instruments, and activities. Throughout the chapters of this thesis, I will show how the GM food regulations in Mexico have been affected by

different actors. Moreover, public diplomacy will be the frame in which I will analyze actors, strategies, and instruments employed by the United States toward Mexican stakeholders in order to change the political environment and influence changes in regulations.

Taking into account this debate, the purpose of this thesis is to explore and hopefully validate the following hypothesis: The United States government has implemented different public diplomacy instruments to promote changes in the GM food policy in Mexico, including public-private partnerships with biotechnology companies and network building, whereas US environmental groups opposing GM foods have been less effective in constructing networks and influencing the Mexican government.

This thesis is comprised of nine chapters. Chapter 1 is an introduction to this research and includes the hypothesis and a brief summary of the main topics covered in each chapter of this thesis. Chapter 2 will present a conceptual discussion of the GM food debate and a literature review of public diplomacy which will guide this research. This chapter will include an explanation of what biotechnology is and the GM food innovations developed by this technology. The debate about GM foods, which portrays two opposite positions, will be sketched. On the one hand, proponents of GM foods emphasize the benefits of GM foods, present them as a solution to problems faced by farmers, and propose them as a contribution to the world's food security. On the other hand, opponents of GM foods identify mainly the weaknesses of GM foods, the problems for farmers, and the loss of food sovereignty. These extreme positions have led to two contrasting regulatory approaches worldwide. As a result, two sets of countries may be identified. A set of pro-biotechnology countries have adopted a permissive regulatory system, whereas a contrasting set of countries opposed to biotechnology have adopted a restrictive regulatory system. This chapter will highlight the regulatory systems of the United States (a representative of the first set) and Mexico (initially representative of the second set), as well as the policy trajectory that these countries have followed.

Additionally, I will present a public diplomacy conceptual framework and its context within biotechnology. Public diplomacy involves different state and non-state actors whose roles and activities will be examined. I will propose a model of public diplomacy to analyze how the United States promotes GM foods in Mexico. The model includes the American government agencies, MNCs, and NGOs. This model also contemplates reactive, proactive, and long-term relationship building communication strategies along with the instruments related to promoting GM foods, the targeted institutions in Mexico, and the hypothesized results. Chapter 3 will present an outline of the research design employed in this project to demonstrate the hypothesis, including the key research questions, ethical considerations, key assumptions, and limits, as well as an explanation of the selection of the objects of study.

Chapter 4 will focus on the state actors involved in US public diplomacy strategies toward Mexico. A predominant actor of public diplomacy is the US Department of State which conducts public diplomacy activities that involve biotechnology. This department consists of different offices that perform diverse activities, such as the Office of Agriculture, Biotechnology, and Textile and Trade Affairs that promotes biotechnology. This office pursues cooperation with other governments to promote a science-based regulatory system for GM foods. Also, I will identify the government agencies originally designed to operate domestically but now working overseas in order to facilitate American agricultural businesses

access to other markets. Two of these agencies are the US Department of Agriculture (USDA) and the Food and Drug Administration (FDA) which have offices in the US Embassy in Mexico City to operate in that country and assist businesspeople.

Additionally, I will present an analysis of how the USDA contributes to the promotion of American agricultural products. Through the Foreign Agricultural Service (FAS), the USDA has implemented programs to facilitate knowledge about GM foods and to promote cooperation in biotechnology between the US and Mexico. The FAS employs public diplomacy resources which I identify in this chapter. I will also study the communications that the FAS maintains with the Mexican government, highlighting which specific agencies receive messages from the FAS and the purpose of these communications.

In Chapter 5, I will examine the participation of MNCs in US public diplomacy. I will show how, after processes of mergers and acquisitions, only six biotechnology companies have emerged and dominated most of the agricultural biotechnology market, including seeds and agrochemicals. Additionally, I will explain how biotechnology companies operate through industry groups in order to be represented before government and present their arguments more effectively to advance their goals. Biotechnology companies, as well as their industry groups, have operations worldwide; this mutual support has led to the development of networks with the host country governments.

This chapter also includes an analysis of the biotechnology companies' public diplomacy instruments and activities such as direct and indirect lobbying to influence policy-makers. There are other instruments that MNCs employ to persuade Mexican officials of the advantages of GM foods, such as awards and internal research centers. Also, I will include an analysis of the messages delivered by biotechnology companies. These companies send messages to different audiences around the world, targeting domestic agencies and international institutions. The main argument promoted by biotechnology companies is food security and the GMOs contribution to feeding the world for an increasing population in the year 2050. I will study the stakeholders in Mexico targeted by biotechnology companies. Government agencies such as Secretariat of Agriculture (SAGARPA), Secretariat of Environment (SEMARNAT), and Commission of Biodiversity (CONABIO) are important targets for biotechnology companies, as are scientific institutions and domestic NGOs which indirectly may receive messages. In Mexico, the industry group that represents biotechnology companies is AgroBIO, which is the most important promoter of GM foods among policy-makers.

In Chapter 6, I will discuss NGOs participation in public diplomacy activities and interaction with the Mexican government to try to influence it to have a more precautionary approach to GM foods. I will identify which global NGOs currently have campaigns against GM foods and which ones operate in Mexico. Also, environmental NGOs (ENGOs) employ reactive, proactive and long-term relationship-building strategies in order to pursue their goals. These NGOs use public diplomacy instruments such as designing printed materials to disseminate their ideas to general audiences or lobbying policy-makers.

Furthermore, the messages promoted by ENGOs and the stakeholders targeted will be discussed in this chapter. In Mexico, the main ideas disseminated by these organizations include the defense against the loss of corn, food sovereignty, and biodiversity. These messages are targeted to general audiences

and government officials. Moreover, NGOs design diverse materials for audiences with different levels of knowledge about GM foods. The interactions of global NGOs with Mexican scientific institutions and local NGOs will be discussed as well.

Chapter 7 focuses on how the Mexican government has incorporated proponents' and opponents' arguments and made decisions. Additionally, I include an explanation of the evolution of Mexico's GM food legislation considering the influence of the American GM food regulatory system to harmonize systems and facilitate trade between the two countries. Moreover, I will expose the Mexican regulatory weaknesses regarding GM foods, principally the lack of a biosecurity and biotechnology national policy, and ineffectiveness of communication among the agencies involved in GM foods. The cases of GM foods that are approved in Mexico will be discussed as well. Additionally, I will present an analysis of the challenges that the Mexican government faces due to all these complexities, forces and perspectives.

In Chapter 8, I will present an assessment of my proposed public diplomacy model. The actors participating in US public diplomacy will be analyzed, including government agencies, MNCs, and NGOs. I will review the diplomatic instruments employed by each actor linked to reactive, proactive, and long-term relationship-building strategies. I will explain which instruments are utilized by what actor, as well as the additional instruments, which have been added to the proposed public diplomacy model, and assess them. Finally, I will distil five lessons that can be learned from the application of the proposed public diplomacy model.

In Chapter 9, considering the theory of public diplomacy and the assessment based on the proposed public diplomacy model, I present a summary and the conclusions drawn from this thesis. I argue that the GMOs policy-change in Mexico has been influenced by actors at a domestic and international level with states and non-state actors performing diplomatic activities to shape the political environment. The different public diplomacy instruments employed by each actor have been useful to promote specific messages to different stakeholders in Mexico, which have been sometimes receptive and enthusiastic toward some programs. This chapter also includes political implications and speculations, policy recommendations, limitations, and further research.

Chapter 2
The GM food debate and public diplomacy: A conceptual discussion and literature review

The purpose of Chapter 2 is to present a conceptual framework of what genetically modified organisms (GMOs) and genetically modified (GM) foods are. I will show that there is a serious worldwide debate about GMOs, and two opposing positions have emerged regarding advantages and disadvantages of GM foods. In the first part of this chapter, I will introduce the reader to the importance of biotechnology and the advances that this field offers. I will explain the main applications and the evolution of this technology, and will clarify the importance of biotechnology and GM foods in the international arena. Additionally, I will introduce the main terms and definitions regarding GM foods that will be used in this thesis.

In the second section, I will explain the debate about GM foods, presenting the opinions of the pro-GM food groups and then the opposing arguments. I will explain how the different arguments have stimulated the worldwide debate of GMOs. In the third section of this chapter, I will present a survey of the GM food regulatory approaches that exist up to the present around the world. The two main GMO regulatory approaches will be discussed and an exploration of which international organizations intervene in these two approaches will be presented as well. Additionally, the regulatory approaches to GM foods and the trajectory of the main events and controversies that have evolved in the United States (US) and Mexico will be analyzed in the fourth section.

In the last section of chapter 2, I will present the key concepts regarding public diplomacy that guide my research. I will propose a public diplomacy model to analyze the actors, instruments and targeted institutions and stakeholders involved in US public diplomacy activities to promote GM foods in Mexico. I will explain the main types of strategies that the US government uses in public diplomacy activities toward Mexico, such as reactive, proactive, and relationships building. Lastly, an explanation of the strategies of the non-state actors that reinforce the public diplomacy efforts will be provided.

2.1 Biotechnology and GM food development

The twentieth century has been characterized by advances in science and technology. Biotechnology has spread around the world and has allowed the development of new products. It has made a significant impact in the fields of agriculture, medicine, food technology, and business. This sort of technology has allowed scientists to develop organisms and products that never existed before, such as medicines to cure new diseases, or the case of cloned animals, Dolly the sheep.[1] Additionally,

[1] See for example Stella G Uzogara, "The Impact of Genetic Modification of Human Foods in the 21st Century: A Review.", Dinesh Ramde, "The Birth of Biotechnology: Harnessing the Power of DNA," *E Journal USA: Economic Perspectives*, October (2005): 32–35., Philip. S. Anton, Richard Silberglitt, and James Schneider, *The Global Technology Revolution: Bio/nano/materials Trends and Their Synergies with Information Technology by 2015* (Santa Monica, CA: RAND, 2001).

biotechnology has allowed the creation of crops and foods with new specific characteristics, such as pesticide resistance. Even though biotechnology has brought many benefits to humankind, it has also awakened fears and misunderstandings. Therefore, it is imperative to analyze what biotechnology is, how it has evolved, and what the development and promotion of GM foods imply.

Biotechnology refers to a set of scientific techniques to improve or modify plants, animals, and microorganisms which will be used later on to develop products.[2] One of those techniques is genetic engineering which involves isolating and transferring genes, or DNA sequences, from one organism to another through manipulation in a laboratory, to induce a specific characteristic.[3] The result is a genetically modified organism (GMO). For the purpose of this study, I will refer to the term biotechnology to the development and application of genetic engineering in agriculture, that is to say, agricultural biotechnology, excluding biotechnological developments in medicine, genomics, drugs, organs, or tissues. The term GMOs includes animals, plants, bacteria, virus, plants, seeds, crops and transgenic foods or genetically modified foods.[4] In this thesis, the term GM foods will be used to refer to genetically modified crops, seeds, foods, feed, and derived food products such as flours, syrups, flavors, oils, or colorants. Additionally, I will limit the definition of GMOs so that I will not consider GM bacteria, virus, or cloned animals when referring to GMOs, but I will include GM trees, plants, crops, and foods.

Biotechnology has evolved over the last thirty years. However, in the two last decades, the major advances in this area have accelerated. Genetic engineering emerged in the 1960s, and the first tests started in the 1980s.[5] The first GM products were commercialized in the 1990s, and the first GM food product for public consumption was approved in the US in 1994.[6] Commercial GM crop production on a large scale started in 1995-1996, yielding higher production, lower pest control costs, and greater competitiveness.[7] The fact that GM crops have been cultivated and commercialized for almost two decades implies that people have been using and consuming GM foods all these years. Currently, some GM foods commercialized are corn, soybean, canola, cotton,[8] potatoes, tomatoes,[9] papaya, squash, and cantaloupe.[10] As a result, genetic engineering used in crops is only one example of many different biotechnology applications, all of which have generated social and political debates.

Much GM food literature has hitherto concentrated on the scientific perspective of the topic, identifying possible risks or benefits of GM foods and their implications for the environment.[11] Some

[2] James Stamps, "Trade in Biotechnology Food Products," *International Economic Review*, no. 18 (2002): 5.
[3] Derrick A. Purdue, *Anti-GenetiX: The Emergence of the Anti-GM Movement* (Aldershot: Ashgate Pub Ltd, 2000), 1., Mark A. Pollack and Gregory C. Shaffer, *When Cooperation Fails: The International Law and Politics of Genetically Modified Food* (New York: Oxford University Press, 2009), 34, 35.
[4] Reece Walters, *Eco Crime and Genetically Modified Food* (New York: Routledge, 2011), 8, 9.
[5] Ibid., 9.
[6] Ibid.
[7] Thomas Bernauer, *Genes, Trade, and Regulation: The Seeds of Conflict in Food Biotechnology* (Princeton, NJ.: Princeton University Press, 2003), 24
[8] Robert Falkner, "Global Biotech Food Fight: Why the United States Got It So Wrong," *Brown J. World Aff.* XIV, no. I (2008): 99–110.
[9] Hilary A. Perr, "Children and Genetically Engineered Food: Potentials and Problems.," *Journal of Pediatric Gastroenterology and Nutrition* 35, no. 4 (October 2002): 475–86, 476
[10] Stamps, "Trade in Biotechnology." 6.
[11] See Perr, "Children and Genetically Engineered Food.", Om V Singh et al., "Genetically Modified Crops: Success, Safety Assessment, and Public Concern.," *Applied Microbiology and Biotechnology* 71, no. 5 (August 2006): 598–607., Reece Walters, "Criminology and Genetically Modified Food," *British Journal of Criminology* 44 (2004): 151–67, David L. Pelletier, "Science, Law, and Politics in FDA's Genetically Engineered Foods Policy: Scientific Concerns and Uncertainties," *Nutrition Reviews* 63, no. 6 (2008): 210–23., Jan-Peter Nap et al., "The Release of Genetically

studies criticize the role of science and the biotechnology intrusion into the culture, and some related ethical concerns, such as consuming natural or unnatural products or adding ingredients that are not allowed by religious principles.[12] Others analyze international organizations such as the United Nations (UN) Convention on Biological Diversity (CBD) with the Cartagena Protocol on Biosafety[13] as a counterpart to the World Trade Organization (WTO) Sanitary and Phytosanitary Measures standards that regulate GM foods.[14] Other studies examine the commercial biotechnology developments in the United States. For example, Jorge Niosi has argued that while the biotechnology industry in the US is innovative, it is also too complex because of the elaborated scientific networks required to support US development and application research. He notes that the rest of the world cannot duplicate these advances because other countries do not have a similar network of institutions to develop biotechnology.[15] Although considerable research has been devoted to risk assessment and comparing different biotechnology regulations,[16] less attention has been paid to the role of varied actors involved in the political processes, the influence of domestic and international forces, and the problems of how different political outcomes have emerged.

Biotechnology will remain controversial because it involves the manipulation of life. As an industry, biotechnology has transnational implications which involve the movement of information through different formal and informal channels of communication.[17] Thus, advances in science and technology may have repercussions for state-to-state relations, modifying their political, economic, and social interactions.[18] In fact, the interaction of biotechnology with international relations is not new. It started with the Green Revolution during the Cold War which demonstrated how countries could adopt technical knowledge from abroad to solve development problems, and such incorporation forced policy-makers to pay attention to the role of science and technology in the exercise of diplomacy.[19] Biotechnology is still a complex issue in international relations because it involves political, economic, and social aspects. Therefore, there are different approaches and perceptions worldwide that are worthy of analysis.

Modified Crops into the Environment. Part I. Overview of Current Status and Regulations.," *The Plant Journal: For Cell and Molecular Biology* 33, no. 1 (January 2003): 1–18.

[12] See A. J. Knight, "Perceptions, Knowledge and Ethical Concerns with GM Foods and the GM Process," *Public Understanding of Science* 18, no. 2 (September 16, 2008): 177–88., Martin W. Bauer and George Gaskell, "Researching the Public Sphere of Biotechnology," in *Biotechnology: The Making of a Global Controversy*, ed. Martin W. Bauer and George Gaskell, 2002, 1–17., Claus-Henning Hanf and Andreas Böcker, "Is European Consumers' Refusal on GM Food a Serious Obstacle or a Transient Fashion?," in *Market Development for Genetically Modified Foods*, ed. Vittorio Santaniello, Robert E. Evenson, and David Zilberman, 2002, 49–54.

[13] The Cartagena Protocol on Biosafety is an international agreement to ensure the safe handling, transport, and use of GMOs.

[14] See Robert Falkner, "International Cooperation against the Hegemon: The Cartagena Protocol on Biosafety," in *The International Politics of Genetically Modified Food: Diplomacy, Trade and Law*, ed. Robert Falkner (Palgrave MacMillan, 2007), 15–33., Peter W.B. Phillips and William A. Kerr, "Alternative Paradigms: The WTO Versus the Biosafety Protocol for Trade in Genetically Modified Organisms," *Journal of World Trade* 34, no. 3 (2000): 63–75.

[15] Jorge Niosi, "Complexity and Path Dependence in Biotechnology Innovation Systems," *Industrial and Corporate Change* 20, no. 6 (2011): 1795–1826, 1795.

[16] Dave Toke, "A Comparative Study of the Politics of GM Food and Crops," *Political Studies* 52, no. 1 (2004): 179–86, 180.

[17] Alan M. Russell, "International Relations Theory, Biotechnology, and War," *Politics and the Life Sciences* August, no. 1 (1990): 10.

[18] Ibid., 17.

[19] Calestous Juma, "The New Age of Biodiplomacy," *Georgetown Journal of International Affairs* 6, no. 1 (2005): 105.

2.2 The debate about genetically modified foods

Conventional breeding is a way of performing biotechnology which has been done by farmers for centuries without raising any concerns. However, biotechnology as a sophisticated and quick way of doing crossbreeding is perceived as risky by some farmers, environmental groups, and the public. Therefore, GM foods have not only opened windows of opportunities, but also have raised many doubts, ethical questions, safety challenges, and concerns about their reliability.

Two broad positions have emerged in the GM food debate. On the one hand, proponents of GM foods emphasize the benefits of biotechnology. For example, GM foods may help alleviate world hunger because they can yield cheaper, stronger, and healthier foods, as well as prevent food shortages and environmental degradation.[20] Additionally, GM foods are potentially a tool for food security,[21] or an alternative to incrementing agricultural production offering new products, cost reduction, and environmental protection.[22] GM seeds may produce crops less susceptible to climate changes, tolerating frost and drought, and extending the growing season.[23] GM seeds can be used for biopharming,[24] thus reducing drug production costs.[25] Some GM foods may be used to improve human nutrition and solve some health problems, for instance, rice fortified with vitamin A and iron to combat blindness, oils designed to decrease the risk of diseases related to obesity, and vaccines administered through fruits.[26] Biotechnology proponents also argue that GM crops may contribute to sustainable agriculture, climate change mitigation, pesticides and CO_2 emissions reduction, biodiversity conservation, and even alleviation of poverty in some regions.[27] These GM food developments may be translated into achieving agricultural efficiency, solving public health problems, and opening trade opportunities to biotechnology companies.

On the other hand, opponents of GM foods, predominately environmentalist groups, focus on the threats and risks of GMOs,[28] the possible harm to the environment, or the concentration of agribusiness power.[29] Environmentalists argue that GM foods may affect human health by causing allergic reactions, cancer epidemics, and antibiotic resistance.[30] Additionally, GM crops may have side effects and cause damage to the environment. For instance, some genes may move from one GM crop to another conventional crop in nature, carried by pollen or dispersed by the wind, and thus affect biodiversity.[31]

[20] It is estimated that as the world approaches to 2050, 9-10 billion people will inhabit the planet Bernauer, *Genes, Trade, and Regulation*, 5.
[21] Falkner, "Global Biotech Food Fight."99
[22] Annelies Verdurme et al., "Differences in Public Acceptance between Generic and Premium Branded GM Food Products: An Analyticial Model," in *Market Development for Genetically Modified Foods*, ed. Vittorio Santaniello, Robert E. Evenson, and David Zilberman, 2002, 39–47. 39.
[23] Josh Schonwald, "Engineering the Future," *The Futurist*, 2012, 28
[24] This term refers to farming GM plants or GM animals to produce pharmaceutical compounds for use by humans, Brian. P. Bloomfield and Bill. Doolin, "Imagination and Technoscientific Innovations: Governance of Transgenic Cows in New Zealand," *Social Studies of Science* 41, no. 1 (November 18, 2010): 63.
[25] Mark L. Winston, *Travels in the Genetically Modified Zone* (Cambridge: Harvard University Press, 2002)..
[26] Perr, "Children and Genetically Engineered Food." 476
[27] ISAAA, "Top Ten Facts: Global Status of Commercialized Biotech/GM Crops: 2012 - ISAAA Brief 44-2012," 2012, http://www.isaaa.org/resources/publications/briefs/44/toptenfacts/default.asp.
[28] John Tulloch and Deborah Lupton, "Consuming Risk, Consuming Science: The Case of GM Foods," *Journal of Consumer Culture* 2, no. 3 (2002): 363–83.
[29] Pollack and Shaffer, *When Cooperation Fails*. 36.
[30] Falkner, "Global Biotech Food Fight." 100
[31] Winston, *Travels in*. 5

Also, GM crops resistant to herbicides and pesticides might harm insects and plant life cycles,[32] and therefore, disturb the native flora and fauna of some regions.

Some opponents query the corporatist nature of GM foods where the technology is the property of only a few corporations, and thus this limits food sovereignty and encourages dependency on those companies for buying seeds, emphasizing the dominance of Monsanto in this issue.[33] There are also some religious and ethical concerns, such as the morality of human beings willfully manipulating genes or life.[34] In addition, biotechnology does have the potential for biological weaponry because of the ability to manipulate bacterial and viral DNA and to produce new toxic and chemical agents, as well as its latent use in bioterrorism where crops and animals can be targets.[35] Some organizations opposing GMOs highlight in their campaigns the possible influence that biotechnology companies have over policymakers. For example, they have focused on how biotechnology companies invest in advertising campaigns to avoid compulsory labeling in some states in the US.[36] Others emphasize that American government agencies are working not only locally, but also internationally to promote the seed industry of biotechnology companies at the taxpayers' expenses.[37]

Arguably, some state resources are being used to support biotechnology companies and promote technology cooperation, but at the same time, these types of campaigns jeopardize the cultural practices of the societies in which biotechnology promotion is made, generating dependency on the companies producing GM foods[38] and also threatening local markets and producers.[39] Furthermore, some new developments in biotechnology have been carried out by private companies in order to achieve their own economic goals,[40] not for solving public problems or relieving world hunger as biotechnology proponents recommend. Governments are no longer investing large amounts of money in scientific innovation, leaving private companies to develop what they consider more important goals, increasing the distance between their business interests and the needs of people.[41] For example, in Mexico, conventional breeding is locally important for farming production and employment. However, public institutions for scientific research that are intended to provide objective scientific information are losing the government's financial support. The International Center for the Improvement of Maize and Wheat (CIMMYT) halted conventional plant breeding activities because of budgetary deficits and reduction in funding, emphasizing technological discontinuities,[42] and leaving space for private interests to grow.

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[32] Robert Falkner, "Introduction: The International Politics of Genetically Modified Food," in *The International Politics of Genetically Modified Food: Diplomacy, Trade and Law*, ed. Robert Falkner (Palgrave MacMillan, 2007), 1–12.,4.
[33] Walters, "Criminology and Genetically," 163.
[34] Pollack and Shaffer, *When Cooperation Fails*. 37.
[35] Russell, "International Relations Theory," 4.
[36] Richard Cornett, "Prop 37 Supporters Blame Defeat on Several Wrong Reasons Where It Went Wrong," *Western Farm Press*, 2012, http://westernfarmpress.com/government/prop-37-supportersblame-defeat-several-wrong-reasons. Suzanne Goldenberg, "Prop 37: Food Companies Spend $45m to Defeat California GM Label Bill," *The Guardian*, November 2012, http://www.guardian.co.uk/environment/2012/nov/05/prop-37-food-gm-bill/print.
[37] Carey Gillam, "U.S. Tax Dollars Promote Monsanto's GMO Crops Overseas: Report," *Reuters*, May 14, 2013, http://www.reuters.com/article/2013/05/14/us-usa-gmo-report-idUSBRE94D0IL20130514.
[38] Yolanda Cristina Massieu Trigo, "Cultivos y Alimentos Transgénicos En México: El Debate, Los Actores y Las Fuerzas Sociopolíticas," *Nueva Época* 22, no. 59 (2009): 217–43, 231.
[39] Edit Antal and Camelia Tigau, "GMO PD for Biosafety in Mexico: Applications of a Hierarchical Model of Communication," *Place Branding and Public Diplomacy* 5, no. 1 (February 2009): 39.
[40] Mary Wiktorowicz and Raisa Deber, "Regulating Biotechnology: A Rational-Political Model of Policy Development.," *Health Policy (Amsterdam, Netherlands)* 40, no. 2 (May 1997): 131. Jennifer Kuzma, "Global Challenges and Biotechnology," *E Journal USA: Economic Perspectives*, October (2005): 9.
[41] Massieu Trigo, "Cultivos y Alimentos," 223.
[42] Juma, "The New Age," 111.

There is a problem in concentrating scientific power in just a few biotechnology companies that are not in tune with the local needs or public demands.[43] In reality, the current research priorities of private companies will not change unless the government gives them financial incentives to do that.[44] The US government takes action to promote technology and expand exports of GM seeds; it invests in public diplomacy activities to emphasize GM foods benefits on the one hand while instructing biotechnology companies on their social responsibility on the other. However, GM foods are not suitable for everybody and only a few American companies are making profits out of exports.

These opportunities and challenges have precipitated a global debate about GM foods. As I have indicated, there are advantages and disadvantages of adapting and adopting GMOs. Furthermore, the US is the main promoter of GM foods, with GM crops produced mainly in the US and in some other like-minded countries such as Canada, Brazil, Argentina, China,[45] and a few countries in the European Union such as Spain.[46] In contrast, six core member states of the European Union, Austria, Denmark, Luxembourg, Greece, France, and Italy have banned the importing and retailing of GM foods.[47] In Mexico, regulations have gradually changed toward allowing GM food commercialization despite the lack of public acceptance and the potential threat to social and cultural practices. To explain how and why this policy change in Mexico has occurred is the objective of this thesis.

2.3 Worldwide regulatory approaches toward GM foods and biotechnology

In the United States, GM foods have been continuously consumed for over a decade, at least as an ingredient in processed foods like beverages or bread. There is no scientifically conclusive evidence that these GM products are harmful to humans, at least not those authorized for human consumption.[48] In contrast, there is evidence supporting the benefits of GM foods. However, this GM food debate does not have a middle point; there is always a position against or in favor, with each of its proponents convinced of its perspective.[49] These polarized positions, mixed messages, and distorted arguments have contributed to consumer skepticism and public emotions. Since the 1970s, when biotechnology offered its first developments, opponents started to find links with other sociopolitical issues such as the environment protection, the future of technology, and the manipulation of the building blocks of life and thus raising moral concerns.[50] The complexity of the biotechnology debate is a result of different influential forces in the society, like economics, government, regulation, mass media, politics, and religion.[51] These differences in positions have been intensified by the influence of non-state actors,

[43] Schonwald, "Engineering," 26.
[44] Juma, "The New Age," 108.
[45] Stamps, "Trade in Biotechnology," 12.
[46] Paulette Kurzer and Alice Cooper, "What's for Dinner: European Farming and Food Traditions Confront American Biotechnology," *Comparative Political Studies* 40, no. 9 (2007): 1039.
[47] Ibid., 1036.
[48] Falkner, "Global Biotech Food Fight." 100
[49] Walters, *Eco Crime and Genetically Modified Food*. 24.
[50] Petra Grabner et al., "Biopolitical Diversity: The Challenge of Multilevel Policy-Making," in *Biotechnology, 1996-2000: The Years of Controversy*, 2001, 15–34.16
[51] Bauer and Gaskell, "Researching the Public Sphere." 1.

such as non-government organizations with environmental concerns, private interest groups, and the public, in the name of consumer safety, with all these actors shaping debates around the world.[52]

A good example to illustrate the forces affecting the GM food debate is New Zealand. The Royal Commission on Genetic Modification made a study of biotechnology. In that analysis, the Royal Commission identified a broad spectrum of relevant concerns, such as culture, ethics, spiritual issues, environment, human health, economy, legality, and social and medical aspects.[53] In addition to those concerns considered by the Royal Commission, the GM food debate implies other factors such as world trade, intellectual property rights, patenting of life forms, use of genetic information, funding of research and development, role of science in society, public participation in science, animal rights, biodiversity, environmental conservation, organic farming, vertical integration of the food chain, and product labeling.[54] Not only has the role of science as a generator of new applications been highlighted, but also the concerns that new technological applications may have on the lifestyles and standards of living.

The GM food debate also has implications on the international political arena. I have identified two contrasting sets of like-minded countries with specific but contrasting approaches to GMOs. On the one hand, the pro-GM food set includes the United States, Argentina, and Canada. These three countries are the core of the biotechnology supporters group because they are the major agricultural producers of GM food products.[55] Most GM crops are harvested in the US; in 2006, this country represented 53 percent of the total world land planted with these products, following Argentina, Brazil, Canada, India, and China.[56] Furthermore, the 17 countries that harvest the majority of GM crops in the world, approximately 50,000 ha each, are called mega-countries, and along with the US include Brazil, India, South Africa, Australia, and Mexico.[57] The biggest production in 2011 was yielded by the US with 69 million of hectares, following Brazil with 30.3 million ha, Argentina 23.7 million ha, Canada 10.4 million ha and in the 16th place Mexico with 0.2 million ha.[58]

In 2013, 27 countries planted GM crops, of which 19 were developing countries and eight industrial countries, all of them representing 60 percent of the global population.[59] It means that this set of countries is paving the way for a more diversified, intense and continued growing of these products in the future.[60] In 2013, the US increased its arable land to 70.1 million ha while Mexico reduced it to 0.1 million ha dropping to the 17th place in the global area for biotech products.[61] Additionally, the US has made financial and political efforts to promote GM foods and their adoption in agriculture.[62] Canada and Argentina mirrored the US corporate and state participation on biotechnology.[63] Though the benefits are still disputed, some farmers have beneficiated from GM crops in these three major cultivating

[52] Falkner, "Global Biotech Food Fight." 100
[53] Walters, "Criminology and Genetically." 152.
[54] George Gaskell and Martin W. Bauer, "Biotechnology in the Years of Controversy: A Social Scientific Perspective," in *Biotechnology, 1996-2000: The Years of Controversy*, ed. George Gaskell and Martin W. Bauer, 2001, 3–11. 3.
[55] Pollack and Shaffer, *When Cooperation Fails*. 116.
[56] Falkner, "Global Biotech Food Fight," 101, 102.
[57] Clive James, *Global Status of Commercialized Biotech/GM Crops: 2011*, Brief 43 (Ithaca, NY: ISAAA, 2011), 3.
[58] Ibid., 2.
[59] James, *Global Status: 2013*, 2.
[60] Ibid.
[61] Clive James, *Global Status of Commercialized Biotech/GM Crops: 2013*, Brief 46 (Ithaca, NY: ISAAA, 2013), 3.
[62] Falkner, "Global Biotech Food Fight." 99
[63] Peter Andrée, *Genetically Modified Diplomacy: The Global Politics of Agricultural Biotechnology and the Environment* (Vancouver, BC, CAN: UBC Press, 2007). 38.

countries.[64] Nevertheless, some countries that have accepted GM crops have also tended to move toward stricter approval procedures, including Australia, Brazil, China, India, Japan, Mexico, Russia, and South Africa. Some of them such as Australia, China, Japan, South Korea, and Russia have adopted mandatory labeling requirements for GM foods.[65]

On the other hand, the anti-GM food group includes the European Union (excluding Spain), many Central and Eastern European countries, and some non-EU states such as Norway, Switzerland, and New Zealand. In 1998, after the first GM products arrived in Europe, Austria, Denmark, Luxembourg, Greece France, and Italy banned GM foods, leading to an EU-wide moratorium on their import and sale.[66] Consequently, consumers in Europe became aware of GM food labeling since 1998 because they wanted to identify and trace GM products. Nonetheless, in 2010, eight European countries had planted a total area of 91,438 ha of GM crops.[67] For instance, the arable land for GM maize in different countries was Spain with 76,575 ha, Portugal 4,868 ha, Czech Republic 4,680 ha, Poland 3000 ha, and Romania 822 ha.[68] For GM potato, Czech Republic had 150 ha, Sweden with 80 ha, and Germany 15 ha.[69] From this set of planting countries, Spain is considered the 17th mega-country contributing to the production of GM crops globally with 136,962 ha of GE maize.[70] In comparison with the 69 million hectares that the US has for planting GM crops, Europe has a very small area of arable land dedicated to such purpose, though it sets a precedent for further possible planting.

Even though many countries have conducted a risk assessment and implemented risk management systems, consumers demand mandatory labeling of GM foods. Opponents argue that labels will allow consumers to make their own choices about GM foods.[71] Therefore, voluntary or no labeling has been adopted by pro-GM food countries whereas mandatory labeling is required in anti-GM food countries trying to protect their consumers and markets, see Table 2.1.

As a result, there has been a polarization in regulatory approaches to GM foods. Furthermore, a transatlantic GMO conflict has developed because of the different policy approaches that each side takes. On the one hand, the US approach to GM foods relies on the "substantial equivalence" principle that considers genetic modification as a production process and GM foods as not inherently dangerous or different to their conventional counterparts, thus they do not require extraordinary premarket testing or regulation.[72]

[64] Bernauer, *Genes, Trade, and Regulation*. 7.
[65] Ibid. 8.
[66] Kurzer and Cooper, "What's for Dinner," 1036.
[67] Europabio, *Pocket Guide to GM Crops and Policies*, 2011, 24, http://www.europabio.org/sites/default/files/pocket_guide_gmcrops_policy.pdf.
[68] Ibid.
[69] Ibid.
[70] James, *Global Status: 2013*, 3.
[71] Peter W. B. Phillips and Heather McNeill, "Labelling for GM Food: Theory and Practice," in *Market Development for Genetically Modified Foods*, ed. Vittorio Santaniello, Robert E. Evenson, and David Zilberman, 2002, 245–60. 245.
[72] Alasdair R. Young, "Political Transfer and 'Trading Up'? Transatlantic Trade in Genetically Modified Food and U.S. Politics." World Politics 55, no. 4 (2003): 457–84," 463.

Table 2.1. Worldwide survey of GM products labeling

Mandatory labeling		No/Voluntary labeling
Australia	Mexico	Argentina
Bulgaria	New Zealand	Bolivia
Brazil	Norway	Canada
China	Poland	Egypt
Czech Republic	Romania	India
European Union	Russia	Kenya
Hungary	South Korea	Philippines
Hong Kong	Saudi Arabia	South Africa
Indonesia	Switzerland	Sri Lanka
Japan	Taiwan	United States
Malaysia	Thailand	Uruguay

Source: Bernauer, *Genes, Trade, and Regulation*. Abridged and adapted by this author.

In contrast, the European Union model considers that genetic modification alters the character of the resulting product where GM foods are inherently different; it is more risk adverse and relies on the precautionary principle for biosafety regulation.[73] Consequently, the two political entities have adopted different regulations. The US has opted for a product-based approach and adopted the substantial equivalence assessment establishing that GM products are not different from their natural counterparts.[74] This approach has allowed cultivation and commercialization of GM crops. The European Union, in contrast, has adopted a process-based approach and a precautionary assessment of GMOs, with regulations that have restricted its market and GM crops planting.

Several forces lay behind this policy contrast, such as interest groups, biotechnology companies, and institutional structures, all of them inducing tensions in the regulation of these products. Some public policies imply establishing more complex and stringent regulation divorced from scientific evidence, not well supported by institutional structures during implementation. Additionally, there is a threat of escalating trade disputes to force open overseas markets because of the different regulations which supportive and opposite governments have generated.[75]

It is axiomatic that governments need to contemplate technological advances, such as biotechnology companies' innovations and their impact on people. On the other hand, the regulation of biotechnology is also a public policy priority. This regulation is complex because it involves social and economic negotiations within a field of scientific uncertainty and competing goals. Biotechnology is an area of high involvement from the government because it deals with issues of health and safety, where governments are providers of health services and sponsors of industries.[76] American policy-makers, in particular, have embraced this new area of knowledge. This position was adopted because regulatory

[73] Ibid., 461, 466.
[74] Falkner and Gupta, "The Limits of Regulatory Convergence," 117, 118.
[75] Michelle K. McDonald, "International Trade Law and the U.S.-EU GMO Debate: Can Africa Weather This Storm," *Georgia Journal of International and Comparative Law* 32, no. 2 (2004): 504, 505; Bernauer, *Genes, Trade, and Regulation*, 1, 2; Jennifer Clapp, "Unplanned Exposure to Genetically Modified Organisms: Divergent Responses in the Global South," *The Journal of Environment & Development* 15, no. 1 (March 1, 2006): 2, 3; Robert Falkner, *Business Power and Conflict in International Environmental Politics* (New York, NY.: Palgrave MacMillan, 2008), 148; Crina Viju, May Tu Yeung, and William A. Kerr, "The Trade Implications of the Post-Moratorium European Union Approval System for Genetically Modified Organisms," *Journal of World Trade* 5, no. 5 (2012): 1207, 1208; Grace Skogstad and Elizabeth Moore, "Regulating Genetic Engineering in the United States and the European Union: Policy Development and Policy Resilience," *Policy and Society* 23, no. 4 (2004): 33, 34.
[76] Wiktorowicz and Deber, "Regulating Biotechnology.," 116.

agencies decided that this innovative technology does not produce less safe food than their natural counterparts do.

Moreover, there are two international organizations that have contributed to the tension between the two sets of like-minded countries: the World Trade Organization (WTO) and the Convention on Biological Diversity (CBD). The two regulatory regimes proposed by these two organizations, because they introduce contrasting principles, have contributed to potential trade disputes between the US and the European Union because of their affinity to those authorities' regulatory approaches.[77] Consequently, there is an international divide in regards to GM foods regulatory approaches.

The WTO has two different initiatives regarding GMOs. First, the Sanitary and Phytosanitary Measures (SPS) standards give WTO members the opportunity to adopt provisional sanitary and phytosanitary measures according to available and reliable information. As a result, members are allowed to request more information to do a better assessment of risks within a realistic period.[78] However, there are different assessments of measures that are not based on science, and the variations can be exploited as trade barriers by the WTO members.[79] This ambiguity has contributed to the long dispute between the US and the European Union regarding GMOs because SPS measures have enhanced the European Union's position against GM foods and allowed it to adopt a precautionary approach to GMOs.

In June 1999, the European Union Council decided to halt approvals of new GM products until a more stringent regulatory system could be adopted, generating a de facto moratorium applied to all imports and domestic products until the new rules were established.[80] This led to a delay and, therefore the United States and Canada sent a formal protest to the WTO. The European Union members argued that GMOs were special products and should not be governed by the WTO/SPS principles but rather by other innovative alternatives such as the CBD's Cartagena Protocol on Biosafety.[81] However, the Cartagena Protocol had been rejected by the US along with the set of pro-GM food countries.

A second initiative supported by the WTO refers to the Trade-Related Intellectual Property Rights (TRIPs). The TRIPs agreement establishes that members should adopt and enforce consistent laws regarding patents for any type of technology. As a result, genetic material and GMOs are treated as commodities that can be owned by private corporations and ruled by transnational commerce, making it illegal for businesspersons, governments, and citizens to sell brand-name plant varieties.[82] Furthermore, US diplomats have tried to include biotechnology products under the WTO/TRIPs umbrella and have argued that GM foods do not need multilateral regulation because consumers can decide on what is good or bad for them.[83] Furthermore, the US has tried to boost the WTO as an overarching regime to regulate all biotechnological products and the GM food trade, to set environmental standards,

[77] Robert Falkner and Aarti Gupta, "The Limits of Regulatory Convergence: Globalization and GMO Politics in the South," *International Environmental Agreements: Politics, Law and Economics* 9, no. 2 (April 1, 2009): 118.
[78] Stamps, "Trade in Biotechnology," 8.
[79] Viju, Yeung, and Kerr, "The Trade Implications," 1208–1209.
[80] Ibid., 1207–1208.
[81] Ibid., 1210.
[82] Kathleen McAfee, "Neoliberalism on the Molecular Scale. Economic and Genetic Reductionism in Biotechnology Battles," *Geoforum* 34, no. 2 (May 2003): 210.
[83] Ibid., 209.

and tried to limit the influence of the Cartagena Protocol, as observed in the trade disputes between the European Union and the United States.[84] This promotion of GMOs through the WTO and the prevention of other stringent biosecurity regimes to advance are clear when looking close to the worldwide GM seed cultivation. From 28 countries in 2012 with GM crop productions, the US cultivated 41 percent of all the planted hectares, while 90 percent of cotton, 93 percent of soybeans, and 90 percent of corn hectares planted in the US were genetically modified.[85] These numbers show that the US has openly opted for GM crops, and some of these agricultural sectors rely on exports to boost their economy. Therefore, the US strongly supports the WTO apparatus to encourage the commercialization of GMOs.

The CBD was established as a counterbalance to the WTO. The CBD was adopted in 1992 by the Earth Summit in Rio de Janeiro. It established commitments for the conservation and sustainable use of the world's biodiversity, as well as for the fair distribution of the benefits of utilizing and commercializing genetic resources.[86] There are 168 signatory governments of the CBD, including the United States, but the US has not ratified it, thus American delegates have participated only as observers in the Cartagena Protocol negotiations.[87] In 2000, participants of the CBD signed a supplementary agreement called the Cartagena Protocol on Biosafety which entered into force in 2003, and Mexico ratified this agreement.[88] This protocol obliges exporters to provide information about GMOs that are traded internationally and to seek prior approval of importing countries before trade in GMOs is established.[89]

The Cartagena Protocol is intended to be a legally binding environmental treaty to protect biological diversity from the potential risks posed by cross-border movements of GMOs capable of transferring their genetic material.[90] The Cartagena Protocol does not require a period for reviewing precautionary restrictions and gives governments the flexibility to restrict GMO trade,[91] resembling the European Union regulation system which has taken a stricter and more cautious approach to GMOs, in contrast to the US and Canada regulatory system which is more relaxed for GMO adoption.[92] Furthermore, in the negotiations of the Cartagena Protocol, the transatlantic differences became more entrenched because the European Union was supported by developing countries taking a precautionary approach whereas the US was supported by other major agricultural producers taking a substantial equivalence approach.[93] The developing countries, including Mexico, play an important role in this scenario because they rely on importing agricultural products from the most important producers in the world, the European Union or the US. Also, developing countries present different domestic problems from those of the European Union or the US because these countries face a dilemma about protecting the environment or opening to new ways of trade when considering adoption of GM foods.[94] Such is the case of Mexico

[84] Kathleen McAfee, "Biotech Battles: Plants, Power, and Intellectual Property in the New Global Governance Regimes," in *Engineering Trouble: Biotechnology and Its Discontents*, ed. Rachel Schurman and Dennis Doyle Takahashi Kelso (Berkeley: University of California Press, 2003), 176.
[85] Jorge Fernandez-Cornejo et al., *Genetically Engineered Crops in the United States*, *USDA ERS*, 2014, 9, http://www.ers.usda.gov/publications/err-economic-research-report/err162.aspx#.U4QK4vna5cY.
[86] Stamps, "Trade in Biotechnology," 7.
[87] Ibid.
[88] Antal and Tigau, "GMO PD for Biosafety," 50.
[89] Falkner, "Global Biotech Food Fight," 105.
[90] Stamps, "Trade in Biotechnology," 7.
[91] Falkner and Gupta, "The Limits of Regulatory Convergence," 118, 119.
[92] Clapp, "Unplanned Exposure," 4.
[93] Ibid.
[94] Ibid., 5.

concerning GM maize because this country is considered the center of origin for corn but at the same time, Mexico imports millions of tons of corn each year.

For the Mexican government, it is even more difficult to opt for a protective approach to the environment and to be less open to trade because of Mexico's signature of the North America Free Trade Agreement (NAFTA) in 1994. Mexico was required to reduce trade barriers on imported corn, as a consequence it became more dependent on importing maize from the US, relying on one-third of its consumption from the United States.[95] Therefore, despite the fact that Mexico is considered as the historic center of origin for maize, the Mexican government has been importing maize from the US whose biggest production, as previously explained, consists of GM crops. Due to the different needs and approaches to GM foods of the US and Mexico, it is relevant at this point to take a look at how the two governments have developed their GMO regulations and the implications for GM food policy.

2.4 US and Mexico regulatory approaches to GM foods

Different approaches, regulations, diplomatic ties, and communications regarding GM foods have evolved in the US and Mexico. On the one hand, biotechnology companies and research institutions support the development and use of GM foods. On the other, NGOs and opponents to GM foods try to halt the influence of these companies and warn of the possible effects of these foods. My aim in this thesis is to reveal how the US government has facilitated the influence of biotechnology companies and interest groups to promote a change of the GM food policy of Mexico by analyzing the different public diplomacy instruments used by the US toward Mexican sectors. By observing how the GM food policy in the US has evolved and how biotechnology has been incorporated into food production, a better understanding of the Mexico's GM food policy evolution can be achieved.

2.4.1 The United States trajectory

A summary of the major events and outcomes related to GMOs in the last three decades in the United States is shown in Table 2.2. The US biotechnology trajectory of controversy starts with the first permission to allow scientists to release the first GMO, ice minus GE-bacteria,[96] showing the reactions this released provoked on American NGOs and the response from the American government to the commercialization of GM products. A milestone in the development of these events was in 1992 when the FDA promulgated the principle of substantial equivalence, giving GM foods the same status as conventional products. It also can be noted how biotechnology companies, especially Monsanto, have been promoting biotechnology products and its safety, in contrast to NGOs that have highlighted risks and possible harm to the environment. Also, as the US has been the leader country in biotechnology and has had an influence on other countries. For example, Canada has followed the US lead in research and development. Mexico however, initially adopted a more precautionary approach. These events reveal the development of major controversies in North America and also have had a worldwide effect, specifically in the transatlantic dispute.

[95] Ibid., 14.
[96] These gene-spliced bacteria were modified to help protect crops from frost damage.

Table 2.2. Key events that led to public controversies on GM foods in the United States

Date	Initiatives by scientists and companies	NGO reaction	Government response
1984	Permission granted to University of California scientists to release the first GMO (ice-minus GE bacteria) in a field	NGOs made claims of hypothetical risks associated with the release to the environment, including risk of climate change. Jeremy Rifkin brought a lawsuit challenging the competence of the National Institutes of Health (NHI).	EPA took up biotechnology as an issue, and the GMO releases became regulated by this agency.
1985	Participation of corporate lobbyists, with assistance from prominent academic biologists and National Science Foundation bureaucrats	Foundation on Economic Trends, a Rifkin organization, sued NIH for not carrying out the environmental assessment required by U.S. National Environmental Policy Act for a field trial	Creation of the Coordinated Framework for Regulation of Biotechnology. The Framework mandated no new regulations for biotechnology so existing laws and agencies would govern the release, use and consumption of GMOs
1992			FDA states the principle of substantial equivalence between GM and non-GM crops and foods considering GM does not produce a new substance
1993	Monsanto introduces bovine growth hormone (rBGH)	rBGH introduction stimulated farm and environmental groups to active opposition, disseminating information about possible health effects on humans and cows The European Union bans the use of rBGH in 1994, Canada in 1999	FDA concedes rBGH approval letting Monsanto begin selling its hormone to the dairy sector
1994	Calgene introduces the first transgenic plant to enter into the market, the Flavr Savr tomato		It was rapidly withdrawn because the gene for delayed ripening did not give the tomatoes any advantage in the field or market
1996	Commercialization of GM seeds varieties (corn, cotton, canola, Monsanto Roundup Ready soy), with rapid diffusion of those varieties among American farmers		Regulatory approval of several corn varieties incorporating Bt toxins
1998	Novartis (now Syngenta) granted $25 million and access to its genomic database to UC-Berkeley's Department of Plant and Microbial Biology in return for a seat on departmental committees and the right to negotiate patents. Creation of Land Grant Universities that manages many hundreds of gifts and contracts between researchers and companies with financial resources	Producers and consumers of organic products reacted, forcing the USDA to withdraw its proposal.	USDA moves to formally establish a set of rules defining and regulating organic standards, including GMOs in its definition and withdraws proposal for GMs in organic definition It sets a precedent for accessing tools and materials; plant improvement becomes subject to intellectual property restrictions

Table 2.2. Continued

Date	Initiatives by scientists and companies	NGO reaction	Government response
1999		Cornell study of Monarch butterfly suggests that pollen from Bt corn varieties could pose a threat to the Monarch butterfly The WTO protests and the cameras projected images of demonstrators dressed as Monarchs	US issues stricter conditions for growing GM crops
	Monsanto no - "Terminator" statement	Global criticism of the ethical implications of engineering a sterile spring for farmers Rockefeller Foundation President Gordon Conway delivered a remarkable speech to executives and employees of Monsanto urging to consider important changes in their approach Terminator technology became an iconic referent in anti-GMO and anti-globalization actions	
	Biotechnology companies created the Council for Biotechnology Information (CBI), which launched a $50 million advertising campaign in important newspapers, magazines and television	Turning Point Project (formed by 60 groups) sponsored a series of five full-page advertisements in *The New York Times* criticizing GE	
	Biotechnology industry, particularly Monsanto faces financial distress; public relations campaign in US; pharmaceutical companies start shedding agro-divisions Monsanto fusion (initially announced in June 1998) fails in late 1999, agro-biotechnology shares down, US farmers sue Monsanto (December 1999)		Deutsche Bank report advises against investment in agricultural biotechnology
2000	Aventis's Starlink Bt corn (not then approved for human consumption and destined for animal feed) contaminates food-grade corn shipped to millers. Aventis paid $100 million buy-back for the product.	Extensive news coverage of the subsequent recall of Taco Bell taco shells.	Weakness of regulatory mechanisms and uncertainties regarding the human health effects of GMOs
2001	Percy Schmeiser/Monsanto patent infringement court decision	Charges that biopollution will inevitably accompany the use of GM crops because a study finds Bt corn was cross-pollinating non-GM corn varieties in the United States and the landraces of farmers living in the mountains of Mexico	Canada's Supreme Court held Schmeiser responsible for infringing on a Monsanto patent by saving and replanting GM canola. According to the court, Canadian farmers do not have the right to use knowingly patented genes even if they are incorporated into a crop through mechanisms over which the farmer has no control
2002	ProdiGene failed to destroy completely GE corn plants in test plots used for biopharming, contaminating soybean grain and cross-pollinating with corn plants in a nearby field	Consumers found that their health might be threatened by biopollution	

Table 2.2. Continued

Date	Initiatives by scientists and companies	NGO reaction	Government response
2003			USDA releases the final version of the organics standards applying to organic foods. No product may be certified organic if it contains GM ingredients or was produced using GMOs

Source: Kloppenburg, *First the Seed*. Augmented and adapted by this author.

Additionally, the US government created the Coordinated Framework for Regulation of Biotechnology (Coordinated Framework) in 1986, outlined by the White House Office of Science and Technology Policy (OSTP) and other administrative agencies, to draft policies regarding GMOs. The Coordinated Framework recognized the commercial potential of biotechnology and concluded that GM foods are not fundamentally different from the conventional ones, and so the product rather than the process or creation is to be regulated, and regulation should be based on product characteristics and use.[97] Under this principle, the need to subject GM foods to a centralized regulatory authority was avoided.[98] Consequently, the Coordinated Framework relied on the current laws to regulate GMOs without the need to develop new regulations or mechanisms. So the responsibility for overseeing GMOs was assigned to the agencies that already were responsible for food safety: the United States Department of Agriculture (USDA), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA).[99] However, these bureaucratic institutions assess GM foods from three different angles.[100]

- The USDA has the authority to regulate the import and release of GM crops. A field-testing should be conducted and then a petition for non-regulated status should be submitted so that USDA may conduct and environmental assessment and seek public input. As a result, the USDA has deregulated 120 GM crops up to 2015.
- The FDA regulates food safety of all GM crops intended for human consumption, but not those related to pesticides that are under EPA regulation. The FDA has established that GM crops are not food additives, so they do not require pre-market approval.
- The EPA regulates pesticides and GM crops that produce pesticides such as the Bt toxin, so this agency determines if a toxin is likely to cause any harm to human health.

These agencies involved in food safety have not enacted new statutes or established new risk assessment procedures to regulate GMOs.[101] This low-risk assessment approach promotes labeling as voluntary. However, it seems that some legislatures have shown signs of moving toward stringent regulation, such as California which Proposition 37 where GM foods opponents demand mandatory

[97] Margaret Rosso Grossmand, "Genetically Modified Crops and Food in the United States: The Federal Regulatory Frameworks, State Measures and Liability in Tort," in *The Regulation of Genetically Modified Organisms: Comparative Approaces*, ed. Luc Bodiguel and Michael Cardwell, 2010, 300.
[98] Falkner, "International Cooperation."18.
[99] Young, "Political Transfer," 462.
[100] Jennifer A. Thomson, *Seeds for the Future: The Impact of Genetically Modified Crops on the Environment* (Ithaca, NY: Comstock Publishing Associates, 2006), 111.
[101] Kelly L. Kollman and Aseem Prakash, "Biopolitics in the US: An Assessment," in *The International Politics of Genetically Modified Food: Diplomacy, Trade and Law*, 2007, 103.

labeling and segregation of GM crops, promising to take their campaign to other states.[102] Biotechnology companies, agribusiness, and food companies responded and invested significant amounts of money, and succeeded in persuading voters to defeat this proposition.[103] Another example is Vermont which has established mandatory labeling of GM foods for mid-2016.

2.4.2 Mexico trajectory

A summary of the major events and outcomes related to biotechnology in Mexico in the last three decades is shown in Table 2.3. These events hint at the influence of the US trajectory on the scientific developments in Mexico. There is also a mix of public and private investment and cooperation for researching in the area of GM foods.

Table 2.3. Key events that led to public controversies on GM foods in Mexico

Date	Initiatives by scientists and companies	NGO reaction	Government response
1992			Creation of the National Agricultural Biosafety Committee (CNBA)
1993	Scientific field trials of GM corn by research institutes		
1996	Industrial trials start		
1998			The General Directorate of Plant Health (DGSV) of the Secretary of Agriculture permitted the first scientific field trials of GM crops. De facto moratorium on GM corn trials imposed by the Directorate
1999	Cornell University study suggested that pollen from Bt corn varieties could pose a threat to the Monarch butterfly	Greenpeace Mexico tested samples taken from ships in the port of Veracruz carrying U.S. corn and found GM corn among the grain, Campaign against GM corn field testing and import by Greenpeace Mexico, the Environmental Studies Group (GEA), and the Canadian-based environmental and farmers' rights organization, ETC (formerly called RAFI),	Creation of CIBIOGEM with the support of different governmental bodies
2000			rBST growth hormone, Bt cotton and herbicide-resistant soybean approved for full or partial commercialization
2001	Chapel and Auist studies find biopollution in Oaxaca		PAN and BioDem collaboration for proposal on GM foods
2002	CINVESTAV-UNAM studies find biopulltion in Puebla	CECCAM creates a forum for discussing maize defense GEA, Greenpeace, CECCAM, UZACHI, ERA, ETC, and ANEC ask government to take action on Puebla and Oaxaca biopollution Greenpeace and ETC present a book addressing the problems presented by GMOs	

[102] Richard Cornett, "Prop 37 Supporters," *Western Farm Press*, 2012.
[103] Goldenberg, "Prop 37: Food Companies."

Table 2.3. Continued

Date	Initiatives by scientists and companies	NGO reaction	Government response
2003	CINVESTAV and Biotechnology and Society Group project research on GM maize sponsored by Rockefeller Foundation	CECCAM, Greenpeace, GEA protests against bill on biosafety and GMOs	CIBIOGEM board of directors quits because their recommendations were not considered for GM food regulations
2004			PRD and PRI debate over the bill on biosafety and GMOs
2005		Greenpeace protests against Monsanto Law	Law of Biosafety on Genetically Modified Organisms approved, allowing GM seeds field trials, planting and sale of GM food
2006	CINVESTAV, in behalf of Dow Jones and Monsanto, asks for permission for making field trials of GMOs	UCCS was created and criticized the pressure from biotechnology companies for introducing GM maize into Mexican fields Academics and farmers associations halt the field trials for GM maize	
2007	Monsanto and CNC do a joint research about genetic diversity of maize		Mexico City major declares a free-GM maize zone and starts a campaign to defend food sovereignty The Secretary of Agriculture declares a the allocation of resources to promote domestic production of maize
2008			All agricultural product imports were liberalized according to the NAFTA

Source: Fitting, "Importing Corn," 135–58; Massieu Trigo, "Cultivos y Alimentos,"217–43. Aerni and Bernauer, "Stakeholder Attitudes." Augmented and adapted by this author.

Additionally, there have been protests from transnational environmental groups against GMOs along with the support of domestic NGOs and farmers groups to try to halt the commercialization and production of GM foods, with a strong emphasis on preventing the introduction of GM maize into Mexican fields. An important event in this timeline is the de facto moratorium imposed by the Mexican government on GM maize in 1998 because of concerns of possible gene flow to local maize varieties and *teosinte*, the ancestor of maize that is found in the country.[104] However, despite the maize controversy, in mid-2004 this moratorium was lifted.[105] Moreover, an article published in *Nature* in 2001 indicating that genes from GE maize had moved to native corn is an important event because environmental groups started to do research about this problem and publicized their cautionary findings. Also domestic research institutions started their own research on that issue, setting the basis for debate in Mexico.

Mexico's legislation of GMOs has taken place in the context of the economic model of liberalization that the government has adopted over the last three decades. Mexico's government, through its signature of the NAFTA, has promoted a policy of free trade and importing maize, and this has

[104] Clapp, "Unplanned Exposure," 7, 8.
[105] Aarti Gupta and Robert Falkner, "The Influence of the Cartagena Protocol on Biosafety: Comparing Mexico, China and South Africa," *Global Environmental Politics* 6, no. 4 (2006): 33.

encouraged the advance of GM food acceptance by the population, and the acceptance of the principles and conditions that support the interests of its two trade NAFTA partners.[106] Furthermore, Mexico's government is trapped between two decisions: protecting Mexico's biodiversity by signing international agreements to restrict GM crop cultivation, or relaxing its current GM food legislation to allow more applications of biotechnology in order to compete at the same level as Canada and the US in the North American market.

During the 1990s, Mexico decided that GMOs and biotechnology products should be regulated by the existing environmental regulations and food safety, bringing Mexico into line with US policy.[107] Moreover, with the signature of the NAFTA in 1994, Mexico accepted a relatively high tolerance to importing GMOs.[108] Under this agreement, the Mexican government agreed to open its doors to maize imports and in return, Mexican horticultural products and labor-intensive crops could have access to American and Canadian markets.[109] Furthermore, in 2003 Mexico and its NAFTA partners signed an agreement on labeling and documentation requirements for GM crops shipments, stipulating that shipments containing 95% of non-GMOs do not require documentation stating that the shipment may contain GMOs, and only shipments containing 5% or more GMOs should be labeled.[110] As a result, due to Mexico's advance into globalization and trade liberalization, its agricultural biotechnology policy has inextricably been tied to these global economic trends and US practices.[111]

In 1995, the Mexican government established the first GMO regulation through the publication of NOM-056, a set of general standards. While the NOM-056 referred to procedures for GM crop field tests, it did not contemplate large planting and commercialization.[112] However, in a major change of policy, the Mexican government in 2005 promulgated a new law governing GMOs, the Law of Biosecurity and Genetically Modified Organisms (LBGMOs) replacing NOM-056. It establishes a regulatory framework to assess GM crop risks, allows limited release to the environment, and the planting and selling of GM crops to be decided in a case by case basis by the Interministerial Commission on Biosafety of Genetically Modified Organisms (CIBIOGEM).[113] It also sets a requirement for companies handling GMOs to be registered in a government database.[114]

This law was considered by GMO opponents as weak and unclear because there are no specific definitions of experimental and commercial planting, and it abandons the precautionary principle[115] that was adopted with the moratorium on maize in the 1990s. Furthermore, opponents of the LBGMO nicknamed it as the "Monsanto Law" because of three main reasons: It sets a framework to introduce GM crops instead of banning them,[116] it is a way to legalize GM crop planting despite strong social

[106] Ana de Ita, "La Defensa Internacional Del Maíz Contra La Contaminación Transgénica En Su Centro de Origen," *El Cotidiano UAM* 173, no. May-June (2012): 57.
[107] Philipp Aerni and Thomas Bernauer, "Stakeholder Attitudes toward GMOs in the Philippines, Mexico, and South Africa: The Issue of Public Trust," *World Development* 34, no. 3 (March 2006): 557–75, 558.
[108] Clapp, "Unplanned Exposure," 13.
[109] Elizabeth Fitting, "Importing Corn, Exporting Labor: The Neoliberal Corn Regime, GMOs, and the Erosion of Mexican Biodiversity," in *Food for the Few*, ed. Gerardo Otero (Austin: University of Texas Press, 2008), 135–58,137.
[110] Clapp, "Unplanned Exposure," 9.
[111] Gupta and Falkner, "The Influence of the Cartagena Protocol," 32.
[112] Falkner and Gupta, "The Limits of Regulatory Convergence," 123.
[113] CIBIOGEM was established in 1999 to formulate and coordinate national biotechnology policies related to GMOs.
[114] Claudia Orellana, "Mexico Passes GM Law," *Nature Biotechnology* 23, no. 4 (2005): 405.
[115] Ibid.
[116] Clapp, "Unplanned Exposure," 9.

opposition,[117] and it opens the door to large biotechnology companies to operate in the country and take control of the food supply. Consequently, it seems the regulation moved from a restrictive and risk-adverse approach to a relaxed and open to liberalization approach. This perspective toward free trade is aligned to the NAFTA commitments, which means a necessity of commercializing products, and dependence on imports of agricultural commodities from the United States.

Consequently, Mexico's regulations have developed under the influence of US technology and scientific advances through the formation of research centers since the Green Revolution. These Mexican regulations have tried to incorporate social factors, but it seems economical and political interests have prevailed generating a more liberal approach to GM foods. Furthermore, in the Mexican society, there is a common sentiment against the US government using biotechnology as a means to exerting power over Mexico.[118] Therefore, it is my intention in this thesis to show how the GM food policies in Mexico have developed under the influence of international and domestic forces, non-state actors' initiatives, and above all, US public diplomacy strategies.

2.5 US public diplomacy in the context of biotechnology

Public diplomacy has become a vital part of new diplomacy because in this new century governments do not only deal with other governments, but also need to address global audiences in order to advance their foreign policy goals. In the discussion of traditional diplomacy and new diplomacy, new communication channels and public diplomacy have become key instruments for states in order to manage complex global relationships. The end of the Cold War and the globalization process had an effect on diplomacy, making it multifaceted, multi-directional, volatile, and intensive.[119] Traditional diplomacy used to be insulated from the public, and secretly and quietly conducted in a comfortable closed environment.[120] Traditional diplomacy was conducted by heads of government, with minimal contact with the media and business, with a focus on high diplomacy issues, such as peace, security, and cooperation.[121] However, with the rise of new communication channels, the accessibility to the internet, and the speed of information, new diplomacy has a commitment to provide the public with much information as fast as possible.[122] Diplomats now engage in low diplomacy issues such as networking, trade, and public diplomacy.[123] Multiple non-state actors are becoming partners and stakeholders of a permanent dialogue with the foreign affairs representatives.[124] Furthermore, in the future of diplomacy, public diplomacy plays a central role, and the major players in the international arena will have to work with publics previously ignored.[125] Non-state actors will also take a part at the diplomatic table and will demand more attention to their interests.[126] This thesis contributes to the discussion of traditional

[117] Ita, "La Defensa Internacional," 59.
[118] Massieu Trigo, "Cultivos y Alimentos," 218.
[119] Kishan S. Rana, *21st Century Diplomacy: A Practitioner's Guide* (London, New York: Continuum, 2011), 14.
[120] Philip Seib, *The Future of #Diplomacy* (Cambridge, UK: Polity Press, 2016), 1.
[121] Rana, *21st Century Diplomacy: A Practitioner's Guide*, 22.
[122] Seib, *The Future of #Diplomacy*, 5.
[123] Rana, *21st Century Diplomacy: A Practitioner's Guide*, 17.
[124] Ibid.
[125] Seib, *The Future of #Diplomacy*, 10.
[126] Ibid., 122–23.

diplomacy and new diplomacy, as well as the importance of public diplomacy and the role of non-state actors.

Public diplomacy refers to an overseas actor's efforts to change the international environment through engagement with a foreign public, with the aim of transforming opinions, attitudes or even a policy, and promoting ideas important to a target government's foreign policy.[127] It also constitutes an indirect form of lobbying of the target government and of those non-government institutions that have an influence on the target government, such as MCNs and NGOs, and is regarded as such in this thesis.

Public diplomacy arose after the World War I with professional image cultivation across national borders, [128] reemerged in the 1960s as a way to promote the Cold War anti-communist propaganda, and in the 1980s was associated with the activities of American propaganda in Latin America.[129] In the 21st century, the new public diplomacy emerged as a response to technological and geopolitical pressures. The impact of globalization implied new actors in international politics and affected the interaction and communication channels between diplomats and non-diplomatic publics. The introduction of new modes of communication, such as the internet and social networks, demanded more engagement with the new media environment.[130]

Furthermore, the September 11 terrorist attacks also had an effect on public diplomacy so that nations started to project themselves as brands and encouraged more cooperation among state, non-state, and private actors in counter-terrorism activities.[131] New public diplomacy is more than just propaganda where only state actors play a role in promoting ideas and changing the international environment because private actors and NGOs play a prominent role. While the old public diplomacy refers only to a state actor addressing foreign publics by using traditional channels of communication and propaganda, the new public diplomacy relates to all the public diplomacy activities and initiatives that have been developed since the beginning of the 21st century, including the involvement of state and non-state actors, new communications channels such as the internet, the use of certain techniques including soft power or nation brand, as well as networks and relationship-building.[132]

This thesis applies the concept of public diplomacy to the change of GMO policy. Although several studies have analyzed the response of state and non-state actors involved in supporting or opposing GMOs,[133] previous research in this field has disregarded the study of non-state actors and their interactions with state actors to change the political environment and promote policy change in a host country. This interaction is important because MNCs and international NGOs often pursue similar goals in different parts of the world, and they are constructing networks in order to achieve their aims. Furthermore, there is some research focused on the role of policy-makers in biotechnological

[127] Nicholas J. Cull, *Public Diplomacy: Lessons From the Past*, *USC Center on Public Diplomacy at the Annenberg School* (Los Angeles, CA.: Figueroa Press, 2009), 12.
[128] Jan Melissen, "The New Public Diplomacy: Between Theory and Practice," in *The New Public Diplomacy: Soft Power in International Relations* (Houndmills: Palgrave MacMillan, 2005), 4.
[129] James Pamment, *New Public Diplomacy in the 21st Century: A Comparative Study of Policy and Practice* (London, New York: Routledge, 2013), 3.
[130] Ibid., 25–7.
[131] R.S. Zaharna, "Mapping out a Spectrum of Public Diplomacy Initiatives," in *Routledge Handbook of Public Diplomacy*, ed. Nancy Snow and Philip M Taylor (New York: Routledge, 2009), 90.
[132] Cull, *Public Diplomacy*, 14.
[133] See for example Aerni and Bernauer, "Stakeholder Attitudes." Clapp, "Unplanned Exposure."

applications.[134] However, while there are a few investigations of how and why biotechnology companies such as Monsanto, Syngenta, and Bayer, and environmental groups such as Greenpeace and ETC have attempted to influence governments, the GM food policies in Mexico, which is the focus of this thesis, require further examination because, as revealed in my research, their influence and role are increasing.

The literature shows that domestic interest group lobbying models are useful to analyze the activities and efforts that different interest groups conduct to influence members of legislatures or executive agencies, involving organized and continuous communication with government actors to require their support for a particular petition or interest.[135] However, this sort of model does not address the efforts exerted by international state and non-state actors to influence a particular government to change certain policy. Because it focuses on legislators, it disregards the influence of other stakeholders such as citizens, producers, or scientific institutions. Although the advocacy coalition framework model for policy change includes the actors involved in subsystems coming from public and private organizations, it neglects the analyses of the roles played by actors at different levels of government and outside the government such as journalists, researchers, or policy analysts, by technical information, or value priorities and perceptions within policy programs.[136] The advocacy coalition framework model only focuses on the interaction between state and non-state actors at the national level but fails to analyze the interaction of international actors in the policy change.[137] This advocacy coalition framework model has been successfully applied to the study of natural resources and environmental protection legislation, but it has not been applied to GM food legislation because this is a relatively new area of study.

The literature also touches on two other approaches: international regime and democracy promotion theories. I have examined each of these and I explain in the following lines why I have not pursued these theories but rather have found the public diplomacy approach most promising. Although the international regime theory may be applied to understand how a change within the international system involves alterations of rules and decision-making procedures, the study of principles and norms, the use of political power as an instrument to secure outcomes or enhance particular actor's interests, or the use of knowledge as a guidance for particular policies,[138] this theory does not address the analysis of diplomatic instruments employed by the actors involved in the international system. The international regime theory may be used to explain how international institutions such as the WTO and CBD may influence the Mexico's decision-making processes toward GM foods. However, that would be another line of research oriented to the study of the international trading system rather than focusing on the diplomatic instruments employed by American state and non-state actors which is the focus of this thesis.

[134] Wiktorowicz and Deber, "Regulating Biotechnology." 115.
[135] Thomas A. Birkland, *An Introduction to the Policy Process: Theories, Concepts and Models of Public Policy Making*, 2nd ed. (Armonk, N.Y.: M.E. Sharpe, 2005), 84, 85.
[136] Paul A. Sabatier and Hank C. Jenkins-Smith, "The Advocacy Coalition Framework: An Assessment," in *Theories of the Policy Process*, ed. Paul A. Sabatier (Boulder: Westview Press, 1999), 118–119.
[137] Ibid.
[138] Stephen Krasner, "Structural Causes and Regime Consequences: Regimes as Intervening Variables," in *International Regimes*, ed. Stephen Krasner (Cambridge, Mass.: Cornell University Press, 1983), 1–22.

Democracy promotion is an important element to understand US foreign policy. Democracy promotion involves the development of modalities to promote poliarchy such as political aid and agencies such as the USAID, and programs including leadership training, education, strengthening institutions of democracy, conveying ideas and information, and development of personal and institutional ties.[139] However, this democracy promotion approach corresponds to the post-Cold War era and does not consider the interactions between state and non-state actors in the promotion of democracy or GM foods. Furthermore, the current Department of State democracy promotion programs in Latin America shifted to tackle the prevalent problems of anti-corruption, counterterrorism, human rights, and migration. The role of the USAID may be important for the promotion of GM food donations to Africa, but it has been controversial in countries such as Kenya. However, in the specific case of Mexico, the USAID is more focused on the development of children, women's rights, education programs, crime and violence prevention, the rule of law, and human rights.

Consequently, having considered the four approaches above and found them not quite suitable, I reaffirm that the use of a public diplomacy model including the interaction of state and non-state actors, at an international as well at a domestic level, as proposed by Antal and Tigau,[140] to study the GMO policy change in Mexico is more appropriate than a model of domestic interest group lobbying or advocacy coalition framework, or the international regime or democracy promotion theories. After an examination of the Mexican response to the GM foods issue, it is evident that international and domestic actors have influenced the development of the GM food policy in Mexico, and the GM food issue in Mexico is "intermestic" because it is "simultaneously, profoundly and inseparably both domestic and international."[141] Therefore, while some studies address different aspects of GM food policies, most scholars have given less attention to the analysis of public diplomacy instruments, the roles of diplomats as facilitators of information and relationships, and the roles of MNCs and NGOs as important players and influencers in policy outcomes. This thesis intends to fill this gap. In the following sections, I present a deeper discussion of a proposed public diplomacy model and its application along with the actors, instruments, and publics targeted in Mexico.

2.5.1 Actors in public diplomacy

Public diplomacy involves a state actor that actively targets sectors of foreign publics to develop support in order to achieve strategic foreign policy goals.[142] In the case of the United States, the Department of State is the main state actor involved in the development of public diplomacy programs to promote US trade policies which also accommodate biotechnology products. Furthermore, biotechnology may be used as a soft power instrument to enhance economic advantage or extend economic and political influence over other states.[143] Such is the importance of biotechnology products that GM foods have become a political debate in different countries.

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[139] William I. Robinson, *Promoting Polyarchy: Globalization, US Intervention, and Hegemony.* (Cambridge, UK: Cambridge University Pres, 1996), 107.
[140] Antal and Tigau, "GMO PD for Biosafety," 42.
[141] Bayless Manning, "The Congress, the Executive and Intermestic Affairs: Three Proposals," *Foreign Affairs* 55, no. 5 (1977): 309.
[142] Christopher Ross, "Public Diplomacy Comes of Age," *The Washington Quarterly* 25, no. 2 (2002): 75.
[143] Russell, "International Relations Theory," 16.

In the field of public diplomacy, sharing cultural resources and making achievements known overseas by a government, such as science or technology advances, is a way to attempt to influence the international environment.[144] Advances in biotechnology are part of the efforts to impact on the political ambient. To this end, the US government established the Consultative Group on International Agricultural Research (CGIAR) to mobilize scientific knowledge and to support agricultural activities.[145] For example, with American sponsorship from the Rockefeller Foundation, in Mexico the International Center for the Improvement of Maize and Wheat (CIMMYT) was created to develop and adopt new varieties of maize and wheat.[146] This center is part of the CGIAR and is financed by the Food and Agricultural Organization, the World Bank and the United Nations Development Program, and became a public-private partnership organization with a strong role to assist GMO introduction into Mexico.[147]

US public diplomacy includes instruments to attempt to manage the international environment, such as advocacy, cultural diplomacy, exchange diplomacy, listening to publics, broadcasting, and psychological warfare or propaganda.[148] In order to work efficiently, public diplomacy needs an action plan that incorporates these instruments within a structure for management with different levels of leadership and oversight, the support from experts including partnerships, and the expansion of networks.[149] These three elements are fundamental for public diplomacy programs to succeed, as explained below.

In regards to the different levels of leadership and oversight, US public diplomacy involves an array of state actors contributing to foreign policy goals, such as federal, state, and local agencies that have an international outreach, and especially aims at non-state groups, organizations, and individuals.[150] For example, the FDA is a US federal agency involved in the promotion of biotechnology trade. It has a Latin America regional office, housed at the US embassy in Mexico, to facilitate the exchange of information about US regulations, aiming individuals and businesspeople. To enhance export opportunities and assure global food security, a Foreign Agricultural Service (FAS) office of the USDA is also located in Mexico City. This mixing of diplomacy and technology helps the United States to pursue trade interests and promote foreign investment.

Regarding partnerships, the private sector's involvement in public-private partnerships is vital to work more efficiently; even privatizations may be used to improve the government's performance and be more efficient, attract expertise, or be more credible.[151] The US Department of State invests in public-private partnerships to keep a global network of cultural experts and advance American culture and values overseas. For example, the Coca-Cola MENA Scholars Partnership takes 100 university students from the Middle East, North Africa, and Pakistan to a summer entrepreneurship program at Indiana University's Kelley School of Business.[152] This partnership involves the US Department of State, Bureau

[144] Cull, *Public Diplomacy*, 19.
[145] Juma, "The New Age," 105.
[146] Massieu Trigo, "Cultivos y Alimentos," 222.
[147] Antal and Tigau, "GMO PD for Biosafety," 45.
[148] Cull, *Public Diplomacy*, 24.
[149] Larry A. Williamson, "The Last Three Feet" (Master's thesis, University of Kansas, 2006), 53.
[150] Ross, "Public Diplomacy," 76.
[151] Kathy R. Fitzpatrick, "Privatized Public Diplomacy," in *Toward a New Public Diplomacy: Redirecting U.S. Foreign Policy*, ed. Philip Seib (Basingstoke: Palgrave MacMillan, 2009), 161.
[152] Bureau of Public Affairs, "State of Global Partnerships Report 2015," *US Department of State: Diplomacy in Action*, 2015, http://www.state.gov/s/partnerships/releases/reports/2015/238828.htm#CocaCola.

of Near Eastern Affairs, Bureau of Public Diplomacy and Public Affairs, and the Coca-Cola Company. At the end of the program, the students visit the Coca-Cola headquarters and have the opportunity to network in Washington DC. This cooperation of the Department of State with a multinational corporation allows the Department of State to share the American values among the participating scholars in an academic environment without the direct impact of the government, whereas MNCs project their business success through their participation in such partnerships.

Moreover, the participation of the private sector in public-private partnerships in Mexico has been important to the extent that even popular executives, such as Bill Gates and Carlos Slim with transnational foundations, have contributed with donations to the CIMMYT for research and development of agricultural products.[153] CIMMYT is a supporter of biotechnology and develops agricultural products not only for Mexico but also for other parts of the world. However, in this sort of public-private partnerships, American companies may expect some federal government financial commitment to the cause in which they have decided to participate,[154] potentially distorting the genuine aims that the government originally had.

In relation to networks, these are mainly relationships and communication structures.[155] In international relations, networks are regarded as a form of organization for facilitating collective action and cooperation, exercising influence or serving as a means of international governance.[156] In the field of public diplomacy, networks are the mediums for understanding different relationships and the points of view within those relationships.[157] In regards to GM foods, American biotechnology companies and environmental groups established in Mexico have developed transnational networks. This sort of network assumes that the diplomatic environment can be characterized by transnational coalitions between governments and foreign publics with the aim of the former having policy influence over the latter.[158] Thus, a policy network comprises informal and formal interaction between public or state actors, and private or non-state actors, with interdependent interests though often different aims.[159] For example, in Mexico, about 50 biotechnology laboratories take part in the Technical Cooperation Network on Plant Biotechnology in Latin America and the Caribbean (REDBIO), an NGO that intends to build clusters to exchange information and resources about biotechnology.[160]

Additionally, public diplomacy is more effective when a state cooperates closely with non-state actors, which include civil society organizations and businesses, both providing access to policy networks. In public diplomacy, NGOs play an important role because they may be very skillful at influencing foreign publics, such as Greenpeace or Amnesty International which have gained the

[153] Informador, "Gates Y Slim Inauguran Complejo de Biociencias Agrícolas," *El Informador*, July 10, 2013, http://www.informador.com.mx/economia/2013/437159/1/gates-y-slim-inauguran-complejo-debiociencias-.
[154] Ross, "Public Diplomacy," 81.
[155] Pamment, *New Public Diplomacy*, 35.
[156] Emilie M. Hafner-Burton, Miles Kahler, and Alexander H. Montgomery, "Network Analysis for International Relations," *International Organization* 63, no. 03 (2009): 560.
[157] Pamment, *New Public Diplomacy*, 34.
[158] Brian Hocking, "Rethinking the 'New' Public Diplomacy," in *The New Public Diplomacy: Soft Power in International Relations*, ed. Jan Melissen (Basingstoke, Hampshire, New York: Palgrave MacMillan, 2005).
[159] William D. Coleman, "Policy Networks, Non-State Actors and Internationalized Policy-Making: A Case Study of Agricultural Trade," in *Non-State Actors in World Politics*, ed. Daphné Josselin and William Wallace (Houndmills: Palgrave MacMillan, 2001), 94.
[160] Antal and Tigau, "GMO PD for Biosafety," 39.

admiration of diplomats because of their success in fluently operating international networks.[161] Consequently, the US, similar to other state actors, utilizes these resources along with the aid of MNCs or NGOs to build partnerships in certain cases, and achieve better results.

In the study of biotechnology, the transnational communications between governments and non-state actors should be taken into account.[162] There has been an explosive growth of large and small non-state actors working at a transnational level. These non-state actors include NGOs, firms, specialists, academics, and citizens. NGOs and other non-state actors try to project their message to foreign publics in order to achieve their goals.[163] Moreover, NGOs have become prominent actors in influencing government policy in specific areas. For instance, Greenpeace has campaigns to prevent the adoption of GM foods. In Mexico, Greenpeace is currently running a campaign to prevent GM maize cultivation, called *¡Transgénicos ni maíz!*[164] Also, non-state actors often build strong networks across borders facilitating civil society links, promoting shared values and ideas, encouraging international solidarity, participation in politics, and building trust.[165] For example, to anticipate Chapter 6, the march against Monsanto on May 25, 2013, was a citizen effort to warn against the concentration of power that this company has and to promote GM foods labeling around the world.[166]

Furthermore, as discussed in Chapter 5, the presence of MNCs and NGOs in transnational spaces may influence the political environment and thus have an effect on regulations or policies within a host country. Indeed, biotechnology companies or environmental NGOs may put their arguments to policy-makers to promote certain positions. It is thought that biotechnology corporations are building networks, concentrating power and influencing government policymakers in order to promote themselves at taxpayer's expenses.[167] For example, MNCs have influenced global environmental politics, to shape the environmental agenda in ways compatible with their own aims, and molding the discourse in conjunction with other like-minded companies.[168]

In contrast, GM food opponents tend to shape and even exaggerate their arguments in order to make people fearful of consuming GM foods and as a consequence, gaining support for donations and grants to survive as NGOs.[169] Therefore, certain NGOs may sometimes take advantage of the fear potential of an issue to curtail GM foods development. The way in which biotechnology companies and environmental groups have created different, often opposing ties and structures is crucial to understand the GM food debate in Mexico. Therefore, through the analysis of US public diplomacy instruments, actors, targeted sectors, and stakeholders, the change of the political environment and thus the GM food promotion in Mexico can be better explained.

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[161] Melissen, "The New Public Diplomacy," 12.
[162] Russell, "International Relations Theory," 17.
[163] Hocking, "Rethinking the 'New' Public Diplomacy."
[164] Transgenics neither maize! It is a campaign to halt GM maize commercialization in Mexico
[165] Melissen, "The New Public Diplomacy," 23.
[166] MAM, "Event and Media Resources for 5/25/13," *March Against Monsanto*, 2013, www.march-against-monsanto.com.
[167] RT, "New Cables 'Expos' US Govt Lobbies Worldwide for Monsanto, Other GMO Corps," *RT/USA*, May 14, 2013, rt.com/usa/wikileaks-monsanto-cables-report-273/.
[168] Ian H. Rowlands, "Transnational Corporations and Global Environmental Politics," in *Non-State Actors in World Politics*, ed. Daphné Josselin and William Wallace (Basingstoke: Palgrave MacMillan, 2001), 133–49.
[169] Henry I. Miller and Robert Macgregor, "Anti-Genetic Engineering Activism: Why the Bastards Never Quit," *Genetic Engineering & Biotechnology News*, 2013, http://www.genengnews.com/keywordsandtools/print/1/30613/. 6.

The publics that US public diplomacy initiatives target in Mexico include government, non-governmental, scientific, citizen, and media organizations. Table 2.4 inventories the major organizations in Mexico, divided in publics for GMOs and others against GMOs. For the purpose of this thesis, I will exclude the analysis of media and political parties because my study will be focused on US public diplomacy initiatives toward the executive agencies in Mexico, paying special attention to the policies Mexican agencies have adopted from their American counterparts.

Table 2.4. Publics involved in GM food public diplomacy initiatives in Mexico

Publics	For GMOs	Against GMOs
Government	SAGARPA, CIBIOGEM, CONABIO, SEMARNAT	CNBA
Non-governmental	ISAAA; LES; AgroBIO (Aventis Syngenta, Dupont, Monsanto)	
Scientific	CINVESTAV, IB, CIS, CP, IT, INIFAP, CIMMYT, AMC, INE	UCCS
Citizen	*Producers* : UNIPRO, CNA	*Producers* : UNORCA, CECCAM, ECNAM, UNOSJO, ANEC *Environmental* **:** UGAM, Greenpeace, GEA, CEC, ETC, CEMDA
Political parties	PAN, PRI	PRD, PVEM
Media	Milenio, El Universal	La Jornada, El Universal

Source: adapted and abridged by this author, from Antal and Tigau, "GMO PD for Biosafety," 42
Abbreviations can be found in Glossary

2.5.2 A new model of public diplomacy for GM foods

In order to be more effective, public diplomacy should be implemented through programs. Taking into account Leonard, Stead and Smewing's conception, public diplomacy consists of three dimensions: reactive, proactive, and relationship-building.[170] The reactive dimension refers to the management of communications on day-to-day issues and responding to news events as they occur within hours or days. The proactive dimension involves the creation of a news agenda through activities and events designed to strengthen core messages and influence audiences' perceptions, over weeks and months. The long-term relationships building dimension focuses on developing lasting relationships with key individuals or audiences which take years to develop. These dimensions are essential to analyze the public diplomacy strategies implemented by states.

To implement a public diplomacy action plan, Williamson proposes two additional structures that comprise public diplomacy: conceptual and organizational, as shown in Table 2.5. First, the conceptual structure is formed by the three dimensions proposed by Leonard, Stead, and Smewing: immediate dealing with tactical information, proactive communications related to selected topics, and long-term relationship building oriented to key individuals and groups. Second, the organizational structure includes the government, public-private partnerships, or non-governmental structures that are involved

[170] Mark Leonard, Catherine Stead, and Conrad Smewing, *Public Diplomacy* (London, UK: The Foreign Policy Centre, 2002), 10, 11, 18.

in the implementation of public diplomacy programs, linking the public diplomacy instruments and activities that can be planned and implemented, shown in each row and column.

Table 2.5. Conceptual and organizational structure

Organizational Structure	Conceptual Structure		
	Immediate Communication	Proactive Communication	Long-Term Relationship Building
Government Directed	Media Releases Media Relations Broadcast Operations CMC*	Publications Inter-Agency Actions	Exchanges
Quasi-Government Directed		Audio/Visual Productions Documentaries Alumni Network Language Training Opinion Research CMC	Corporation For Public Diplomacy
Non-Government Directed			Exchanges Libraries NGO-MNC Networks Exhibits CMC

Source: Williamson, "The Last Three Feet:"
*CMC refers to Computer Mediated Communication

This model proposed by Williamson works well for general programs of public diplomacy. However, in the case of the promotion of biotechnology products, the US Department of State does not apply all the public diplomacy instruments hypothesized by scholars presented in Table 2.6. Therefore, I propose an abridged model of US public diplomacy employed in the promotion of GM foods, shown in Table 2.6. It is my intention to show that these public diplomacy instruments have been utilized by the US Department of State, whether in combination with non-state actors, on the Mexican government and non-state actors to shape the environment and change the GM food policies in the country.

Consequently, to be more specific, I propose a public diplomacy model for GM food promotion with the different US public diplomacy actors involved in promoting GM foods in Mexico as shown in Table 2.7. In the column of organizational structure, I present the US actors involved in the implementation of public diplomacy, including the American government actors that belong to the Executive branch, as well as the non-state actors that also have influenced the political environment in Mexico. The non-state actors also use diverse public diplomacy instruments and strategies, in the case of MNCs to promote the adoption of GM foods, whereas NGOs to prevent the cultivation and consumption of GM foods.

Table 2.6. US public diplomacy instruments employed in the promotion of GM foods in Mexico

Organizational Structure	Strategic Communications Resources		
	Reactive Communications	Proactive Communications	Relationship-Building
State directed	Media Relations	Publications with thematic information Inter-Agency actions	Exchanges Advocacy
Public-private partnership		Audio/Visual productions Documentaries Scientific networks Technical language training Opinion research	Research centers Exhibits Scientific training Seminars/ conferences Academic exchange
MNC or NGO directed			Scientific exchanges Research centers MNC or NGO networks Exhibits Scientific training

Source: Elaborated by this author, based on the model proposed by Williamson, "The Last Three Feet:"

In the column of strategic communication resources, I present the diplomatic instruments that both US state and non-state actors employ to deliver their messages in order shape the perception of biotechnology and GM foods, as shown in Table 2.7. These resources are presented in three different types. The public diplomacy *reactive* communication resources refer to instruments such as news management involving media relations and press releases that usually are executed after an innovation or a difficulty is encountered by an actor. The *proactive* communication resources include activities that evolve over time and involve more tangible results, such as an audiovisual production along with the promotion and presentation of this material to targeted institutions and organizations. The strategic resources involved in long-term relationship building include cultural diplomacy tactics for aiding relationship building, as well as some advocacy use and exchange diplomacy which is now broadly used in the public diplomacy area. In the next column, I present which are the targeted institutions and stakeholders in Mexico, such as the Mexican government agencies and other non-government stakeholders including domestic NGOs and scientific institutions. In the next column, I suggest the possible outcomes emerging from the US public diplomacy initiatives. (A full list of abbreviations can be found in Glossary).

Table 2.7. Consolidated table of actors, instruments and targeted institutions and stakeholders involved in US public diplomacy activities to promote/prevent GM foods in Mexico

Organizational Structure	Strategic Communications Resources			Targeted institutions and stakeholders in Mexico	Hypothesized outcomes
	Reactive Communications	Proactive Communications	Relationship-Building		
State directed • US Department of State	• Develop media relations by coordinating with journalists to release information and inform the public	• Coordinate inter-agency actions and functions to promote specific interests • Monitor public opinion • Design and distribute publications with thematic information	• Establish and maintain personal contact • Undertake advocacy activities • Promote exchanges • Send letters/fax • Create and maintain networks and relationships	• Executive agencies SAGARPA, CIBIOGEM, CONABIO, SEMARNAT, CNBA, SENASICA • Producer groups: UNORCA, CECCAM, UNOSJO, ANEC	• Mexican producer groups have been receiving US technical assistance for GM foods cultivation, commercialization and use • Mexican executive agencies personnel have been involved in technical professional exchanges with their American counterparts • GM foods have been promoted by Mexican governmental agencies • Mexican producers and national corporations have been purchasing US GM food technology • Mexican farmers and producer groups have planted GM seeds • Producer groups and national corporations have commercialized GM foods domestically and outside Mexico • Mexican executive agencies have allowed the imports of all varieties of GM foods from the US • Producer groups and national corporations have imported all varieties of US GM foods • Mexican companies have used GM foods to manufacture food products • Ongoing networks to facilitate GM food research and development among US executive agencies, Mexican executive agencies, Mexican scientific institutes and Mexican corporations have been developed • Mexico's GM foods commercialization and promotion has become an example of leadership for the rest of Latin America
• USDA • FDA • EPA		• Design and distribute publications with thematic information • Implement technical and scientific assistance and advice	• Promote exchanges • Create and maintain networks and relationships		

Table 2.7. Continued

Organizational Structure	Strategic Communications Resources			Targeted institutions and stakeholders in Mexico	Hypothesized outcomes
	Reactive Communications	Proactive Communications	Relationship-Building		
Public-private partnership • CIMMYT		• Create and maintain scientific networks • Prepare and implement technical language training	• Initiate and coordinate research groups • Organize exhibits • Prepare and implement scientific training • Coordinate and deliver seminars/ conferences • Organize and promote academic exchanges • Disseminate scientific research to policy-makers	• Producer groups: UNORCA , CECCAM, UNOSJO, ANEC • Scientific institutions: IB, CINVESTAV, INIFAP, PRONASE	• Mexican scientific institutions have received US scientific training for GM food research and development • Ongoing networks to facilitate GM food research and development among CIMMYT, Mexican executive agencies, Mexican research institutes and Mexican corporations have taken effect. • Mexican producer groups and farmers have cultivated GM foods • Mexican citizens have been promoting and consuming GM foods • Mexican companies have used GM foods to manufacture food products • Domestic NGOs have accepted GM foods • The Mexican public, media and producers have been educated about GM foods advantages and disadvantages
MNC directed • Aventis Syngenta • Dupont • Monsanto • Bayer	• Develop media relations by coordinating with journalists to release information and inform the public • Realize press conferences /press releases to inform the public	• Generate and promote audio/visual productions • Elaborate and propagate documentaries • Initiate and maintain scientific networks • Prepare and implement technical language training • Monitor public opinion	• Lobby executive agencies • Create and promote MNC networks • Develop internal research centers • Sponsor biotechnology scientific institutions and universities • Organize and promote scientific exchanges • Prepare and implement scientific training • Organize exhibits • Coordinate and deliver seminars/ conferences • Disseminate research to policy-makers	• Executive agencies SAGARPA, CIBIOGEM, CONABIO, SEMARNAT, CNBA • Scientific institutions: IB, CINVESTAV, INIFAP, PRONASE • Producer groups: UNORCA , CECCAM, UNOSJO, ANEC	• MNCs have commercialized GM foods with Mexican producers and domestic corporations • Mexican citizens have been promoting and consuming GM foods • Ongoing networks to facilitate GM food research and development among US executive agencies, MNCs, Mexican executive agencies, Mexican scientific institutes and Mexican corporations have been originated • The Mexican public has been educated about GM foods advantages • Producer groups have been purchasing GM foods from MNCs • Media has accepted GM foods and emitted unbiased opinions about GM foods

Table 2.7. Continued

Organizational Structure	Strategic Communications Resources			Targeted institutions and stakeholders in Mexico	Hypothesized outcomes
	Reactive Communications	Proactive Communications	Relationship-Building		
NGO directed • Greenpeace • Vía Campesina • ETC	• Develop media relations by coordinating with journalists to release information and inform the public • Realize press conferences to inform the public	• Generate and promote audio/visual productions • Produce and distribute documentaries • Monitor public opinion • Design and promote education programs • Mobilize general public	• Disseminate information to publics • Create and maintain NGOs networks • Organize exhibits	• Producer groups: UNORCA, CECCAM, UNOSJO, ANEC • Domestic NGOs: UCCS, CEMDA, UGAM, GEA. • Citizens	• Citizens have been warned about GM foods existence, advantages and disadvantages • Citizens and producer groups are aware of the biotechnology companies concentration of power • The Mexican public has been educated about GM foods advantages and disadvantages • There has been massive protests for preventing the use of GM foods with the participation of producer groups, domestic NGOs and citizens • Media has been covering NGOs during massive protests for preventing the use of GM foods • Local producers and producer groups have been avoiding the use of GM foods • Ongoing networks with domestic NGOs, citizen groups and local producers to prevent the use and commercialization of GM foods in Mexico have been developed

Source: Elaborated by this author, based on the model proposed by Williamson, “The Last Three Feet”, and the model of public diplomacy proposed by Antal and Tigau, “GMO PD for Biosafety.”

In summary, this chapter has introduced key public diplomacy terms and definitions and has proposed a model of public diplomacy, presented in Table 2.7, which I hope to validate in my research as described in the chapters to follow. This model includes a collection of diplomatic instruments that are employed by the United States in Mexico to promote GM foods, as well as the different participants that are involved in this promotion. MNCs and NGOs also play important roles in my model as they advocate the acceptance or rejection of GM foods by disseminating their arguments worldwide. The proposed model in this thesis inventories strategies and instruments used for the promotion of GM foods under the public diplomacy conceptual framework. In the following chapter, I will discuss the research design for this research project, the research questions, and the hypothesis.

Chapter 3
Research design

Chapter 2 noted that there is a serious debate about agricultural biotechnology, specifically focused on GMOs. There are two opposing positions regarding the advantages and disadvantages of GM foods. Likewise, since the Green Revolution, biotechnology has been incorporated progressively into agriculture. Government officials are now aware of the benefits of science and technology, and the incorporation of biotechnology has been included in the exercise of diplomacy. Also, relevant concepts about public diplomacy were discussed, and I proposed a public diplomacy model to analyze the actors, instruments, targeted institutions, and stakeholders involved in US public diplomacy activities to promote GM foods in Mexico. I identified three strategic communication resources of public diplomacy that the US government uses toward Mexico. First, the reactive strategic resources include media relations and press releases. Second, the proactive resources contemplate activities that evolve over time and involve more tangible results, such as audiovisual productions along with the promotion and presentation of this material. Lastly, the relationship building strategic communication resources include lobbying, advocacy and exchange diplomacy which is broadly used in the public diplomacy area.

The purpose of Chapter 3 is to set the research design that will guide this study. In this thesis, I attempt to demonstrate how the United States has promoted GM foods in Mexico and has influenced the GM food policy change through public diplomacy activities. Furthermore, the US promotion of GM foods has been pursued for several years and has involved different actors, diplomatic instruments, and targeted stakeholders in order to change the political environment in Mexico. It has been a complex policy environment in which international and domestic actors have a stake because this is an intermestic issue. This chapter presents the key research questions and the hypothesis that will guide this study, as well as the methodology. A discussion of ethical considerations, some key assumptions and limits, and the analysis of the selection of case studies will also be included.

3.1 Key research questions and hypothesis

In addition to the conceptual framework presented in Chapter 2, in particular the discussion of public diplomacy and the proposed model, in this section I outline the ontological and epistemological basis of my research design. For my ontological basis, I explored the ontological approach of objectivism which states that social phenomena and their meanings exist independently of social factors.[171] However, this approach of facts independent from social factors does not suit the analysis of the GM food debate and the policy change in Mexico because in such change, different forces and actors intervened. Consequently, I identified a constructivist approach is more suitable for my research. This approach states that social phenomena are subject to changes that rely on social interactions as they occur.[172]

[171] Nicholas Walliman, *Social Research Methods* (London, UK: SAGE Publications, Ltd, 2006), 15.
[172] Ibid.

Therefore, in the study of the GM food promotion and the GM food policy change in Mexico, an analysis of the social interactions is relevant to explain this phenomenon.

Regarding my epistemological basis, I explored the paradigm of positivism which states that the study of the social reality should be conducted by the inference procedures utilized in natural sciences, including observation and measurement, and the instruments of mathematical analysis.[173] This approach includes the testing of theories and establishment of laws.[174] Although this epistemological approach aims to establish causes and effects, it is fundamentally deductive, and research is focused on testing a hypothesis based on numeric data in order to make objective claims.[175] Therefore, this approach is not suitable for studying the international and domestic actors involved in the promotion of GM foods and policy change in Mexico because despite these interactions and changes may be quantifiable, these quantifications are not enough to get a deeper understanding of social interactions and perceptions. As a result, the way in which actors interact and influence the policy-making processes may not be well addressed.

In order to comprehend the GM food debate and policy change in Mexico, it is necessary to understand how different actors have interacted with Mexican policy-makers. Furthermore, in this debate actors and perceptions play an important role. I identified the paradigm of interpretivism as more suitable to understanding actors in the participation of GM food promotion and policy change in Mexico. The interpretivist position regards interpretations or meanings as crucial to understanding social phenomena, and the world is socially constructed.[176] Considering this, an interpretivism paradigm which considers that social or cultural phenomena emerge from the different means in which actors in a determined situation construct meaning[177] is suitable for analyzing this topic. Because an interpretivist paradigm recognizes that subjective meanings are critical in social actions, this approach aims to reveal interpretations and meanings.[178] This is important because participants in the GM food debate have different interpretations and perceptions of this phenomenon and tend to discuss the subject in different ways. Understanding this interpretation is crucial to evaluate how different forces and actors have participated in the GM food promotion in Mexico.

Additionally, I identified that the most suitable theory for understanding this topic is public diplomacy which, with the introduction of new communication tools, includes state and non-state actors performing quasi-diplomatic activities. Moreover, the use of a proposed public diplomacy model, which includes the interaction between state actors and non-state actors at a domestic and international level to study

[173] Piergiorgio Corbetta, *Social Research: Theory, Methods and Techniques Paradigms of Social Research*, ed. Piergiorgio Corbetta (London, UK, UK: SAGE Publications, Ltd, 2003).
[174] Walliman, *Social Research Methods*, 15.
[175] Roger Pierce, *Research Methods in Politics: A Practical Guide* (Thousand Oaks, CA: SAGE Publications, Ltd, 2008), 24.
[176] David Marsh and Paul Furlong, "A Skin, Not a Sweater: Ontology and Epistemology in Political Science," in *Theory and Methods in Political Science*, ed. David Marsh and Gerry Stoker, 2nd ed. (Houndmills, Basingstoke, Hampshire ; New York: Palgrave MacMillan, 2002), 26.
[177] Stephen D. Lapan, Marylynn T. Quartaroli, and Frances Julia Riemer, *Qualitative Research: An Introduction to Methods and Designs* (San Francisco: Jossey-Bass, 2012).
[178] Walliman, *Social Research Methods*, 15.

the GM food policy change in Mexico, as proposed by Antal and Tigau,[179] is more appropriate than a model of domestic interest group lobbying or advocacy coalition.

Public diplomacy involves one government targeting sectors of foreign publics to develop support in order to achieve strategic goals.[180] Furthermore, the new public diplomacy[181] field involves state actors such as federal, state, and local agencies with overseas presence performing international activities with non-state actors of other countries in order to build relationships and policy networks.[182] Therefore, the explanation of GM foods policy change in Mexico can be best understood by studying the US diplomatic efforts, including public diplomacy actors, instruments, and targeted institutions and publics in Mexico by applying the proposed public diplomacy model presented in Chapter 2, Table 2.7. Therefore, my project aims to validate the following hypothesis:

> The United States government has implemented different public diplomacy instruments to promote changes in the GM food policy of Mexico, including public-private partnerships with biotechnology companies and network building. In contrast, US environmental groups opposing GM foods have been less effective in constructing networks and influencing the Mexican government

My work aims to demonstrate this general hypothesis. However, this thesis will also attempt to demonstrate the lack of validity of the following three counter-hypotheses, given the information available and the inductive nature of the research process.

1. The US biotechnology companies interacted directly with Mexican decision-makers and influential actors without significant involvement of US government agencies involved in public diplomacy and this interaction led to the change of Mexican GM food policy.
2. The Mexican government responded to its own scientific research and environmental groups and this allowed GM food commercialization.
3. The Mexican government did not respond to the influence of either the US government or US biotechnology corporations, so the influence of these actors was not significant.

In order to assess these hypotheses, the following primary research questions and specific questions for the different case studies guide this research.

3.1.1 Primary research questions

1. Why has the United States government promoted GM foods in Mexico in order to change the GM food policy and how has it conducted this promotion?
2. Did the Mexican government change its GM food policy in 2005 in response to US government and US biotechnology firms' promotion or its own agencies' scientific and economic assessments?

[179] Antal and Tigau, "GMO PD for Biosafety," 42.
[180] Ross, "Public Diplomacy," 75.
[181] This term was adopted in 2005 by Jan Melissen, *The New Public Diplomacy: Soft Power in International Relations* (Basingstoke, Hampshire, New York: Palgrave MacMillan, 2005).
[182] Ross, "Public Diplomacy," 76.

3. How useful has the public diplomacy model been to assist analysis of the role of the US and other actors in inducing policy change in Mexico and what limitations does it display in this case study?

3.1.2 Specific research questions

Case one: US government public diplomacy activities [analysis in Chapter 4]

1. Which US government agencies have promoted GM foods in Mexico, and what was the nature of their initiatives?
2. Have the US government agencies involved in public diplomacy interacted mainly with Mexico' official decision-makers or rather with other non-governmental influential actors?
3. To what degree has the Mexican government responded to the influence of the US government as contrasted with the influence of other GM foods policy promoters?

Case two: MNCs involved in public diplomacy [analysis in Chapter 5]

4. How have US biotechnology companies promoted GM foods in Mexico, and with what level of success?
5. How and why have US biotechnology firms encouraged the US government to promote GM foods in Mexico and how did they interact with US government agencies?
6. Have the US government agencies and biotechnology companies collaborated to try to persuade Mexican policy makers to change GM food policy in Mexico and if so, was this overt or covert? What were the techniques of this collaboration?
7. To what degree have the US biotechnology companies interacted directly with Mexican official decision makers as contrasted to interactions with Mexican NGOs and other influential actors in Mexico?

Case three: NGOs involved in public diplomacy [analysis in Chapter 6]

8. Why and how have the US and Mexican NGOs attempted to prevent the Mexican government's change of policy?
9. What factors explain why the US and Mexican NGOs were unsuccessful in preventing or modifying the Mexican government change of GM food policy?
10. How have American and Mexican NGOs interacted?

3.2 Methodology

For my project, I have selected a qualitative approach, applied specifically to three case studies. There are some previous researchers including Guinn that have applied a qualitative analysis for the study of public diplomacy to analyze the strategic rhetoric of the American public diplomacy.[183] Therefore, a qualitative approach to my research can benefit by this precedent. Case studies set the ground for generalizations necessary to construct models and theory, and according to Gilboa, case studies in

[183] Clay Forma Guinn, "Hi From America: The Strategic Rhetoric of Public Diplomacy" (University of Houston, 2006).

public diplomacy may be classified in categories such as actors, instruments, or geographical areas.[184] My case studies fall into the category of actors. I intend to analyze the three types of actors involved in public diplomacy: state actors, MNCs, and NGOs. I will identify the public diplomacy instruments utilized by each actor in the effort to influence the GM food policy change in Mexico, as well as which ways the arguments of biotechnology companies and NGOs have been incorporated in their communications and, therefore, influenced the Mexican government.

In the first case study, I want to analyze the US state actors involved in public diplomacy, including the State Department and the interagency work with other executive agencies such as the FDA and USDA, exploring the public diplomacy instruments used in Mexico. In the second case study, I analyze MNCs as actors of public diplomacy. This analysis includes American biotechnology companies and their activities to reinforce the public diplomacy initiatives of the State Department, identifying what strategies they implement with the diplomatic bodies that operate overseas or within the networks they have formed. The third case study will refer to NGOs. I analyze the strategies and public diplomacy instruments that NGOs have employed to change the political environment in Mexico. In the three case studies, I analyze public diplomacy instruments and identify the themes developed to promote their interests and whether the actors' arguments were instrumented in the eventual Mexico's GMO policy change.

For primary data collection, I have conducted a documentary analysis and in-depth interviews. In the analysis of public diplomacy, case studies may be constructed from documents collected through a combination of internet research, official foreign policy websites, official documents including reports and studies published and diffused by the government related to public diplomacy, [185] library database research, information requests to institutions, interviews with the people involved and visiting locations relevant to the process.[186] Therefore, I have conducted documentary analysis, examining academic sources, official statements, websites and documents, biotechnology companies and NGOs brochures, press releases, media articles, and internal documents. These documents have been useful to find different arguments and to distinguish different themes in communications.

I have used purposive sampling to select experts in this field for the interviews, especially diplomats, agency directors, and campaign managers of environmental groups, see Table 3.1. This method has been used in public diplomacy to illustrate specific processes or roles.[187] My in-depth interviews were in a semi-structured format and conducted in Mexico City where the US Embassy, biotechnology companies' headquarters, environmental NGOs offices, and Mexican government agencies are located.

[184] Eytan Gilboa, "Searching for a Theory of Public Diplomacy," *The ANNALS of the American Academy of Political and Social Science* 616, no. March (2008): 55–77.
[185] Pierre C. Pahlavi, "Mass Diplomacy: Foreign Policy in the Global Information Age" (McGill University, 2004), 40.
[186] Pamment, *New Public Diplomacy*, 15.
[187] Ibid.

Table 3.1. In-depth interviews in Mexico

Institution	Name and position
Department of State, US Embassy in Mexico City	USDA-FAS • Specialist in Agriculture – Adriana Otero
NGOs	• Greenpeace Mexico – Raúl Estrada, communications director • ETC – Verónica Villa, program manager, Mexico City
Mexican targeted institutions and public	SAGARPA • Deputy secretary of agriculture – Jesus Alberto Aguilar Padilla • International affairs coordinator – Juan Bernardo Orozco Sánchez • Director of productivity and technological development– Belisario Domínguez Méndez CIBIOGEM • Office of biotechnology and biosecurity communication and divulgation – Rosa Inés González Torres, director CONABIO • Biosecurity and risk analysis coordinator – María Francisca José Acevedo Gasman SEMARNAT • Social communication coordinator – to remain anonymous NGOs • Semillas de Vida representative – Adelita San Vicente • ANEC – Víctor Suárez, general director

Additionally, in order to have the perspective of the designers of the public diplomacy strategies and instruments, another set of interviews was conducted in Washington DC where US government agencies and similar non-state actors are based, including MNCs and NGOs, see Table 3.2.

For my data analysis, I have used the method of thematic analysis. This method is useful in examining the most relevant themes projected by the biotechnology companies and their counterparts, environmental groups, and for identifying implicit and explicit appeals. I make a comparison of the different arguments put forward by each actor and find those themes in the official documents and policies of GMOs as a way to determine to what extent both the biotechnology companies and the environmental groups have influenced the Mexican government. Thematic analysis has been previously used in public diplomacy with extended interviews where transcripts have been divided into coherent units, then numbered and coded, and the coded comments are grouped into common themes which later become a narrative.[188]

[188] Ibid.

Table 3.2. In-depth interviews in the United States

Institution	Name and position
US government agencies	Department of State • Agriculture, Biotechnology, and Textile Trade Affairs – Jack Bobo, senior advisor for biotechnology USDA • USDA-FAS – New Technologies representative – to remain anonymous • USDA-APHIS – David Heron, senior policy advisor for biotechnology regulatory services FDA • Food Additive Safety Office – Jason Dietz, policy analyst
NGOs	• Food & Water Watch – researcher – to remain anonymous • CSPI (Center for Science in the Public Interest) – Greg Jaffe, biotechnology project director • IFIC (International Food Information Council) – David B. Schmidt, President and CEO

To measure the effectiveness of the strategies used by the different actors in the policy change, I examine public statements and public information of the actors involved, such as press reports, articles, and letters. I have made a more intensive examination of selected passages, and deconstructed the arguments to isolate aims, assumptions, and concepts placed by each actor.

3.2.1 Ethical considerations

My research on political issues and public policies do not pose any ethical difficulties. My data collection has been through documentary analysis and in-depth interviews with experts, so I applied for ethics approval. Also, I have exercised the normal discretion and courtesy appropriate to any serious academic inquiry so as to protect the reputation of the University of Auckland and to maintain my own integrity.

3.2.2 Key assumptions and limits

A possible limitation of this research is the access to some information which diplomats may consider confidential. Another limitation is the availability of diplomats or directors for the interviews. MNCs also consider confidential some information about commercialization, as do some NGOs that consider their strategies as containing sensitive information.

3.3 Selection of case studies

I have selected the United States and Mexico because of the geographical proximity and the NAFTA obligations they share. They have common features inasmuch as they are representative free-market democracies promoting innovation and trade. They have similar government systems and policy-making procedures. I have selected the US because it is the world leader in the development, promotion, consumption, and export of GM foods and has exercised public diplomacy for several

decades. US has promoted scientific research overseas since the Green Revolution, including Mexico in those projects, and has promoted GM products in different regions of the world to open businesses and increase trade. These characteristics make it a promising case study. Additionally, Mexico has adopted similar policies of GM foods to those of the US. American biotechnology companies and NGOs have a presence in that country, so it is worthy of study. Language is another criterion for selection. I am a Spanish native speaker, so I can examine documents written in Spanish, which will be a significant asset in analyzing the arguments used by the different actors involved in public diplomacy. If necessary, I will mention other countries' initiatives as appropriate in the thesis for context and illustration.

As previously mentioned, the three case studies are the US government, MNCs, and NGOs. I have selected these actors based on the proposed public diplomacy model presented in Chapter 2 because they are the main participants in public diplomacy activities of GM food promotion in Mexico. This thesis is potentially significant because it can reveal the ways in which the US government uses public diplomacy instruments and it seems to favor biotechnology companies, in comparison to environmental groups that appear to have fewer resources and influence. This project will also explain the ways in which biotechnology companies and environmental groups have used different public diplomacy instruments, lobbying tactics and different arguments to promote their interests in the GM food policy. In the following chapter, I will analyze which US government agencies are involved in GM food promotion, as well as what instruments of public diplomacy they employ to influence stakeholders in Mexico.

Chapter 4
US government agencies: The use of public diplomacy strategies and instruments to influence stakeholders in Mexico

Chapter 3 has established the key research questions along with the hypothesis that guides this study. I also presented a methodological discussion in order to explain the way in which this research was conducted. The purpose of Chapter 4 is to identify the specific US government agencies that are conducting public diplomacy activities to promote GM foods in Mexico. This chapter also analyzes what public diplomacy instruments the US government uses, how agencies conduct various diplomatic activities, and why these agencies implement those activities. Additionally, I will identify which Mexican government agencies and policy-makers are influenced by these US agencies in support of GM food exports. Lastly, I will examine to what degree the Mexican government has responded to the influence of the US government's public diplomacy activities.

In the first part of this chapter, I will identify the strategic resources and instruments of public diplomacy that the US Department of State has deployed in Mexico, as well as the relation of this department with biotechnology companies as a way to reinforce its strategies. I will analyze the offices involved in public diplomacy and the educational programs that the Department of State is implementing among the Mexican governmental actors. Even though that the Secretary of State does not directly promote GMOs, I will show that through the bureaus under the jurisdiction of the Under Secretary of Public Diplomacy and Public Affairs, the Department of State has the means to establish the programs to promote GMOs. Moreover, through the offices below the Under Secretary for Economic Growth, Energy and Environment there are programs that consider the promotion of biotechnology and GMOs as a way to achieve economic prosperity. Therefore, directly or indirectly the US Department of State is involved in the promotion of GM foods in Mexico.

In the second part of this chapter, I will analyze the USDA as another executive agency which cooperates with the public diplomacy activities that the Department of State conducts regarding GM foods, and what is the nature of its initiatives. I will explain the relevant diplomatic instruments that the USDA conducts in Mexico to promote GM foods. I will also identify the officials that perform diplomatic activities to advance in the promotion of American agricultural products.

For the third part this Chapter, I will identify the specific diplomatic instruments that the FAS employs in Mexico in order to cooperate and exchange information with the Mexican government. I will also clarify the relationship that the FAS-Mexico City has with biotechnology companies in Mexico. Though the USDA and the FAS do not directly promote GM foods, it is my observation that they have indirectly promoted GM foods through the use of diplomatic instruments to influence Mexican government officials. It is also my hypothesis that the US government agencies involved in public diplomacy have promoted GM foods mainly among Mexico's top official decision-makers.

In the last part of this chapter, I will analyze the FAS-Mexico City interactions with the Mexican government agencies and the relationships with Mexican scientific institutions. I will identify key Mexican government actors and explain why they are important in GM food promotion. Maintaining communication with these government officials is important to the FAS in order to promote US biotechnology and businesses. I will also explain to what degree the Mexican government has responded to the influence of the several agencies of the US government.

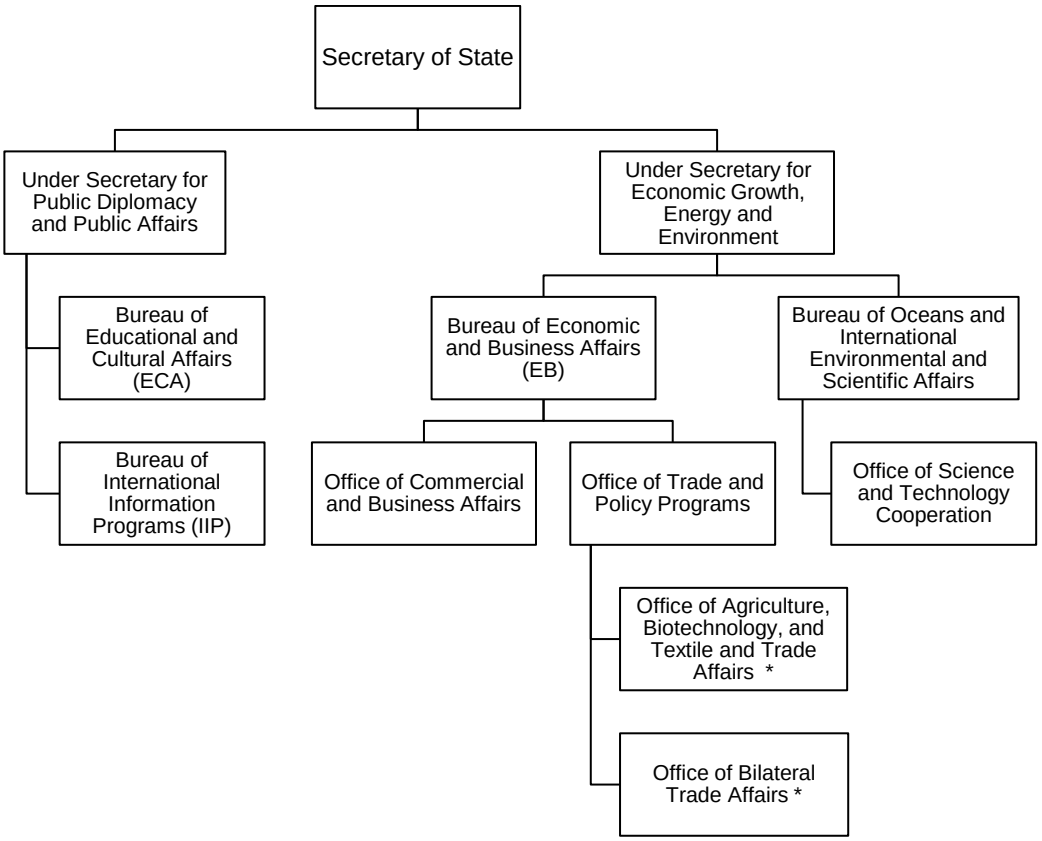
4.1 The US Department of State: Strategic resources and instruments

The US Department of State was created to pursue American interests overseas by means of diplomacy. The Department of State manages relationships with foreign governments, international organizations and the people of the countries it interacts with, promoting mutual understanding of American values and policies.[189] Protecting America is one of the main foreign policy goals of this department, which has prioritized economic prosperity and security as means to achieve this goal. In order to promote economic prosperity, the Department of State supports US businesses domestically and abroad, identifying opportunities for exports, opening foreign markets for firms selling products, protecting property rights and patents, helping businesspeople and farmers on competing in fair trade, and helping countries to develop free market economies. [190] Furthermore, it explicitly supports American businesses abroad, which is an expected action to do because the US government dedicates to achieving its national interests by finding new foreign opportunities. The US is naturally interested in Mexico because it is a neighbor and many American businesses are already operating there.

Since 1948, the US government made a commitment to public diplomacy when it created the US Advisory Commission on Public Diplomacy to deal with information and propaganda.[191] In 1938, during the Franklin D. Roosevelt administration, the Interdepartmental Committee for Scientific Cooperation and the Division for Cultural Cooperation were created in the Department of State to respond to the dangers posed by the Nazi German cultural imperialism and the aggressive political subversion spreading through Latin America.[192] Nowadays, to be more focused and effective, the Department of State has established the post of Under Secretary for Public Diplomacy and Public Affairs devoted to developing strategies for achieving American foreign policy goals. The current institutions are shown in Figure 4.1.

[189] Bureau of Public Affairs, *Diplomacy: The U.S. Department of State at Work* (Washington, D.C., 2008), 1, http://www.state.gov/documents/organization/46839.pdf.
[190] Ibid., 5.
[191] Bureau of Public Affairs, "U.S. Advisory Commission on Public Diplomacy: About the Commission," accessed June 5, 2014, http://www.state.gov/pdcommission/about/index.htm.
[192] Hans N. Tuch, *Communicating with the World: U.S. Public Diplomacy Overseas* (New York: St. Martin's Press, 1990), 14.

Figure 4.1 US Department of State Organization Chart



Source: Elaborated and abridged by the author, based on the organizational chart proposed by http://www.state.gov/documents/organization/187423.pdf. Agencies promoting GMOs are marked with an asterisk.

American public diplomacy is intended to advance national interests along with enhancing national security by influencing foreign publics and strengthening relationships between the US government and the citizens of the rest of the world.[193] In order to adapt public diplomacy strategies to new technology challenges, Richard Stengel, former editor of *Time* magazine, sworn as Under Secretary for Public Diplomacy and Public Affairs in 2014. In his remarks at his swearing-in ceremony, he emphasized that the goal of public diplomacy is to protect the free flow of ideas, people, and goods.[194] Therefore, we may conclude that the promotion of American ideas and values is prominent in public diplomacy, and the new undersecretary will use his experience in the media to achieve this goal.

Additionally, there are different public diplomacy instruments that the Department of State has been implementing through the Undersecretary of Public Diplomacy and Public Affairs, such as communications with international audiences, cultural programs, academic grants, educational exchanges, and international visitor programs.[195] Each instrument implies diverse activities with different targets, depending on what specific goal the department wants to achieve. For example, below this position, the Bureau of Educational and Public Affairs (see Figure 4.1) conducts a program named

[193] Bureau of Public Affairs, "Under Secretary for Public Diplomacy and Public Affairs," accessed March 19, 2014, http://www.state.gov/r/.
[194] Bureau of Public Affairs, "Remarks at the Swearing-in Ceremony for Under Secretary for Public Diplomacy and Public Affairs Rick Stengel," accessed April 16, 2014, http://www.state.gov/secretary/remarks/2014/04/224873.htm.
[195] Bureau of Public Affairs, "Under Secretary for Public Diplomacy and Public Affairs."

the International Visitor Leadership Program (IVLP).[196] It aims to connect with foreign leaders, including heads of government, through different projects based on themes requested by the US Embassy in the target country. This program is useful to connect members of the legislatures or leaders of government agencies from different countries, including Mexico, with the United States, emphasizing precisely the American values mentioned above.

Another office below the Undersecretary of Public Diplomacy and Public Affairs is the Bureau of International Information Programs. It is committed to disseminating public diplomacy information and advocacy. It recruits around 650 scholars, journalists, and entrepreneurs annually to address a special issue, with the aim of connecting directly with the local people of the host country.[197] There is no explicit biotechnology line in these programs, but the recruitment of different speakers may include experts on this topic, and my research intends to identify them. These specific public diplomacy instruments are used by the Department of State to promote US values, including economic values and aims around the world, including Mexico where farmers, agricultural scientists, and biotechnology advocates also play important roles and are concerned about the GM food issue nowadays.

In order to pursue economic prosperity and security, as well as to promote American businesses abroad, the agency led by the Under Secretary for Economic Growth, Energy, and the Environment plays a prominent role. This undersecretary is devoted to developing and implementing policies on agriculture, science, and technology to promote American economic growth and prosperity, fostering innovation through science, entrepreneurship, and technology.[198] Moreover, below this position, the Bureau of Economic and Business Affairs is set to advance the promotion of US economic security and prosperity. It is divided into different offices (see Figure 4.1).

The Office of Commercial and Business Affairs, and the Office of Trade and Policy Programs are involved in the promotion of biotechnology business.[199] This office is designed to support American businesspeople operating overseas through the coordination of trade and investment information. Also, this office conducts commercial diplomacy by promoting American businesses, giving assistance to US companies, protecting intellectual property, providing commercial information, and identifying different market opportunities in the host country.[200] This office does not make any distinction among different American firms, and it includes a variety of companies, from high-development technology companies to fast-food businesses, or from biotechnology firms to chemical manufacturers. Moreover, biotechnology companies are eligible for assistance as any other type of firm.

Of particular interest of this thesis, the Office of Trade and Policy Programs (OTPP) (see Figure 4.1) works to open export opportunities for US businesses, farmers, and ranchers through global, regional,

[196] Bureau of Educational and Cultural Affairs, "About IVLP | Bureau of Educational and Cultural Affairs," accessed April 16, 2014, http://eca.state.gov/ivlp/about-ivlp.
[197] Bureau of Public Affairs, "PD Content," accessed April 16, 2014, http://www.state.gov/r/iip/pdcontent/index.htm.
[198] Bureau of Public Affairs, "Under Secretary for Economic Growth, Energy, and the Environment," accessed April 17, 2014, http://www.state.gov/e/.
[199] Bureau of Public Affairs, "Bureau of Economic and Business Affairs," accessed April 17, 2014, http://www.state.gov/e/eb/index.htm.
[200] Bureau of Public Affairs, "Doing Business in International Markets," accessed April 17, 2014, http://www.state.gov/e/eb/cba/.

or even bilateral trade initiatives, including free trade agreements.[201] To focus on these initiatives, its Office of Agriculture, Biotechnology, and Textile and Trade Affairs (OABTTA) reinforces and advances US agricultural interests by addressing trade barriers to open markets for agricultural products. Also OABTTA supports rural development and productivity through the use of biotechnology, and promotes transparent, predictable, and science-based regulatory frameworks.[202] This office makes clear that biotechnology is a key element in the promotion of rural development, and regulatory frameworks for biotechnology are essential. This office statement suggests that biotechnology and the products related are crucial wherever it is required to advance in productivity, and to level the playing field so that the American businesses have smoother access to those markets.

Furthermore, the OABTTA has a clear vision regarding the challenges and benefits of biotechnology. This office is facing international biotechnology resistance because of the public fears or anxiety about the safety of these products: "The Department of State works with a host of other agencies and organizations to promote acceptance of this promising technology." [203] Because there are still governments and audiences that reject GM foods, the Department of State in collaboration with domestic government agencies and organizations, perhaps industry ones, is concerned about changing the perceptions toward this technology. Therefore, the US federal government's support for biotechnology firms is evidenced by promoting the acceptance of biotechnology, particularly the technology that involves GMOs.

Although officially the OABTTA website stated that officials work hard "to promote acceptance of this promising technology," the senior advisor for biotechnology emphasizes that the Department of State does not have a policy of promoting biotech products, but a policy of cooperation among governments in regards to GMOs. Furthermore, the Department of State is concerned about all the American agricultural products availability at home and abroad:

> The US does not have an export promotion policy for GM products. GM products are reviewed and deregulated, and once they are deregulated, they are just like any other product on the market. So the US government, and the State Department has an interest in making sure that the products that are safe and available in the United States are also available in other countries. So that will be true whether for GM products, or organic products, or any other kind of products. It is less about promoting products and it's more about assuring transparent, predictable and science-based regulation overseas, and if that exists, that exists not just for GM products, but for all the food products coming from the United States. So we want to make sure that we have market access for products that are safe in other countries. [204]

[201] Bureau of Public Affairs, "Trade - Trade Policy and Programs - US Department of State," accessed April 17, 2014, http://www.state.gov/e/eb/tpp/.
[202] Bureau of Public Affairs, "Agriculture, Biotechnology, and Textile Trade Affairs," accessed April 17, 2014, http://www.state.gov/e/eb/tpp/abt/index.htm.
[203] Bureau of Public Affairs, "Biotechnology," *US Department of State*, accessed September 20, 2015, http://www.state.gov/e/eb/tpp/agp/biotech/index.htm.
[204] Jack Bobo (senior advisor for biotechnology, US Department of State), interview by author, July 9, 2015.

As we can see, the Department of State does not have a policy of promoting exports of GMOs, not from the marketing perspective where advertising and sales promotion is paid, broadcasted, and strategically managed in the media. However, when I refer to promotion as a way of making things happen and contributing to prosperity, I believe the Department of State promotes all agricultural products, including both conventional food staples from well-known American companies, and GM foods where American companies have a competitive advantage over local biotechnology competitors. Likewise, the US government is advancing its interests by promoting all its agricultural products abroad by assuring continued access to its current markets.

Additionally, in order to strengthen relationships and advance American interests abroad, the Department of State through the OTPP is employing diverse public diplomacy tools. The use of public speaking, traveling overseas, as well as speaker programs and workshops coordinated by embassies are the main diplomatic resources used to promote biotechnology in the context of promotion of all American products, food security, and trade:

> We have a lot of programs for promoting transparent, predictable, science-based food regulations, for talking about food security, for talking about global trade, and biotechnology is one part of this entire mechanism. One way we do that is through public speaking and I travel to many countries every year, and I talk about global trends in food and agriculture, and in one of our presentations with 55 slides, generally there is one slide on biotechnology… So the 2% of what I talk about is biotechnology, and you can't talk about biotechnology in isolation, you have to provide the context, and the context is global challenges to food security, climate change, feeding the world, and all those sort of things are part of the issue that we have to talk about. So we have speaker programs, the State Department has some funds, and we send some speakers overseas, we will put on conferences or workshops and do other things. And those all are initiated from our embassies, so if an embassy says we want to have a speaker come and talk about some issue then we will help to find that person to go there.[205]

Although this OTPP official describes the profile of some presentations on global food issues limited on biotechnology, it is not the expected content for the conferences or workshops requested overseas because part of the budget from the Department of State is allocated to provide embassies with specialized speakers that address biotechnology issues. Besides, embassies are requested to provide this type of talks because local governments are interested in biotechnology trends or biotechnology general knowledge. Agricultural biotechnology remains controversial worlwide and governments keep interest in conferences, workshops, and technical advice. As a result, the American government, relying on its experience in the matter, is willing to share information and cooperate with biotechnology within the context of food security, climate change and feeding the world for the year 2050. Likewise, biotechnology companies share these arguments of the uses of biotechnology to mitigate food insecurity as well.

[205] Ibid.

Under the Office of Trade and Policy Programs jurisdiction, the promotion of biotechnology is reinforced by the Office of Bilateral Trade Affairs (Figure 4.1). This office works closely with the US Trade Representative and the USDA. It hires experts on trade and economic relations in order to develop, negotiate and implement free trade agreements which will foster American business by opening new exports markets.[206] The Office of Bilateral Trade Affairs and the USDA work closely to pursue American agricultural interests and to aid firms in exploring new markets. Moreover, in international policy arenas such as the WTO, US trade negotiators, along with biotechnology companies, have campaigned for the global adoption of GM foods, for the enforcement of intellectual property rights, and for the prevention of regulations that may treat GMOs as different from other conventional commodities.[207] This thesis hypothesizes that US trade negotiators are not acting alone, but rather they may be supported, directly or indirectly, by biotechnology firms that are trying to expand their markets overseas.

Additionally, below the Under Secretary for Economic Growth, Energy, and Environment, the Bureau of Oceans and International Environmental and Scientific Affairs has the Office of Science and Technology Cooperation (see Figure 4.1). This office executes public diplomacy programs to promote science and technology among countries in order to boost economic growth and social development.[208] These programs allow international collaboration and facilitate the exchange of scientific data, meaning that the countries involved will be engaged in cooperating, sharing, and facilitating scientific research and experiences in the field. Although it is not explicitly stated by this office what type of data or technology is involved, it is clear that biotechnology is an important area of science that is evolving around the world. Through this office, the Department of State makes sure that scientific diplomacy is implemented, and through time, US government initiatives will gain open markets, and American business opportunities will be achieved, not limited to GMO sales.

4.1.1 Department of State educational programs

One of the diplomatic instruments to encourage cooperation in scientific data sharing is academic exchange programs. The Fulbright Academic Exchange Program was established in 1946, it has gained worldwide recognition and has greatly served to increase and improve the mutual understanding of the American values and society among people of other countries.[209] Nowadays, there is a variety of educational programs but the Department of State's main method is to work closely with the government of the host country. For instance, in Mexico, historically there has been a cooperative relationship because both countries are neighbors and share borders along with common issues such as trade.

In order to strengthen the relationship between the two countries, Secretary of State John Kerry visited Mexico on May 21 and 22, 2014. Secretary Kerry met President of Mexico Enrique Peña Nieto at the president's residence to talk about the advances that the bilateral relationship has enjoyed, and also new priorities, such as the Bilateral Forum on Higher Education, Innovation, and Research

[206] Bureau of Public Affairs, "Bilateral Trade Affairs," accessed April 17, 2014, http://www.state.gov/e/eb/tpp/bta/.
[207] McAfee, "Neoliberalism on the Molecular," 209.
[208] Bureau of Public Affairs, "Science and Technology Cooperation," accessed April 17, 2014, http://www.state.gov/e/oes/stc/index.htm.
[209] Hans N. Tuch, *Communicating with*, 75.

(FOBESII) to reinforce the interchange of students and researchers.[210] Through this visit, the Department of State is highlighting the use of two different strategies. First, in order to build long-term relationships, it employs diplomatic instruments such as establishing and maintaining personal contact with government officials and promoting educational exchanges for Mexican researchers and students. In this context, contact between a Secretary of State and a President shows the importance of having a US government official talking to a top decision-maker at Mexico. The second strategy consists of developing media relations and releasing information to inform the public. Therefore, through the May 2014 visit with the top leader in Mexico, Kerry got the media's attention which would not have been obtained if he had not met President Peña Nieto. As a result, not only were students and researchers interested in FOBESII addressed, but also the mass public has been attracted and informed by this attention media tactic.

Moreover, during that meeting, the Ambassador of Mexico to the United States, José Antonio Meade Kuribreña, was accompanying President Peña Nieto. This was not just a protocol formality, he was present because he is an important policy-maker who coordinated the Mexican legal advisory team during the NAFTA negotiations and has experience in the agribusiness sector. In the same way, Secretary Kerry was accompanied by Anthony Wayne, who is the US Ambassador to Mexico and also has experience in trade. It seems this is the perfect mix of players to address agricultural issues off the record. Though the official agenda did not address the GMO issue formally, it might have been discussed informally as a result of the profile of the officials invited to receive Secretary Kerry. This is a relevant moment because Mexico is experiencing a domestic debate about the allowance of GM maize commercialization, and a set of discussions about GM food policy among Mexican government officials and stakeholders was scheduled for late 2014. The Kerry visit may be perceived as a foreign influence to considering the option of GM food adoption.

Additionally, during the same visit, Secretary Kerry met his Mexican counterpart, Foreign Secretary José Antonio Meade. Along with important academics, such as the Director of the National Council of Science and Technology (CONACYT), [211] Enrique Cabrero, and the presidents of University of California and Arizona State University, discussed education. Both secretaries launched FOBESII, emphasizing the importance of this forum to expand opportunities for scientific research partnerships and cross-border innovation to assist Mexico in developing a new workforce that supports mutual economic prosperity.[212] Through FOBESSI, the Department of State promotes educational and scientific exchanges where biotechnology can be accommodated. Furthermore, during that event, important actors from the academia and the private sector of both countries were present. CONACYT is an important scientific institution in Mexico whose director is relevant in the biotechnology area because CONACYT is a part of CIBIOGEM, and the University of California and Arizona State University presidents are important actors for scientific exchanges and courses that may assist the Department of State in teaching courses related to biotechnology. As a result, the Department of State is directly

[210] Noticieros Televisa, "Peña Nieto Recibe a Kerry En Los Pinos," *Televisa*, 2014, http://noticieros.televisa.com/mexico/1405/pena-nieto-recibe-kerry-pinos/.
[211] CONACYT promotes scientific and technological activities in Mexico.
[212] "Secretary of State John Kerry Visit to Mexico - May 2014," *Policies & Issues | Embassy of the United States, Mexico*, accessed May 28, 2014, http://mexico.usembassy.gov/policy/secretary-of-state-john-kerry-visit-to-mexico---may-2014.html.

promoting educational and scientific exchanges, and indirectly promoting agricultural issues in which biotechnology products may be included.

4.1.2 Department of State and biotechnology companies

It is evident that the Department of State and its several agencies are working on opening new markets for American businesses, as well as promoting agriculture and biotechnology. Agriculture has been a part of US diplomacy since the advent of the Green Revolution, and is an attractive way to promote American values. Nowadays, biotechnology has become an important asset for companies selling agricultural products, and US companies are leading sectors of the American economy. Furthermore, the Department of State is not working alone in promoting this initiative. President Barack Obama, in a letter sent to Norman Borlaug's granddaughter Julie Borlaug, [213] on April 11, 2014, publicly announced his support for biotechnology, giving his endorsement to this new technology as the means to fight hunger and solve the most pressing agricultural problems across the world.[214] Obama previously had not publicly stated a position toward biotechnology, though he has been taking small steps in that direction, such as launching the New Alliance for Food Security and Nutrition to increase the flow of private capital to African agriculture.[215] In February 2013, he also met American business leaders such as the President of the National Farmers Union, Roger Johnson; President of the American Farm Bureau Federation, Bob Stallman; President of BIO, James Greenwood; and representatives of Syngenta, DuPont, Monsanto, DowAgroSciences, Bayer, BASF and Agrivida at the White House.[216] This meeting was to discuss the need for more leadership from the presidency for promoting the use of biotechnology in agriculture.

The letter sent to Borlaug's granddaughter is evidence of presidential endorsement of biotechnology in agriculture. President Obama is now publicly interested in biotechnology and is supportive of the farmers and companies that are using this technology. Moreover, the Obama administration is continuing the long-standing policy of the so-called revolving door, whereby people working in biotechnology companies are invited to work in government. These include Islam Siddiqui, Chief Agricultural Negotiator for the Office of the US Trade Representative, who comes from the pesticide and biotechnology sector, and Roger Beachy, director of the USDA's National Institute of Food and Agriculture who worked for Monsanto.[217] This makes the US Trade Representative and the USDA key players in favoring the biotechnology industry, or at least, facilitating, operating, and opening markets not only in Mexico but also in other parts of the world.

Although a presidential directive for promoting US GM foods has not been promulgated yet, the departments and agencies in the executive branch have been promoting GMOs at the international level

[213] Dr. Norman Borlaug, the father of the Green Revolution, worked at the CIMMYT in Mexico since its foundation, where he developed new wheat varieties to save people from starvation, including Mexicans.
[214] Christopher Doering, "Obama Renews Support for Biotechnology Crops, Praises Borlaug in Letter," *The Des Moines Register*, April 16, 2014, http://www.desmoinesregister.com/story/money/agriculture/2014/04/16/obama-borlaug-letter/7784867/.
[215] Sara Wyant, *President Obama Provides Clear Endorsement of Agricultural Biotechnology*, *Agri-Pulse* (Washington, D.C., 2014), http://www.agri-pulse.com/President-Obama-provides-clear-endorsement-of-agricultural-biotechnology-04152014.asp.
[216] Ibid.
[217] Peter Huck, "Battlelines Drawn over GM Crops," *The New Zealand Herald*, November 2, 2013, http://www.nzherald.co.nz/world/news/article.cfm?c_id=2&objectid=11150351.

and tried to convince prime ministers that GM foods are safe.[218] Since 1990, at the advent of the CBD, US officials have tried to weaken the Cartagena Protocol in order to prevent countries adopting international laws for avoiding GM food imports.[219] Furthermore, biotechnology companies are indirectly lobbying government for support.[220] These firms are desperate to assure market access because 90 percent of US seeds are genetically modified but not acceptable in many countries.[221] For example, in April 2014, Chinese rejections of GM foods cost US exporters $427 million from reduced prices and lost sales.[222] Therefore, government efforts to have access to new markets become critical for GM foods sales growth in the long-term.

The US government is deliberately avoiding official endorsement of biotechnology companies because all American companies exporting products are required to meet all the standards of the importing country.[223] However, the US government has agencies that sponsor courses for capacity-building, as well as workshops, expositions, and field trips to persuade scientists and government officials to support GM foods so that intellectual property rights may be enforced.[224] Furthermore, government agencies support any sort of American businesses, regardless of their industry. Likewise, big companies have the means to persuade policy-makers and promote their products by using lobbying, industry advertisements, and indirect electoral campaign contributions, for instance. Besides, agriculture is a top priority for the US government, so it supports farmers and producers to expand their markets and, because most of the agricultural production is genetically engineered, indirectly biotechnology companies are supported and promoted. Moreover, the US government is eager to promote GM crops because of different reasons, the domestic trade politics involve GM foods, the influence of agricultural businesses exists, the illusion that agricultural exports are vital to the economy remains, and the relief for farmers in hard conditions through this technology persists.[225] Indirectly, therefore, the biotechnology companies that are selling their products to the American farmers are favored by this government's support initiative.

Moreover, biotechnology is an expensive area that can be developed by just a few large companies able to afford research and are eager to expand to other markets so as to have more opportunities for sales and thus the profits to recoup their investments in the new technology. Consequently, the Department of State promotes biotechnology for rural development and regional prosperity overseas, and at the same time advances American agricultural interests. Although the OABTTA does not explicitly report which American firms are involved in biotechnology, the Department of State maintains communication with such companies in order to deal with issues that are related to a state to state level because these are part of the GMO stakeholders:

[218] Kathleen McAfee, "Corn Culture and Dangerous DNA: Real and Imagined Consequences of Maize Transgene Flow in Oaxaca," *Journal of Latin American Geography* 2, no. 1 (2003): 32.
[219] Kathleen McAfee, "Beyond Techno-Science: Transgenic Maize in the Fight over Mexico's Future," *Geoforum* 39 (2008): 151.
[220] McAfee, "Neoliberalism on the Molecular," 203.
[221] Rani Molla, "$427 Million: The Rise of Genetically Modified Corn Comes at a Price - Corporate Intelligence," *The Wall Street Journal*, April 11, 2014, http://blogs.wsj.com/corporate-intelligence/2014/04/11/how-much-of-u-s-crops-are-gmos/tab/print/.
[222] Ibid.
[223] Interview with an official from FAS-USDA, technology division, March 3, 2014.
[224] McAfee, "Beyond Techno-Science," 151.
[225] Ibid.

> They [biotechnology companies] are part of the stakeholders, and they are involved in this issue, and so we work with them in a couple of different ways. One if they encounter barriers overseas, then we might be involved to find out whether or not it's a technical issue that they need to meet, or it is a political issue that somehow underlies. So our involvement is when it is a political issue, it is not a technical issue. I think a better example of that is where the regulatory approvals have come through and yet nothing is happening. So companies are not in a very good position to advocate on their own behalf because, you know, it's the government. So the US is more likely to be involved on a regulatory issue where in a country politics is overriding the science.[226]

Consequently, the work of the State Department is to make sure that American companies do not encounter non-trade barriers or political controversies that may affect their performance. It applies to all American companies, not just biotechnology companies. However, when the issue in question is GMOs, it is more likely that biotechnology developers are the ones that will face some political issues in other countries because of the implications of genetic modification, and the Department of State willingly helps the companies in need.

As a result of the US government public diplomacy activities that bring together different organizations working to shape public opinion, such as government agencies, MNCs, and NGOs, it seems GM foods are gaining awareness among different stakeholders. Furthermore, diplomats play a key role in influencing groups and policy-makers of the host country, establishing and maintaining personal contact, sending letters, making phone calls and contributing to the creation of networks through different programs. The establishment and maintenance of personal contact is crucial to promote American values and the US businesses. For example, in April 2014, the Ambassador of the United States to Mexico, Anthony Wayne, discussed global trade, agricultural issues and the ways to improve the integration of the Mexican agricultural sector in North America with Mexican representatives of Cargill, including Marcelo Martins, President, Devry Boughner, Director of International Business, and Valeria Olson, Corporate Issues Director.[227] Cargill's presence in Mexico is important because it sells grains and different industrialized products for feed. This meeting shows that diplomats are getting in touch with biotechnology companies. In this case, Ambassador Wayne, in the name of competitiveness, has discussed with biotechnology firms' representatives different options to incorporate these products in the Mexican agricultural sector. Mexico is an important market because it represents a big business for the future where the commercialization of GM maize is not allowed, and Cargill might expand trade opportunities for its products. Therefore, personal contact from the government side and lobbying from the MNCs are a perfect match in public diplomacy to advance US interests in a host country such as Mexico.

[226] Jack Bobo (senior advisor for biotechnology, US Department of State), interview by author, July 9, 2015.
[227] "Discussion of Global Trade and Agricultural Issues," *Informational Notes | Embassy of the United States Mexico City, Mexico*, accessed April 24, 2014, http://mexico.usembassy.gov/news-events/informational-notes/discussion-of-global-trade-and-agricultural-issues.html.

4.1.3 Department of State and other executive agencies

The United States and Mexico have strong geographical, economic, and political relationships. President Obama appointed Anthony Wayne as ambassador to Mexico because of economic interests that these two countries share. Wayne is an experienced diplomat in the business area who in previous years was holding the same post to Argentina, where he promoted American commercial interests and supported bilateral trade and tourism.[228] Therefore, his posting to Mexico is not a coincidence; he was appointed to work toward promoting more commercial ties with Mexico, among other issues. The embassy hosts different offices which represent executive agencies with international outreach, such as the FDA and the USDA. These agencies are supposed to have an impact domestically, regulating and advising inside the United States. However, they also have an increasing presence overseas, in this case, in Mexico to promote American business and to facilitate understanding of the rules that they promote at home. This thesis hypothesizes that the US executive agencies in Mexico play more than an information sharing role, and they also engage in the promotion of US GMO products.

The FDA has an office in the US Embassy in Mexico City and a regional one serving Latin America located in Costa Rica. The FDA's main goals in Mexico are: to facilitate the exchange of information between the US and Mexican governments about regulations and guidance documents, answer questions raised by government agencies, trade associations, and industry representatives, and work closely with regulatory authorities, multilateral organizations, industry and academia in order to get safe food and medical products.[229] The FDA office at the embassy in Mexico is mainly focused on solving problems of businesspeople and general public concerns. However, this researcher found that communication with this agency in Mexico City is difficult. After different attempts to reach them and make contact for possible interviews in Mexico City about GM foods, this researcher did not get any reply from the FDA.

Moreover, the FDA's communication with the Mexican government about GM foods is not very frequent. FDA officials from Washington DC and their Mexican counterparts share information related to regulations about GM foods, and regulators from both countries usually exchange information once a year or once every two years:

> With the Mexican government, communication would normally be of regulator to regulator, a communication in terms of explaining how the agency does its work. We are talking about scientific issues. Typically, we might share information about what products have completed evaluations for example, or new techniques. We might share our views or share with each other what our views are on a particular scientific technique. So the discussion really limits to that, to those kinds of topics.[230]

As a result, communication from the FDA with the Mexican government is restricted to regulatory aspects rather than promoting GM foods. However, this exchange of information has an impact on the

[228] "Ambassador E. Anthony Wayne," *Ambassador | Embassy of the United States Mexico City, Mexico*, accessed May 6, 2014, http://mexico.usembassy.gov/eng/ebio_ambassador.html.
[229] "The Food and Drug Administration," *Offices | Embassy of the United States Mexico City, Mexico*, accessed May 15, 2014, http://mexico.usembassy.gov/eng/offices/fda.html.
[230] Jason Dietz (policy analyst, FDA food additive safety office), interview by author, July 17, 2015.

way in which the Mexican government elaborates its regulations because of the technical issues on biotechnology both governments share. Furthermore, in regards to GM foods, the FDA headquarters officials emphasize that there is not an exports promotion policy for these products, "it is important to understand that FDA is not a proponent of biotechnology, nor an opponent of biotechnology. What we really are is a neutral arbiter for safety."[231] Consequently, the FDA is focused on regulating GMOs intended for human consumption in the United States. It is in the FDA's interest to make sure that the companies exporting products to US comply with US regulations.

This research hypothesizes that because the FDA focuses on food and pharmaceutical businesses regulation, and has not made new policies or taken particular initiatives in regards to GMOs, with the substantial equivalence principle, the GM food issue has already been discussed and regulations been established. The so-called substantial equivalence principle states that the products using genetic engineering do not require a separate regulatory approach. They are considered as equivalent to their conventional counterparts, and they should be assessed as any other product.[232] Therefore, the role of the FDA in public diplomacy remains secondary. It stands as an agency of reference in regards to regulations for food safety, but it does not play a central role in the GM foods promotion or biotechnology education in Mexico up to the moment.

As previously mentioned, the embassy also hosts an office to represent the USDA. In order to identify the issues that may hinder US agricultural trade and enhance export opportunities, the FAS assists the USDA in its activities. The FAS main aim is to provide solutions to agricultural problems and business opportunities worldwide. Because the USDA plays an important role in the promotion of American agricultural products, there are 96 FAS offices that cover 167 countries around the world.[233] For example, the US Embassy to New Zealand hosts a USDA-FAS office that aims to develop market opportunities for US products, providing information about the New Zealand food market, facilitating access for US producers and exporters, and reporting on the agricultural conditions for important commodities.[234] The FAS activities are important for the promotion of US agricultural products. Therefore, the diplomatic strategies, instruments, and activities that the USDA-FAS conducts in Mexico will be explained in the following section.

4.2 The US Department of Agriculture: Strategies and instruments

A critical issue for the US government is agriculture, and the USDA plays an important role in the public diplomacy activities regarding biotechnology. For instance, on May 19, 2014, a couple of days before Secretary Kerry visited Mexico, the Secretary of Agriculture Thomas Vilsack attended to the Global Forum on Agro Food Expectations in Mexico City organized by SAGARPA.[235] In that forum, Vilsack addressed issues important to both countries such as the new Mexican import ruling to allow more

[231] Ibid.
[232] Falkner, "Global Biotech Food Fight," 103.
[233] "About FAS | USDA Foreign Agricultural Service," *USDA Foreign Agricultural Service*, accessed July 8, 2014, http://www.fas.usda.gov/about-fas.
[234] "Foreign Agricultural Service | Embassy of the United States," *United States Diplomatic Mission to New Zealand*, accessed July 8, 2014, http://newzealand.usembassy.gov/fas.html.
[235] SAGARPA is the Secretariat of Agriculture, Livestock, Rural Development, Fisheries, and Food.

exports of American potatoes, the expansion of US beef exports, and the creation of jobs and economic opportunities for the agricultural industry.[236] During that forum, he met his Mexican counterpart, Secretary of SAGARPA Enrique Martínez y Martínez, and they discussed agricultural issues in general. Secretary Vilsack particularly emphasized: "The United States and Mexico will continue to build on our strong trade relationships and promote greater market access for our agricultural products." [237] His message parallels the goal that the Department of State has about opening foreign markets for American firms. This aperture can be done through the identification of opportunities for exports, such as the cases for beef and pork that were discussed, and opening foreign markets for American businesspeople and farmers, such as the Mexican market. Through this visit, Secretary Vilsack sought to set the same safety standards for both partners and help to develop free market economies by promoting the mutual exchange of agricultural products.

Furthermore, Secretary Vilsack emphasized that the USDA continues to support American farmers and ranchers, and through the resources allocated by the 2014 Farm Bill, the USDA keeps funding for trade promotion and market expansion for American agricultural products overseas. [238] There is no doubt the USDA is supporting farmers in the US to continue selling abroad, and the USDA is indirectly promoting GMOs because many of those farmers are planting GM seeds. Not only farmers and ranchers are benefited by the USDA initiatives, but also agrochemical companies that sell supplies to agricultural producers stand to benefit.

Also, the Canadian counterpart, Minister of Agriculture and Agri-Food Gerry Ritz, participated in a panel that discussed the way in which the three countries of the NAFTA may work together and create more jobs and opportunities in the agricultural sector. Through this formula, getting the three ministers together, the US government seeks to integrate the North American market, considering that the European Union market is not amenable to US GM foods exports and the talks for the signature of a Transatlantic Trade Investment Partnership (TTIP) are not progressing. In fact, biotechnology companies such as BASF have abandoned the release of the Amflora GM potato to the European Union and now are transferring their operations to America.

In a speech during the Global Forum on Agro Food Expectations, Secretary Vilsack indicated that Mexico has announced the expansion of American beef and beef products imports with a value estimated of $50 million, [239] which represents an additional 10 percent to the 40 percent annual growth of beef exports from 2013 to 2014.[240] This breakthrough is important for biotechnology companies producing feed and hormones for growing cows because they will sell more products with more exports of beef. However, it means that Mexican farmers would be disadvantaged because they have to spend higher budgets on yellow corn to feed their cows and compete with subsidized American farmers, and it is expensive because yellow corn is imported from the US. Furthermore, during the last decade, it

[236] "Agriculture Secretary Tom Vilsack Highlights Recent Trade Breakthroughs with Mexico," *Press Releases & Statements | Embassy of the United States Mexico City, Mexico*, 2014, http://mexico.usembassy.gov/press-releases/agriculture-secretary-tom-vilsack-highlights-recent-trade-breakthroughs-with-mexico.html.
[237] Ibid.
[238] Ibid.
[239] Ibid.
[240] AgroMeat, "México Eliminará Restricciones de Importación de Carne de Bovino Proveniente de Los Estados Unidos," *AgroMeat*, accessed June 9, 2014, http://www.agromeat.com/148026/mexico-eliminara-restricciones-de-importacion-de-carne-de-bovino-proveniente-de-los-estados-unidos.

was speculated that the yellow corn exported to Mexico was genetically modified, and never publically accepted by the Mexican government. Controversially, in 2005, the LBGMOs was approved, allowing GMO trials, experimentation, and commercialization. In 2008, in accordance with the NAFTA, Mexico liberalized all agricultural product imports. As a result, the GM maize imports were confirmed until April 2013, when Secretary of SAGARPA, Enrique Martínez publically recognized that the corn Mexico has been importing all these years is genetically modified.[241] Therefore, importing GM corn from the US gives an advantage to biotechnology companies that are eager to find new markets and assure the old ones.

Moreover, following the Global Forum on Agro Food Expectations in May 2014, Secretaries of Agriculture from Mexico and the US held a bilateral meeting in which Secretary Martínez highlighted the efforts that Mexico is doing to open the American border to the Mexican avocado exports to level the playing field for Mexican farmers.[242] Secretary Vilsack responded by raising the prospect of recognizing Mexico as an organic producer. He also cited the mutual interest in working together on the issue of pesticides and veterinarian medicaments so that both parties can make decisions based on science and hence harmonize the products' surveillance.[243] In this context, being an organic producer means larger market opportunities for Mexico by emphasizing the purity and avoidance of GM products for cultivating avocados. Regarding the issue of pesticides, the main producers are biotechnology companies that also develop GM foods and sell a complete technological kit which includes seeds and pesticides. Furthermore, these firms use a pesticide-based farm management approach to enhancing GM seeds sales, the agrochemicals these seeds already depend upon, and new chemicals that will eliminate the pests that evolve because of the resistance of the previous chemicals used with the same seeds.[244] Therefore, the business opportunity for pesticides is opening up market spaces for biotechnology companies. Consequently, the initiatives of the US Secretary of Agriculture in the potato and beef sectors do not also benefit the GM biotech trade but are a response to the loss of opportunities in sectors such as the avocado that are moving to organic production.

Additionally, during the bilateral meeting with Secretary Vilsack and Ambassador Wayne, Secretary Martínez was accompanied by the Deputy Secretary of Agriculture Jesús Aguilar Padilla and the director of SENASICA Enrique Sánchez Cruz. These two government agents are key actors for the development of a GMO national policy in Mexico, as I shall explain later. Once again, we can see that an important diplomatic instrument that the US government is using to promote GM businesses in Mexico is establishing personal contact with key Mexican policymakers and decision-makers. This personal influence is especially important in the Mexican context where the government establishment is very hierarchical, and high-level officials of the structure make decisions.

As a result, taking into account the commercial integration of both countries and the NAFTA commitments, the USDA is strongly interested in interacting with the Mexican government in regards to agricultural biotechnology. According to my research findings, the USDA and its Mexican counterpart

[241] Rosa Santana, "Admite Sagarpa Que México Importa Soya Y Maiz Transgénicos," *Proceso*, April 5, 2013, http://www.proceso.com.mx/?p=338193.
[242] SENASICA, "Impulsan Exportación de Aguacate, Carne de Cerdo Y Productos Orgánicos a EU," *SAGARPA*, 2014, http://www.senasica.gob.mx/?IdNot=1681.
[243] Ibid.
[244] McAfee, "Neoliberalism on the Molecular," 208.

SAGARPA are in constant communication in order to have an understanding of the way in which regulations or standards are changing. For this purpose, two areas of the USDA directly interact with Mexican government officials: the APHIS (Animal and Plant Health Inspection Service) and the FAS (Foreign Agricultural Service).

The USDA-APHIS is responsible for protecting American agriculture from pests and diseases that GMOs may pose and sets the regulatory system for genetically engineered plants. Agency officials emphasize APHIS is not engaged in trade promotion of GMOs because its main concern is to protect the health of plants and animals and regulate GM plants. However, it exchanges technical information regarding biotechnology with other countries' regulators. This technical exchange is because a part of the Coordinated Framework for Biotechnology statutes contemplates the international harmonization of GMOs, and it is necessary to continue to have a dialogue with the US partners.[245]

> There is a small section of the document that talks about international harmonization, saying how important it is that we continue to have a dialogue with other partners because people have the opportunity of the benefits from this technology, and recognizing that many of these products are becoming international products… Many countries get their influence from the United States to that, so for ensuring harmonizing the first step is to have the questions and find the areas of common knowledge.[246]

Consequently, this agency maintains communication with some Mexican agencies related to GMOs, such as CIBIOGEM, SAGARPA, and SEMARNAT. Furthermore, these agencies and APHIS are involved in technical cooperation concerning GMOs, interacting to share updates on new regulations. Both agencies, APHIS and SAGARPA, generally talk about the reviews in the regulatory system that each one has in its country, and whether there will be changes to regulations:

> We typically would talk about the types of reviews that we are doing in our countries, and if there are going to be any changes in our regulations. Sometimes we hold seminars on each other on the same specific topic. It is also an opportunity for us to share the technical information that we need to run for our regulatory system. Usually, we have a webinar for one another that describes how we process our permits because we handle a lot of experiments for field tests.[247]

Likewise, it is in the interest of the APHIS to keep on dialoguing with the Mexican government in order to have similar standards and processes related to GMOs. Furthermore, to maintain the technical discussions, APHIS employs resources such as seminars, webinars, phone calls, face-to-face meetings, and trilateral meetings with Mexico and Canada each year.[248] Furthermore, for the trilateral meetings, the venue rotates for each country. When Mexico is the host country, the meetings are typically held in Mexico City because more officials from different agencies are already there, and it facilitates the access to them. As a result, there is a high level of integration of technical cooperation between the US and

[245] David Heron (senior policy advisor for biotechnology regulatory services, USDA-APHIS), interview by author, July 15, 2015.
[246] Ibid.
[247] Ibid.
[248] Ibid.

Mexico so that both governments constantly communicate to harmonize standards. The communication between APHIS and the Mexican agencies involved focuses on the regulatory systems. However, the agency more related to the promotion of American agricultural products is FAS, which I analyze below.

4.3 The FAS-Mexico City: Resources and promoters employed in Mexico

Through the FAS, a US office to facilitate overseas market information and trade policy activities, the USDA gathers information about the Mexican agricultural policies and regulations, along with other information relevant to the trade of American agricultural products.[249] As a matter of fact, according to an official from the Technology Division, the FAS is a part of the USDA that works overseas with foreign partners and international organizations, not only involving biotechnology, but also nanotechnology, synthetic biology, and similar areas, as well as trade-related issues.[250] The FAS is very involved in the trade of agricultural products, including cotton, seeds, grains, and feed, independently of their nature and trade. Furthermore, the USDA officially does not promote the export of GM foods. Indeed, the FAS does not promote any specific products, either conventional or GMOs, but rather makes sure that the importing countries have confidence in the American system.[251] Mexico, for instance, has to review American products to comply with its own domestic standards; therefore, companies selling GM foods in the US that want to sell products in Mexico have the obligation to seek approval and ensure they are meeting standards of the specific market.[252]

The FAS's mission is to promote US exports though it does not have a specific policy for GM food exports. Moreover, the general policy in regards to agricultural products states that any American product that has been previously approved in the US for commercialization or consumption may be exported because it is safe and it has been previously analyzed domestically by a board of scientific experts.[253] This FAS policy applies to GM foods as well. According to American standards, FAS-endorsed products including GMOs are safe. However, US exporting companies need to meet all the standards of the importing country because the US government authority does not extend to other countries, and the USDA only approves what is inside the United States.[254] This policy of promoting all agricultural products equally has an implicit promotion of GMOs as well.

Even though that the FAS does not specifically promote GMOs, this agency is concerned about how to communicate the importance of food biotechnology. In order to change the perception on how GM food communication is perceived, the FAS has partnered with the International Food Information Council (IFIC) to elaborate specialized material. The IFIC has developed the *Food Biotechnology: A Communication Guide to Improving Understanding,* which is a publication containing guidelines for presentations, language, media relations, and a glossary of words used in the dissemination of information on food biotechnology for farmers and food producers. The document has been generated

[249] "Foreign Agricultural Service," *Offices | Embassy of the United States Mexico City, Mexico*, accessed May 8, 2014, http://mexico.usembassy.gov/eng/efas.html.
[250] Interview with an official from FAS-USDA, technology division, March 3, 2014.
[251] Ibid.
[252] Ibid.
[253] Ibid.
[254] Ibid.

because food biotechnology is a complex issue that requires deeper understanding, and the messages related to them need to be scientifically sound.

> In fact, we got some grants from the USDA Foreign Agricultural Service, and the US State Department to do communication programs in other countries… We had a wide range of topics supported by grants from the USDA as well as the State Department, to help some of the travel into the conference [expo Milano 2015]. And the USDA actually provided the grant that produced this document [*Food Biotechnology: A Communication Guide to Improving Understanding*]. So this is the third edition, and the first two we had to produce them ourselves, but they provided us grant funding to update it, and also to translate it into seven international languages including Spanish.[255]

As a result, this NGO plays an important role as an opinion leader and is the link between the government and the consumers. IFIC conducts consumers' surveys to get insights on how GM foods are perceived, among other food topics. Through its publications, IFIC seeks to provide understandable scientific information. The collaboration with the FAS indicates the interest of the USDA in promoting scientific messages to change the perception of GM foods. Besides, providing grants for making this material available in different languages shows the FAS interest in reaching different audiences from different countries still skeptical about GMOs.

Additionally, the official position of the FAS office in Mexico City emphasizes the importance of giving different tools and options to Mexican farmers, not just utilizing GMOs, but giving more reliable options that include safe and high-quality products.[256] The USDA-FAS works strongly in the promotion of small farmers or family agriculture, in addition to the promotion of biotechnology. That is, it promotes all kind of agricultural products, not just GMOs. This effort in promoting agricultural products and not just biotechnological products is because Mexico is closed to the GMO option. In regards to exports of GM foods, the FAS in Mexico City makes sure companies comply with the American domestic standards and all the domestic regulations. On the other hand, the FAS-Mexico City expects and tries to encourage, that the domestic regulatory agencies in Mexico conduct risk analysis, for human and animal consumption or environmental release, with all the assessments based on science.[257] Furthermore, the USDA regulations only apply to industry sectors inside the country. It seems that the FAS in Mexico City is proactive in seeking approval for GMOs. It is said that the American embassy has submitted requests to the Mexican authorities for GMOS' cultivation.[258]

4.3.1 Resources employed by FAS-Mexico City

The FAS-Mexico City personnel emphasize that the FAS is not conducting any special promotion of GM foods. The FAS message related to GM foods is that assessments of GMOs should be based on science. Furthermore, Mexican agencies should follow the regulations based on science because those regulations establish timeframes, and for the case of GM maize, the permits have been delayed despite

[255] David B. Schmidt (President and CEO, IFIC), interview by author, July 20, 2015.
[256] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[257] Ibid.
[258] Adelita San Vicente (general director, Semillas de Vida), interview by author, February 12, 2014.

the risk analyses have already been done.[259] The FAS-Mexico City is not promoting specifically the use of GMOs, but it is expecting the Mexican government to allow the commercialization of GM maize because the government has signed international treaties and domestic regulations that it is supposed to comply with. Moreover, the main public diplomacy instruments the FAS-Mexico City uses to promote American biotechnology products among Mexican policy-makers and government officials consist of the following: participating in the North America Biotechnology Initiative (NABI), holding Farmer to Farmer dialogues, bringing talks with experts on biotechnology, supporting exchanges of government officials to American universities, and providing scientific courses to government officials interested in the topic. In addition to the diffusion of this information, the USDA-FAS writes annual public reports on the advances of these events, but it does not issue diffusion material for the mass public. An analysis of these public diplomacy instruments is presented below.

The NABI initiative

The main instrument of FAS-Mexico City to promote the acceptance of GM foods in Mexico is the NABI dialogue, based on NAFTA cooperation. The NABI is a forum to exchange information where the USDA works with its counterparts, SAGARPA from Mexico and Agriculture and Agri-Food Canada (AAFC), at a two-day meeting where technical discussion about regulatory issues is conducted. This meeting is also aimed to discuss biotechnology issues coming up between the three countries or internationally, and regulators and policy-makers discuss trade issues, cooperation, collaboration, and technical coordination.[260] Also, NABI helps Mexico to harmonize its regulatory approach to biotechnology products with its NAFTA partners, US and Canada, to identify and solve issues of common interest and areas of further improvement. Under this initiative, CIBIOGEM officials have bi-monthly conferences with its NAFTA counterparts to exchange information and experiences about specifically biotechnology issues.[261]

> It is an exchange of information. It is not the US providing information to Mexico; it is Mexico providing information about what's happening there as well. So it's a dialogue, and you know, in dialogues everybody comes to the table and has conversation, no decisions are made at those meetings, and it's really about information, we do not set policy, we are not making decisions for our governments or anything like that. [262]

Although government officials emphasize this initiative is about exchanging information in a form of dialogue, this exchange of scientific information and standardizations is the way in which the US and Canada who are supporters of biotechnology, may set examples for Mexico, which is not a developer of biotechnology, on how to implement standards and actions. Furthermore, this initiative is not only to leveling the playing field for the three participants of the NAFTA, but it is also for introducing alternatives

[259] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[260] Interview with an official from FAS-USDA, technology division, March 3, 2014.
[261] Benjamin Juarez, *Mexican Government Continues to Support Biotech Crops* (Mexico City, 2010), http://gain.fas.usda.gov/Recent GAIN Publications/Biotechnology - GE Plants and Animals_Mexico City_Mexico_14-07-2010.pdf.
[262] Jack Bobo (senior advisor for biotechnology, US Department of State), interview by author, July 9, 2015.

to conventional technology and disseminating ideas about the benefits and possible advantages that Mexico would have by adopting biotechnology.

Moreover, according to my public diplomacy model, in this initiative there are two state actors working together to bring about the NABI activities. On the one hand, the Department of State is employing a proactive strategic communication that consists in coordinating interagency functions and actions to promote specifically the use and harmonization of biotechnology, making personal contacts and establishing the venues for the NABI participants to take place. In this case, there is an exchange of information among American agencies including USDA, FDA, and EPA, and this network collaborates to share information with Mexican agencies regulating biotech products, including SAGARPA and SENASICA, with people working on trade issues.[263] Additionally, for building long-term relationships, the Department of State establishes and maintains personal contact, in this case with people from SAGARPA, which is the main Mexican agency related to adopting biotechnology in direct contact with farmers.

On the other hand, the USDA is implementing technical and scientific advice to its Mexican counterparts at SAGARPA and SENASICA. At the same time, the USDA employs relationship-building instruments which include creating and maintaining networks and relationships with the NABI participants and with the agency counterparts, as well as implementing scientific training with these government officials. As a consequence, these NABI meetings have been essential for the cooperation between the three countries of the NAFTA, particularly between the US and Mexico, which have different standards and regulations. Furthermore, through this interaction, Mexican executive agencies have allowed the imports of different varieties of GM foods from the US because they have trusted the system. In fact, the USDA-FAS does not have an official message about GM food promotion to communicate to the Mexican government, but it relies on building confidence as its main goal.[264] This confidence is achieved by showing that the US scientific research, risk assessment, and regulations are trustworthy, and the American products that get into the Mexican market are safe for humans and the environment.

Farmer-to-Farmer dialogues

Additionally, due to the success of the NABI meetings aimed at discussing issues that may have broader opportunities for the NAFTA members, Mexico proposed a dialogue called Farmer-to-Farmer. This activity was created for farmers that used to attend to scientific events. However, these farmers did not have the scientific language or knowledge and thus they did not feel comfortable talking to specialists who they thought were biased and linked to Monsanto, and farmers did not want to talk to policy-makers either.[265] Therefore, talks among farmers were established to share their own personal experiences as farmers and to explain the advantages and disadvantages of GM seeds, the problems they have encountered using biotechnology, or the related seeds prices they have faced. It was necessary that farmers involved directly in the use of biotechnology explained the facts from their point of view, not from the scientific perspective. As a result, in the Farmer-to-Farmer dialogue, farmers from

[263] Interview with an official from FAS-USDA, technology division, March 3, 2014.
[264] Ibid.
[265] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.

the US and Canada participate, including those using GM seeds and those using conventional seeds. This strategy is crucial because the farmers are in direct contact with the government, so they will tell Mexican authorities what they prefer to cultivate or what they do not want.[266]

The Farmer-to-Farmer dialogue derives from NABI. In fact, NABI has been a priority of the Mexican government because it has been a successful tool to train farmers. In 2012, the event occurred in Mexicali and on 2013 in Campeche.[267] Furthermore, the FAS-Mexico City annual report mentioned that the Mexicali reunion in August 2012 was the first Farmer-to-Farmer dialogue in North America with the aim of exchanging experiences and best practices among farmers interested in using genetic engineering technology. It was successful because approximately 60 producers from Mexico, United States, and Canada participated, along with a representative of the biotechnology industry, specifically AgroBIO,[268] regulators from SAGARPA and representatives from the US and Canada embassies.[269] It was funded by the Department of State, with the participation of the FAS, the USDA, and SAGARPA. In this same dialogue, biotechnology firms are not directly promoting their products among farmers, but they are doing it indirectly through the presence and participation of AgroBIO.

Through NABI as a diplomatic instrument, the USDA-FAS facilitates contact and communication with the farmers' associations that participate in the talks, exchanging information about biotechnology and other topics. With the implementation of these dialogues, the USDA strongly implements technical and scientific assistance and advice as a proactive strategy, as well as provides technical training. As a result, though the USDA officially declares that is not promoting or favoring GMOs, Mexican producer groups have been receiving US technical assistance for GM seeds cultivation, commercialization, and use, which is a way of influencing the perception of GM foods. Consequently, some Mexican producers have been purchasing US GM seeds and the technology related.

Talks with experts on biotechnology

Additionally, the USDA is concerned about promoting and giving a scientific basis to policymakers and Mexican government officials. The FAS-Mexico City is involved in providing talks with experts on biotechnology as other means to encourage the acceptance of GMOs. In coordination with the events that SAGARPA organizes to communicate regulations, the FAS-Mexico City participates in bringing a scientific or an international speaker, upon request, to talk about a particular topic, for example insect resistance or coexistence of GM and conventional plants. The Department of Agriculture is able to locate the expert in the US because it has an agreement with the Langham universities and looks for the expert of that particular topic inside the network of universities.[270] Thus, the FAS can bring the expert to SAGARPA events. Besides, the USDA may rely on the Department of State's diplomatic machinery that helps identify that sort of expert. These events are coordinated with SAGARPA,

[266] Ibid.
[267] Ibid.
[268] AgroBIO, industry organization that represents the interests of biotechnology companies investing in Mexico.
[269] Adriana Otero, *Mexico Continous to Cautiously Move Forward with Biotechnology* (Mexico City: USDA Foreign Agricultural Service, 2013), 19, http://gain.fas.usda.gov/Recent GAIN Publications/Agricultural Biotechnology Annual_Mexico City_Mexico_8-5-2013.pdf.
[270] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.

according to its needs. As a result, the USDA maintains a dialogue with its counterparts in SAGARPA in order to minimize any technical discrepancies and problems for the future.

Moreover, the FAS-Mexico City competes for the Department of State funded biotechnology projects, including international expert speakers brought to Mexico.[271] Through this activity, the FAS is designing and distributing thematic information to key actors in the Mexican government. This instrument takes a part of the public diplomacy proactive strategic communications presented in my model, reinforcing networks between the two departments to facilitate GM food research and development, and among Mexican executive agencies, relying on the Department of State International Visitor Leadership Program (IVLP) support for the exchange of speakers.

Exchange programs

Another set of public diplomacy instruments managed by the USDA-FAS in conjunction with the Department of State involves exchanges. To demonstrate the benefits of biotechnology, the USDA may employ two types of exchange programs: the Cochran Fellowship Program and the Borlaug Fellowship Program. The Cochran Program provides short-term courses based in the US for training in agricultural issues, and the Borlaug Program is a longer course directed to policy-makers and researchers for training and promoting food security.[272] These courses with specific content targeted to particular publics are another diplomatic instrument used along with exchanges.

Through the Cochran Program, there are exchanges of Mexican government officials going to the United States and attending to courses on biotechnology regulation. These courses can be conducted by the University of Missouri or Michigan State University for example. Sometimes the staff who is new into the American and Mexican governments attends to these courses to find out more about what is happening with the biotechnology environment, getting information about issues of biotechnological products, food safety, and environmental safety, rather than just getting just into their job.[273] For example, members of the new Mexican administration of President Peña Nieto were sent in exchange to America to take a course about biotechnology, including international regulations, safety and release to the environment analysis, and intellectual property rights, which was taught by scientists from Michigan State University.[274] People who attended the course were new to the topic and came not only from Mexico but also from other parts of the world such as Africa and the rest of Latin America. These attendees usually comment in their feedback that they keep in contact with the other members that also attended the course, and they really like these courses because they can share their own perspective.[275] They do not just get the American point of view, but also they get the perspective of people from other countries that may be having similar situations.[276]

In 2012, two government participants from SAGARPA and SEMARNAT participated, and in 2013, three participants, one from each of the same agencies, and a third from CIBIOGEM attended the

[271] Ibid.
[272] "Programs | USDA Foreign Agricultural Service," *USDA Foreign Agricultural Service*, accessed May 13, 2014, http://www.fas.usda.gov/programs.
[273] Interview with an official from FAS-USDA, technology division, March 3, 2014.
[274] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[275] Ibid.
[276] Ibid.

Cochran Program.[277] This program has been effective to demonstrate the benefits of biotechnology to Mexican officials. In fact, in the feedback, these people commented that they appreciate the academic content of the course they were involved in, as well as the share of information with other participants. Such is the success that a Mexican official from SAGARPA requested the same course to be taught in Mexico, so the 2012 Michigan State University course was brought to Mexico in August 2013.[278] Furthermore, the participation of a person from CIBIOGEM is significant because this agency plays an important role in making GMO policy recommendations in Mexico, and this information obtained from that course eventually is going to be shared inside the agency.

The course in August 2013 to which three Mexican officials attended was taught at Missouri University. This course was about regulation of biotechnology and was funded by the US Soybean Export Council.[279] It is not a surprise that the course was prominently pro-biotechnology because the Soybean Export Council strongly favors and supports GMOs. Besides, one member of the Soybean Export Council is Syngenta, company that commercializes GM soybeans in the US. Therefore, this Council may directly, or indirectly, include favorable information about its biotech sponsor.

As we can see, with these activities, the USDA-FAS is implementing three strategic instruments for building long-term relationships included in my proposed public diplomacy model. The first is preparing and implementing scientific training, in this case, directed to Mexican government officials generating this personnel to get involved in professional technical training, gaining a direct perspective from the US. Even though that officially the USDA does not commit to the promotion of GMOs, this sort of courses and exchanges is a persuasive way to promote GM foods. Initiating networks and relationships is the second instrument implemented to facilitate GM foods' exchange of information and experiences among the US and Mexican executive agencies. It also creates networks with government officials from other countries, generating in the long term, the possible Mexico's GM food commercialization as an example of leadership for the rest of Latin America, or any other countries participating in this activity. The third refers to the promotion of exchanges which is a traditional public diplomacy instrument, allowing Mexican executive agencies' personnel to be involved in technical exchanges with their American counterparts.

Regarding the Borlaug program, it is intended for training and promoting food security, and the FAS Mexico City conducts a series of interviews to match the participant with the university that best fits the participant's needs and interests, coordinated with a team based in Washington DC.[280] Hence, the personnel that has a truly interest and specific needs are the ones that will be favored by this program and will take the most advantages of it. For example, the Committee on Agriculture from the Mexican Senate approached the FAS-Mexico City to request an introductory course to biotechnology. As a result, six senators were sent to the US to take a course in a university, after the course they exchanged information with their Washington DC counterparts, and later on, they were also taken to the biotechnology companies' headquarters to find out how things are done.[281] These senators got the

[277] Otero, *Mexico Continous*, 19.
[278] Ibid., 18, 19.
[279] Ibid., 19.
[280] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[281] Ibid.

opportunity to receive information directly from stakeholders; even they had the perspective from the biotechnology companies so that now Senators can make decisions in a more informed way. These exchange programs have been very successful to the extent that Mexican government officials continue not only participating, but also requesting specific courses to the FAS-Mexico City. It seems that these courses are very useful, and the Mexican officials participating in them are changing their perspectives about biotechnology.

4.3.2 Biotechnology companies as promoters of GMOs

The USDA official position states that it does not promote products per se. Rather, what the USDA promotes is confidence building and exchange at a scientific level.[282] However, there are non-governmental agro-industry groups that work with the Mexican food industry to gain acceptance of specific products and trade itself, but the USDA-FAS does not deal with that. Although the USDA-FAS does not directly get involved with, or sponsor biotechnology companies to promote their products, the cooperation and participation of these firms in the diplomatic activities has been observed by my research, showing that they work along with the government agencies in a public diplomacy approach.

As previously stated, AgroBIO has participated in courses taught to Mexican government officials and is usually invited to scientific and SAGARPA events.[283] Additionally, the FAS-Mexico City does not have direct contact with biotechnology companies, but it has communication with AgroBIO, and sometimes with Pioneer or Monsanto when these firms make big investments in Mexico. For example, Pioneer invited the FAS personnel to the inauguration of a new research center for biotechnology and improved seeds that opened in Tapachula, Hidalgo. Monsanto also invited the FAS personnel to another opening of a research center in Guadalajara, Jalisco.[284] Even though the USDA is not funding biotechnology companies, and the biotechnology firms are not sponsoring USDA events, there is communication and contact between the FAS and these companies that are already selling biotechnology products in Mexico.

4.4 Mexican government agencies and scientific institutions targeted

As has already established, the USDA through the FAS is making direct and indirect efforts to promote GM foods among the government officials by using different diplomatic instruments. USDA's main goal is not to promote specifically GMOs but to promote American agricultural products in Mexico or any other country. However, considering the topics on the scientific and technical courses FAS is offering, the focus is clearly on biotechnology as the innovative way to progress. Also, there is some indirect communication with Mexican scientific institutions. In this section, I will identify the Mexican government agencies that the FAS-Mexico City communicates with and analyze why this interaction is important for the promotion of GM foods. I will also clarify the importance of the interaction with key Mexican government actors involved in GM foods. Although this communication does not consist of an explicit

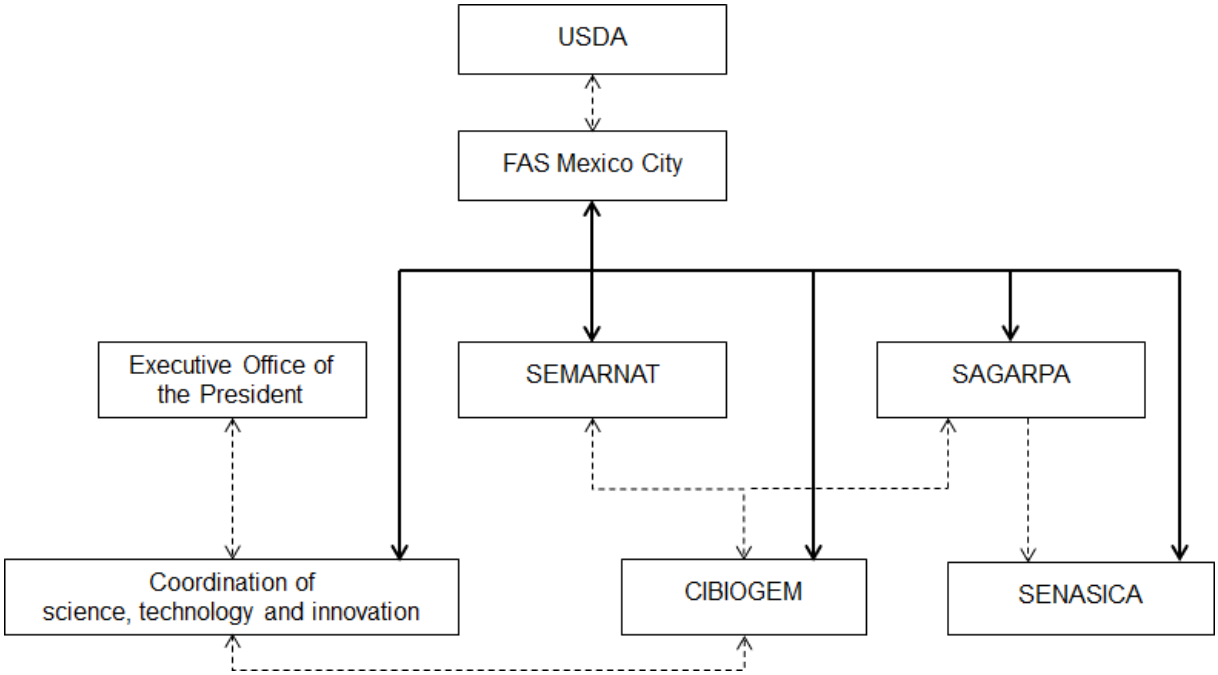
[282] Interview with an official from FAS-USDA, technology division, March 3, 2014.
[283] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[284] Ibid.

message to promote GMOs, there is a message to Mexican scientists in order to change their perspective about GM foods based on science and to adapt procedures of analysis, as shall be explained in the last section of the chapter.

4.4.1 FAS-Mexico City relationships with Mexican agencies

A simplified diagram of the FAS Mexico-City communication exchange with the Mexican government is found in Figure 4.2. It demonstrates that the FAS has institutional communication with Mexican government agencies, strengthening cooperation between the American and Mexican governments, specifically between the two departments in charge of agriculture.

Figure 4.2 USDA communication exchange with the Mexican government



Note: the dotted lines mean the communications among the same government agencies and the bold arrows refer to the communication between FAS and the Mexican agencies.
Source: Elaborated by the author.

There is also an exchange of information between the USDA and the SEMARNAT. The FAS-Mexico City interacts with the staff of the presidency, in this case with the Coordinator of Science, Technology, and Innovation, who has direct contact and interaction with the President of Mexico. The relationships, communications, and level of cooperation between the USDA-FAS and the Mexico's government agencies will be discussed in the following pages.

The Coordination of Science, Technology, and Innovation

A first approach of the USDA-FAS to the Mexican government is through the Executive Office of the President, as shown in Figure 4.2, particularly through the Coordination of Science, Technology, and Innovation. The FAS-Mexico City has had communication with the coordinator, Francisco Bolivar

Zapata, to talk about what topics of interest are worth promoting in the agriculture area.[285] Bolivar Zapata plays an important role in the presidential decisions because he is the person in charge of advising the president about new technology developments and he is a biotechnology promoter. He studied biochemistry at the National University of Mexico (UNAM) with an outstanding academic career. In 1977, he worked for his post-doctorate at the University of California, San Francisco, where he contributed to the development of genetic engineering techniques for the production of human proteins in bacteria.[286] Consequently, he has been awarded by several Mexican universities, including UNAM. Although his academic and scientific trajectory seems legitimate and promising, he has been accused by Mexican NGOs and agricultural producers associations of being too open to biotechnology. These accusations are for contributing and lobbying the Mexican government to elaborate the LBGMOs, and for using his membership to the Mexican Academy of Sciences to support the law, thus, he was nicknamed Prince Monsanto.[287] He is also considered an example of the revolving door in Mexico because he has lobbied for the authorization of GMO cultivation and now he works for the presidency.[288]

Furthermore, Bolivar Zapata is openly pro-biotechnology, and he made statements supporting GMOs in a conference presented at UNAM in early 2014. In the midst of the GM maize commercialization debate in Mexico, a day after the president of Union of Scientists Committed to Society (UCCS), which is an important Mexican NGO to prevent GM maize adoption, annunciated a "Declaration of Life" to fight against GM maize cultivation and utilization in Mexico, Bolivar Zapata pronounced his support for GMOs. He indicated that GMOs have demonstrated their efficiency to create medicines during three decades, GMOs are a useful tool to contend plagues and improve crop yields without using insecticides neither fertilizers with pollutants, and GMOs should be considered as low-risk products because there is not scientific evidence of possible damage to human health or the environment.[289] It seems it is not a coincidence that the Coordinator of Science, Technology, and Innovation from the Executive Office of the President is giving this declaration; this indicates that Bolivar Zapata is enunciating the position of the presidency as a response to the Declaration of Life made by UCCS. President Peña Nieto has not made an official declaration in favor or against GMOs. However, Mexican President's position on GMOs is shown through Bolivar Zapata's declarations.

The Coordinator of Science, Technology, and Innovation is important to the FAS Mexico-City because he is a critical liaison between the USDA and the Mexican presidency, and he is a central actor in the Mexican government's change position regarding GM foods. Moreover, he has gained more influence and power in the decision-making process related to GMOs because, in the current administration of President Peña Nieto, he has been appointed by the President of Mexico simultaneously as Executive Secretary at CIBIOGEM and Coordinator of Science, Technology, and Innovation. As a result, Bolivar Zapata is an important actor to make any possible changes in the GMO

[285] Ibid.
[286] "Semblanza," *Dr. Francisco Gonzalo Bolivar Zapata*, accessed May 16, 2014, http://www.franciscobolivar.com/.
[287] Greenpeace, "Científico pro Transgénicos Al Equipo de Peña Nieto | Greenpeace México," *Greenpeace Mexico*, 2012, http://www.greenpeace.org/mexico/es/Noticias/2012/Septiembre/Cientifico-pro-transgenicos-al-equipo-de-Pena-Nieto/.
[288] Valentina Botero-Pérez, "¿Por Qué Monsanto Entró Con Tanta Facilidad a México? (INFOGRAFÍA)," *Revolución 3.0*, February 11, 2013, http://revoluciontrespuntocero.com/por-que-monsanto-entro-con-tanta-facilidad-a-mexico-infografia/.
[289] Proceso, "Los Transgénicos No Representan Daño a La Salud Humana: Fundador Del Instituto de Biotecnología," *Proceso* (Mexico City, May 2014), http://www.proceso.com.mx/?p=372104.

policy because he has direct communication with the Secretaries of Agriculture and Environment, the Director of CONACYT, as well as with the President of Mexico. By filtering and digesting information, providing research material, and convincing decision-makers in high-levels to choose whatever is more convenient to the country according to his own perspective, or interests, he has a relevant stake in the GMO policies in Mexico.

Consequently, communication with the Coordinator of Science, Technology, and Innovation becomes important to the FAS-Mexico City to take advantage of the flow of information. This key actor has direct access to the President of Mexico who is the most important decision-maker in the Mexican government. At the same time, Bolivar Zapata as Executive Secretary processes information for the people at CIBIOGEM, who is going to propose GM food policies, and he also provides information directly to the secretaries of SAGARPA and SEMARNAT. That is to say, the scientific and technical advice for decision-makers comes from one person who is, first openly pro-biotechnology, and second, it seems he might have shared interests and commitments with the American biotechnology industry because of the work he did during his post-doctorate research at San Francisco. In that stay, Genentech, an important American biotechnology company that was acquired by Roche, sponsored his project.

SEMARNAT

The USDA-FAS also maintains communication with the Secretariat of Environment. This secretariat is aimed to protect and preserve ecosystems, natural resources, and biodiversity, as well as to formulate national policies about natural resources protection in Mexico.[290] Regarding GMOs, SEMARNAT on a case-by-case basis, analyzes and assesses the potential risks that GMOs may pose to the environment and biodiversity, and allows and licenses activities that involve releasing GMOs into the environment.[291] However, SEMARNAT cannot issue approvals for environmental release for GM crops; the agency empowered to do that is SAGARPA.

Through the Biosecurity, Biodiversity, and Genetic Resources area, SEMARNAT elaborates regulations and norms to protect the environment, biodiversity, and genetic resources. In early 2014, SEMARNAT issued a new norm to designate the centers of origin and biodiversity of corn in Mexico. Moreover, during the formulation of that norm, staff working at SEMARNAT felt that the US Embassy was influencing policy decision-makers at SEMARNAT, such was the pressure at the Secretariat that the regulation ended up designating only eight states out of the thirty-one of the whole country.[292] Thus, despite SEMARNAT does not have the power to execute, it has the power to formulate regulations that will have an impact on the GM crops cultivation, and these regulations possibly will limit actions or intentions of biotechnology companies or some other entities that are supporting GM foods. Furthermore, according to a government official's experiences at the Secretariat of Environment, there has been, and there is still pressure from the United States to adopt GMOs. In fact, the substantial

[290] SEMARNAT, "¿Qué Hacemos? | Secretaría de Medio Ambiente Y Recursos Naturales," *SEMARNAT*, accessed May 20, 2014, http://www.semarnat.gob.mx/conocenos/que-hacemos.
[291] Otero, *Mexico Continous*, 9.
[292] Interview with a governmnet official of SEMARNAT (Mexico City), Februray 02, 2014.

equivalence principle adopted by the FDA was also informally adopted in Mexico to facilitate GMOs acceptance and to make Mexican government officials believe that there are no risks of GMOs.[293]

Additionally, SEMARNAT has two sub-units involved in GMOs. The first is the National Institute of Ecology (INEEC) that was created to give technical and scientific assistance to SEMARNAT in order to formulate, evaluate, and conduct national policy on ecological equilibrium and protection to the environment.[294] The FAS-Mexico City has communication with SEMARNAT through INEEC because it is considered as the scientific branch of SEMARNAT. [295] Besides, the FAS is very concerned about Mexico making decisions based on science, so promoting scientific information to this institute is key to change the perspective among Mexican policy-makers. Therefore communication with INEEC is critical to provide scientific information to SEMARNAT which emits key positions about GMOs.

CONABIO, the National Commission for Knowledge and Use of Biodiversity is the second unit involved in GMOs. CONABIO makes recommendations about requests for GMO releases into the environment, following the Mexican biosecurity regulations. CONABIO is a serious government scientific institution that conducts independent research to protect the environment. As a result, the FAS Mexico-City does not have communication with CONABIO because there is not interaction:

> We know that there is no way to persuade there. There is not really communication there, it would be just from this side to the other, and there is not retransmission, so we better communicate with the ones who ask. [296]

This shows that the FAS-Mexico City is trying to persuade Mexican government agencies to change their mind about GMOs and accept GM maize. It also means that CONABIO is a serious scientific institution with non-biased researchers who are pro-environment and cautious about GMOs. Therefore, the FAS-Mexico City is focusing its efforts to communicate with agencies and officials that are open to listening to external entities. In the case of SEMARNAT, the FAS-Mexico City communicates with the Biotechnology Coordinator of SEMARNAT, becoming a link between the FAS and the secretariat. Furthermore, the FAS Specialist on Agriculture Adriana Otero previously worked at SEMARNAT, which makes it easier to access key people in the government, and that is one of the reasons why the FAS is interacting with SEMARNAT even though this secretariat is not that prominent in the GMO approvals.

CIBIOGEM

FAS-Mexico City also communicates with CIBIOGEM. This Mexican agency formulates and coordinates national biotechnology policies of GMOs. CIBIOGEM is also an interdepartmental commission formed by six different secretariats, where SEMARNAT, SAGARPA, and the Secretariat of Health are the most influential departments because they rotate the presidency of CIBIOGEM every two years.[297] Although it is focused on the biosafety of GMOs and formulates policies related to biosecurity

[293] Ibid.
[294] INEEC, "Quiénes Somos," *SEMARNAT*, accessed May 20, 2014, http://www.inecc.gob.mx/acerca/somos-inecc.
[295] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[296] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[297] CIBIOGEM, "Acerca de La CIBIOGEM," *CIBIOGEM*, accessed May 21, 2014, http://www.conacyt.mx/cibiogem/index.php/cibiogem/acerca-de-la-cibiogem.

and the safe use of GMOs, it is not empowered to execute policies. However, communication with this commission is important because it evaluates GMO biosecurity programs and makes recommendations to the Secretaries of SAGARPA and SEMARNAT.

In fact, the FAS-Mexico City keeps communications with the Executive Secretary and two Directors of the units that are below in the organization chart, which are Policies and Regulations Office and Information and Research Dissemination Office. The FAS communicates with CIBIOGEM through personal contact or email, and there is an exchange of information from both sides. [298] Even though the CIBIOGEM's Deputy Director of the Biotechnology and Biosecurity Communication and Divulgation Office argues that the CIBIOGEM does not receive any promotional information about GM foods from the United States government agencies, [299] she does not deny receiving communication at all. Communication with the two directors is important because they design policies and divulge biotechnology key information among decision-makers in the government and here it lays the opportunity to let know the advantages of biotechnology. Also, as mentioned above, CIBIOGEM's Executive Secretary, Bolivar Zapata, becomes a critical actor for the FAS-Mexico City to promote its small farmers' agriculture or biotechnology programs.

SAGARPA

The most important department to which the FAS-Mexico City communicates with is the Secretariat of Agriculture, Livestock, Rural Development, Fisheries, and Food (SAGARPA). SAGARPA's main objective is to promote the execution of policies that improve production practices for agricultural producers. [300] Concerning GM foods, SAGARPA's role is to analyze and assess, on a case-by-case basis, the potential risks to animals, plants, and aquatic life posed by GMOs and their related activities. It is responsible for deciding and emitting permissions for GE activities for crops, livestock, and fisheries, as well as providing guidelines and regulations for GE experiments and activities such as trials, experimentation, or commercialization releases and GMOs importations.[301] Although SAGARPA has the power to issue permissions for GMOs activities and is concerned about agricultural and animal health, there is not still a national policy about GMOs. Furthermore, it is working toward having an integral policy of GM foods.

> SAGARPA does not have all the elements to decide about GM foods, and it is interested in having a meeting with experts on the topic, experts that are in favor and experts that are against, and then SAGARPA can make a decision. [302]

Consequently, this secretariat is important to change the political environment in Mexico regarding GM foods. This meeting is an opportunity for the FAS-Mexico City to disseminate information, programs, courses, or material related to GMOs, as well as solving doubts for key decision makers at SAGARPA. Because SAGARPA plays an important role in agriculture and GM foods, communication with this

[298] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[299] Rosa Inés González Torres (Director, Office of Biotechnology and Biosecurity Communication and Divulgation at CIBIOGEM), email message to the author, February 10, 2014.
[300] SAGARPA, "Introducción," *SAGARPA*, accessed May 23, 2014, http://www.sagarpa.gob.mx/quienesomos/introduccion/Paginas/default.aspx.
[301] Otero, *Mexico Continous*, 9.
[302] Jesús Alberto Aguilar Padilla (deputy secretary of agriculture, SAGARPA), interview by author, February 17, 2014.

secretariat is imperative. The FAS-Mexico City exchanges much information with SAGARPA, through direct personal contact or email. Additionally, because the FAS has to write annual reports about biotechnology in Mexico, it has to be in constant contact with SAGARPA which usually has many questions, it is not just FAS disseminating information but exchanging it with SAGARPA in a two-way communication form, having a dialogue.[303] Additionally, the USDA-FAS is very interested in maintaining a dialogue with its counterpart SAGARPA. This because both units work together in certain programs, for example in inviting speakers to some conferences, in case SAGARPA needs a specialist, FAS is able to bring it.[304] Through this sort of cooperation, the USDA is using instruments of public diplomacy such as implementing scientific assistance, as mentioned before.

SAGARPA is a big secretariat with different offices. Therefore, the FAS-Mexico City maintains contact with people in critical areas. For example, the Office of Productivity and Technological Development is a key part of the structure where public policies are designed. The Director of Productivity and Technological Development, Belisario Domínguez, is a person with whom the FAS-Mexico City keeps constant contact and communication.[305] This director plays a prominent role in the design of policies because he directs the most important programs of agriculture in Mexico including four outstanding issues: coffee, sugar cane, corn and beans, and GM foods, where the most controversial one is the GM food issue. This office is doing much work and effort to elaborate a complete policy because it is a sensitive topic in the country and it may affect the farmers' lifestyle.[306] Therefore, maintaining communication with this policy-maker is meaningful for the FAS to try to have a stand and promote GM foods in the elaboration of policies related to GMOs.

Another relevant office of SAGARPA that regulates GMOs is the Office of National Service of Agro-Alimentary Health, Safety, and Quality (SENASICA). It is aimed to execute sanitary actions to protect the Mexican agriculture and livestock from either pests or diseases, and to regulate and promote the application of certification systems to reduce the risks of contaminants in foods in order to facilitate the international trade of animal and plant products.[307] Regarding GMOs, SENASICA collaborates in the elaboration of policies about GMO biosecurity, operates and conducts surveillance of released GMOs, and regulates and authorizes GM food experimental or commercial releases.[308] This office is where all biotechnology companies and scientific institutions must submit their requests for GMO pilot tests, trials, or cultivation. This agency keeps a record of the submissions for permissions from companies or institutions asking for GMO permits. In the case of maize, it has only approved some small areas for trials and experimentation, but it has not approved any commercialization hitherto. Therefore, the FAS-Mexico City communication with SENASICA is important because it is the executive body for trials, experimentation, or commercialization permits.[309] However, after more than a year, permits for GM maize have been delayed, and there is neither a positive nor a negative response. [310]

[303] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[304] Ibid.
[305] Ibid.
[306] Belisario Domínguez Méndez (Director of Productivity and Technological Development Under-Secretariat, SAGARPA), interview by author, February 17, 2014.
[307] SENASICA, "Acerca de," *SENASICA*, accessed May 23, 2014, http://www.senasica.gob.mx/?id=1170.
[308] SENASICA, "Bioseguridad Para OGM," *SENASICA*, accessed May 23, 2014, http://www.senasica.gob.mx/?id=2403.
[309] Adriana Otero (specialist on agriculture, USDA-FAS at Mexico City office), interview by author, January 14, 2014.
[310] Ibid.

The FAS-Mexico City communication with these relevant Mexican government agencies is crucial because the USDA emphasizes the importance of making decisions based on science, and this is the way to persuade Mexican government officials to make decisions according to a pro-biotechnology perspective. Additionally, by maintaining personal contact, promoting exchanges, preparing and implementing scientific training, and initiating networks and relationships, the USDA and FAS are utilizing public diplomacy instruments with the Mexican government to promote GM foods indirectly. Therefore, we may conclude that the promotion of American agricultural products and technologies is relevant in public diplomacy, and through an important agency such as the USDA, the US government may change the environment about a topic in a specific country such as Mexico.

4.4.2 FAS-Mexico City relationships with scientific institutions

Another set of stakeholders to be targeted by the US government in Mexico is scientific institutions. In this case, universities are critical agents in biotechnology systems to transfer the newest knowledge through updated mobile researchers.[311] Consequently, UNAM is the most important academic and public research institution with influence among the Mexican government and the public, so it may be a target for public diplomacy execution. The Laboratory 312, located in the Faculty of Chemistry, is a well-known research center specialized in GMO research. It develops specific research upon request for Mexican government agencies, such as CONABIO, CIBIOGEM, SEMARNAT, SENASICA, and COFEPRIS. Laboratory 312 works closely with the Mexican government agencies as an independent scientific advisor. Although the FAS Mexico City does not have a direct contact and communication with Laboratory 312, there is indirect contact with one of the researchers. For instance, Amanda Gálvez, a researcher working in GM soybeans and a member of the Advisory Group on Maize and Biodiversity of the NAFTA's Commission for Environmental Cooperation, has received information from the USDA. Not through a public communication, but during meetings in international fora, such as the Convention on Biological Diversity (CBD), where she is part of the Mexican delegation.

> The American delegation is negotiating the Cartagena Protocol, even though the United States is not a part of the Convention on Biological Diversity. This delegation always appears in the negotiations because all the governments are invited and the US delegation is always whispering at the Mexican authorities' ears. [312]

The Cartagena Protocol on Biosafety emerged from the CBD and is an international agreement that intends to ensure the safe handling, transport, and use of GMOs, as well as to protect biodiversity from the potential risks that GMOs may pose. Although the US is not a signatory of the Cartagena Protocol, its delegates try to have a voice and influence decision-makers in order not to advance in further biosecurity considerations because this protocol is a counterbalance to the WTO and the SPS standards that regulate GM foods. Moreover, the US has argued that the Cartagena Protocol's safeguards are not to be considered at the WTO trade disputes involving GM crops and GM products because it has not signed such protocol, and since 1990, US delegates have tried to block and weaken the Cartagena

[311] Niosi, "Complexity and Path Dependence."
[312] Amanda Gálvez (specialist on biotechnology, Laboratory 312, Faculty of Chemistry at UNAM), interview by author, February 12, 2014.

Protocol.[313] As a result, the US government is paving a smooth road for the biotechnology companies to operate overseas without major caution about possible consequences and by reinforcing the WTO standards that favor trade liberalization and intellectual property rights instead of protecting biodiversity.

Regarding scientific institutions, because of the research performed at Laboratory 312 and the profile of the researchers, there has been communication with the USDA. It has not been a public message, but contact has been through conversations among the delegates communicating that the United States is not interested in labeling GMOs.[314] It is clear that the USDA is not making strong efforts to influence or change the nature of the work done at UNAM's Laboratory 312 because this center does independent research with the Mexican government support. However, indirectly messages are sent to persuade these scientists that there is no need to do a differentiation of GM foods from their conventional counterparts. Indirect communication with Mexican scientific institutions, such as UNAM, is enough to try to have a stand on the GMO debate. As a result, it seems that the closer the relationship between the US government and the Mexican government officials is, the better the contact and communications are.

In summary, this chapter has demonstrated that the US government actors conducting public diplomacy activities to promote GM foods in Mexico are the Department of State and the agencies related to GM foods, including the USDA and the FAS. The Department of State has a set of diplomatic instruments that support biotechnology. Moreover, the USDA, through the activities performed by the FAS-Mexico City, is directly or indirectly promoting GM foods in Mexico. In the following chapter, I will analyze which multinational corporations are involved in public diplomacy, and will reveal how these firms are reinforcing the public diplomacy activities that the US government is implementing to promote GM foods in Mexico. It is my intention to explain how US biotechnology companies have promoted GM foods in Mexico, and with what level of success, as well as to examine to what degree the US government agencies and biotechnology companies have collaborated to try to persuade Mexican policy-makers to adopt GM food cultivation and commercialization in Mexico.

[313] McAfee, "Beyond Techno-Science," 151.
[314] Amanda Gálvez (specialist on biotechnology, Laboratory 312, Faculty of Chemistry at UNAM), interview by author, February 12, 2014.

Chapter 5
MNCs involved in US public diplomacy

Chapter 4 introduced the US government agencies that are undertaking activities of public diplomacy. It showed that the main agency involved in public diplomacy strategies is the Department of State which is involved in diverse educational programs that attempt to promote agricultural biotechnology products. The relationship between biotechnology companies and the Department of State was also analyzed. The analysis of the relationship between the Department of State and other executive agencies revealed that the USDA is involved in the promotion of biotechnology products and has employed a variety of resources. Also, the Mexican government agencies that the FAS is interacting with were analyzed.

The purpose of Chapter 5 is to identify the main biotechnology companies that produce GM foods and promote them in Mexico, as well as to analyze how American biotechnology firms have interacted with the US government to enhance the promotion of GM foods in Mexico, by targeting Mexican institutions. I will analyze how US biotechnology companies have promoted GM foods in Mexico and what level of success they have had. Also, I will analyze to what degree US biotechnology companies have tried to persuade Mexican policy-makers to change the GM food policy and what techniques they have employed. An examination of the interaction of US biotechnology firms with Mexican officials or other influential actors in the Mexican government also will be included.

In the first section of chapter 5, I will explain the relevance and contribution of MNCs to public diplomacy activities. Though the state is the main actor in public diplomacy, MNCs are increasingly playing an important role because of the economic benefits they may convey to the home country and the host country alike. Relations are not only between states but also between state and non-state actors because nowadays MNCs negotiate directly with governments and influence other countries consumers' decisions. Additionally, companies have resources that allow them to set the agenda for biotechnology research and development.

In the second section, I will identify the relevant MNCs involved in the promotion of GM foods. There is a near oligopoly of biotechnology companies that produce specific GM seeds along with the chemicals that are needed to cultivate GM crops. Therefore, in this section, I will point out the main MNCs and explain how they operate in the US and Mexico through different industry associations.

In the third section, I will present the instruments, resources, and strategies that MNCs employ to promote GM foods in the US and Mexico. I will discuss the reactive, proactive, and relationship-building strategic communications developed by biotechnology companies. I will illustrate what strategies are implemented in both the US and Mexico. These instruments, resources, and strategies implemented by MNCs are helpful to understand the ways and means in which biotechnology companies promote GM foods and also to draw the main messages that such companies deliver.

The fourth section is intended to explain what main messages the biotechnology companies deliver to promote GM foods along with the ideas they want to disseminate among stakeholders. In the last

section, I will identify the stakeholders targeted in Mexico by MNCs. Finally, an analysis of the ways in which MNCs communicate with Mexican officials, scientific institutions, and NGOs will be offered.

5.1 Relevance of MNCs for public diplomacy activities

MNCs nowadays play an important role as enhancers of a government's public diplomacy activities. They have become an important ally of states in the international arena when pursuing similar goals. Not only governments work to open and encourage markets for business, but also companies make efforts to shape and change the international political environment and favor their investments wherever they are participating in the world. The relationship between companies and governments has changed inasmuch as they have become closer and become more like each other.[315] Governments must not only negotiate with other governments but also with companies, whereas companies negotiate with both, governments and other companies, situations that may affect the way in which governments conduct international relations because they deal with companies.[316] Besides, governments like to attract MNCs to invest in their country because they can boost the economy.

MNCs are important to public diplomacy activities for three main reasons that I have identified in the literature: they can set the agenda of what to research and invest, they may pursue the same goals as governments, and they have resources to influence policy-makers in order to ease regulations or taxation, or be favored in other ways. In regards to the first reason, MNCs are able to establish the research agenda and determine what products are possible, what technologies to develop, and therefore, to encourage policy-makers to advance in facilitating policies or reach some liberalizing international environmental agreements, as well as to slow the international formation of regulatory regimes that might constrict MNCs.[317] Because GM crops represent a technological revolution in agriculture, MNCs are powerful drivers of change in the global food system.[318] Furthermore, GMO companies are innovators of technology and seek approvals for new products that eventually will change industry practices; this stimulates the MNCs development of strategies for gaining support from the government agencies involved in regulating GMOs.[319] MNCs use their economic resources not only to invest in new technology and to continue projects that have already been started but also to shape the policy environment.

Additionally, by setting the pace of technology advances, MNCs can influence the perceptions of decision-makers and the public about policies.[320] Biotechnology companies have received the support of governments to research and develop GM crops; this support includes subsidies, less restrictive

[315] Wally Olins, *Trading Identities: Why Countries and Companies Are Taking on Each Others' Roles* (London: The Foreign Policy Centre, 1999), 1.
[316] Susan Strange, "Rethinking Structural Change in the International Political Economy: States, Firms, and Diplomacy," in *Political Economy and the Changing Global Order*, ed. Richard Stubbs and Geoffrey R.D. Underhill (London: Macmillan Press Ltd., 1994), 103.
[317] Rowlands, "Transnational Corporations."
[318] Robert Falkner, "The Troubled Birth of the 'Biotech Century': Global Corporate Power and Its Limits," in *Corporate Power in Global Agrifood Governance*, ed. Jennifer Clapp and Doris Fuchs (Cambridge, Mass.: MIT Press, 2009), 225.
[319] David L. Levy and Peter Newell, "Oceans Apart? Business Responses to Global Environmental Issues in Europe and the United States," *Environment: Science and Policy for Sustainable Development* 42, no. 9 (2000): 18.
[320] Rowlands, "Transnational Corporations," 134.

policy frameworks, supportive infrastructure, public-private partnerships,[321] tax incentives, soft loans and duty-free imports of sophisticated equipment, all of which are essential for the development of products.[322] These sorts of incentives have not only promoted research and development of new GM products but also have helped companies to reach their profitability goals. Whether companies invest in biotechnology or traditional technology, their new technology, processes and products will have an effect on how politicians and citizens perceive them, who will evaluate them as positive or negative according to their impact on society. MNCs will gain or lose reputation and trust accordingly.

The second reason refers to common goals. An inherent characteristic of public diplomacy is that transnational coalitions cooperate with governments to influence policy.[323] Thus, the participation of MNCs in public diplomacy activities becomes important not only to reinforce government's activities but also to shape them. In order for US public diplomacy activities to be more effective, American companies may play an important role because their brands and representatives may be more in direct contact with people in the host country than government representatives.[324] Moreover, thanks to globalization, states compete to attract companies and penetrate more markets. This competition induces governments to negotiate with national and international companies to persuade them to stay in the country and not relocate offshore. This dynamic produces negotiating partnerships or informal alliances between the host country government and the MNC in which both aim to increase world market shares.[325]

In addition to developing commercial activities, companies play an important role in society because companies' representatives have acted as diplomats and have represented a global force for good citizenship.[326] The presence of MNCs globally has made them promoters of a particular culture or lifestyle that can be linked to their country of origin and, therefore, enhance (or detract from) the messages that the government intends to convey. At the center of corporate GM food promotion lies the construction of discourse that highlights economic efficiency, environmental sustainability, and food security.[327] Those arguments coincide with any government's goals of improving the economy, saving the planet and relieving hunger. Furthermore, MNCs trust they can gain admiration or affection from the people of their host country by playing a role of benign influence and respect in the country they work in so that they can be legitimized.[328] To MNCs, the use of strategic communication under a public diplomacy model is vital to creating a favorable policy environment in order to both, expand their markets, and disseminate their messages to convince stakeholders.

The resources that MNCs can deploy are the third reason for their relevance to public diplomacy. One of the resources to influence policy-makers is knowledge. Because there is no consensus about

[321] Dominic Glover and Peter Newell, "Business and Biotechnology: Regulation of GM Crops and the Politics of Influence," in *Agribusiness & Society: Corporate Responses to Environmentalism, Market Opportunities Adn Public Regulation*, ed. Kees Jansen and Sietze Vellema (London, UK: Zed Books Ltd., 2004), 207.
[322] Peter Newell, "Globalization and the Governance of Biotechnology," *Global Environmental Politics* 3, no. 2 (2003): 62.
[323] Hocking, "Rethinking," 38.
[324] Joseph S. Nye, "Public Diplomacy and Soft Power," *The ANNALS of the American Academy of Political and Social Science* 616, no. March (2008): 105.
[325] Strange, "Rethinking Structural Change," 107.
[326] Michael B. Goodman, "The Role of Business in Public Diplomacy," *Journal of Business Strategy* 27, no. 3 (2006): 7.
[327] Marc Williams, "Feeding the World? Transnational Corporations and the Promotion of Genetically Modified Food," in *Corporate Power in Global Agrifood Governance*, ed. Jennifer Clapp and Doris Fuchs (Cambridge, Mass.: MIT Press, 2009), 156.
[328] Olins, *Trading Identities*, 2.

science, to have the power to determine what knowledge is and propagate that knowledge to specific actors in a precise way of communication has an impact on public policy-making.[329] MNCs also have power and connections to interact with government officials to influence policies or be favored in certain ways. MNCs actors are in a privileged position, along with state and some non-state actors, because of their central role in the global economy.[330] Nowadays private actors and the state are intertwined so that it is difficult to separate public and private power. Moreover, the state, which is expected to regulate corporations, is far from neutral.[331] Therefore, MNCs have the ability to gain the endorsement of and support for their causes.

MNCs also have the means to position themselves into the public and to make their brands and projects known. Companies, particularly global, can be influential for global change and employ their resources to solve problems and enhance intercultural communications.[332] MNCs have become more public and now their activities are scrutinized like those of government, even appearing in the spotlights of the media and becoming news.[333] This coverage gives them an opportunity to deliver messages appealing for their causes and communicating knowledge. Furthermore, MNCs promote a shared understanding of agricultural biotechnology, are aware of the resistance to biotechnology products, have preferences for certain regulatory instruments, and operate together to assure non-restrictive GM foods governing arrangements.[334] In particular, what biotechnology companies seek from governments is the deregulation of GMOs, and worldwide enforcement of intellectual property rights, GM technologies, patented organisms, and agrochemicals because these policies facilitate the expansion of their worldwide markets.[335] Moreover, MNCs have an important effect on the global environment because they consume a considerable part of the earth's resources, and at the same time, they are spreading new technologies to make life easier.[336] Thus, the combination of knowledge and development of technology make MNCs powerful influencers of policy-makers.

5.2 Identification of relevant MNCs

Global challenges for the future including population growth will require more sophisticated methods to produce food, such as genetic modification. Biotechnology companies promise relevant benefits for farmers, such as more productivity and less use of pesticides, as well as important advantages for consumers, such as cheaper and healthier food products.[337] Despite technology advances that transnational companies may champion, not all MNCs have the resources to develop new biotechnology products. Early developments in agricultural biotechnology were conducted by small and medium-sized companies that originated from universities and research institutes but, because of costs of research, they were taken over by larger life science companies.[338] Additionally, developments in biotechnology

[329] Williams, "Feeding the World?," 157.
[330] Falkner, "The Troubled Birth," 231.
[331] Peter Newell, "Technology, Food, Power: Governing GMOs in Argentina," in *Corporate Power in Global Agrifood Governance*, ed. Jennifer Clapp and Doris Fuchs (Cambridge, Mass.: MIT Press, 2009), 256.
[332] Goodman, "The Role of Business," 5.
[333] Olins, *Trading Identities*, 36.
[334] Williams, "Feeding the World?," 166.
[335] McAfee, "Beyond Techno-Science," 151.
[336] Rowlands, "Transnational Corporations."
[337] Lee Ann Jackson and Kym Anderson, "What's Behind GM Food Trade Disputes?," *World Trade Review* 4, no. 2 (2005): 203, 204.
[338] Falkner, "The Troubled Birth," 228.

incur high monetary costs and require scientific and technological infrastructure that small and medium-sized companies do not have.[339]

When GMO innovations moved from laboratory tests to field trials and commercialization, and later on GM crops were grown on a commercial scale, mergers and acquisitions of companies led to the dominance of large biotechnology companies.[340] Therefore, the success of biotechnology companies is because they entered into the agricultural sector by acquiring different smaller seed companies, and, later on, merging with large competitors to get critical mass and economies of scale.[341] As a result, the GM food sector is now embedded in an oligopolistic structure where a limited number of MNCs dominate the market, with an expanded production of GM crops though with cultivation limited to a geographic area.[342] Hence, it is relevant to identify which biotechnology companies prevailed from this series of mergers and acquisitions, overcame financial crises, and focused on GMOs.

5.2.1 The big six and trends in the biotechnology industry

Because biotechnology is expensive, there is a limited number of MNCs building up new GM foods. The major biotechnology companies producing GM crops and their sales during the 1990s are shown in Table 5.1. The sophistication of biotechnology and the rising costs of seeds and raw materials for GM food development have enhanced the power of few large biotechnology companies.[343] Many biotechnology companies producing GM seeds started developing chemicals and then shifted their activities into agricultural biotechnology. Consequently, the number of biotechnology companies developing GM foods nowadays, and their investment in research and development, has declined.

Table 5.1. Major biotechnology companies producing GM crops in the 1990s.

Company	Sales for the year 1998 (million US dollars)
Novartis	5010
Monsanto	4030
DuPont	3156
Zeneca	2798
Dow Chemical	2352
AgrEvo	2330
Bayer	2200
American Cyanamid	2190
Rhone-Poulenc	2066
BASF	1880

Source: Uzogara, “The Impact of Genetic Modification of Human Foods,” 199. Abridged and adapted by this author.

[339] Williams, “Feeding the World?,” 160–161.
[340] Falkner, “The Troubled Birth,” 228.
[341] Philip H Howard, “Visualizing Consolidation in the Global Seed Industry: 1996–2008,” *Sustainability* 1 (2009): 1266.
[342] Williams, “Feeding the World?,” 165.
[343] FOEI, *Who Benefits from Gm Crops? An Industry Built on Myths* (Amsterdan, 2014), 8.

In the US, large transnational biotechnology companies bought many seed companies. Some of those companies have made alliances with other food, pharmaceutical and biotechnology companies to gain more market share. Some others have links to animal pharmaceuticals, creating a concentration and vulnerability of the food system.[344] These companies have not only integrated horizontally, at the same stage of the food chain, but also vertically, through multiple stages, and globally for reaching new markets.[345] Moreover, a series of mergers and acquisitions of large biotechnology companies took place in the 1990s in order to be more competitive. For example, Garst Seeds, an important American seed company, was bought by the Imperial Chemical Industries (ICI), which was later divided to generate Zeneca, which subsequently converted into Astra-Zeneca which was merged with Novartis creating a large and concentrated company called Syngenta.[346]

Another large MNC, Dow Chemical, acquired Cargill Hybrid Seeds, United Agriseeds, and Illinois Foundations Seeds while Monsanto bought DeKalb Seeds and DuPont got Pioneer Hi-Bred.[347] These processes of mergers and acquisitions have the advantage of gaining not only biological resources as germplasm and a marketing network with an extensive production, but also getting experienced plant breeders and technicians who previously were working in the initial companies.[348] The main goal of this integration of companies is to own the biotechnology research data and to expand companies that hold patented seeds with key traits.[349] For example, both Monsanto and DuPont were very attracted to seed companies' acquisitions to integrate crop development, agrochemical production, and seed distribution, allowing them to have broader control of the seed and agrochemical business, thus achieving a commercial advantage over sole suppliers.[350] In addition to the previous reasons and the pursuit of more profitability, these mergers and acquisitions give companies the power to negotiate and set the agenda for research and development because they are just a few owning the patents of seeds and therefore they have become an effective oligopoly.

As a result of mergers and acquisitions, the predominant companies in the agricultural sector are Monsanto, Dow with the subgroup Dow AgroSciences, DuPont with DuPont Pioneer, Bayer with Bayer CropScience, Syngenta, and BASF, referred as" the big six," collectively holding a unique position in the market and integrating biological and chemical technologies in agricultural input markets.[351] The big six are the most important MNCs in the area of agricultural biotechnology, controlling 76% of the global agrochemical sales, 75% of the private sector plant breeding research, and 60% of the commercial seed market.[352] In 2011, the global seed sales totaled US$ 34,495 million, with two-thirds of the sales concentrated in just those six MNCs, thus nearly monopolizing the global seed market [353] and limiting

[344] ETC Group, *Putting the Cartel before the Horse ... and Farm, Seeds, Soil, Peasants, Etc., 2013, 6, http://www.etcgroup.org/content/new-report-putting-cartel- horse%E2%80%A6and-farmseeds-soil-peasants#_edn., Phillips McDougall, The Global Seed Market: Seed Industry Synopsis, 2012.*, 3.
[345] Howard, "Visualizing Consolidation," 1271.
[346] Winston, *Travels in*, 32.
[347] Ibid.
[348] Jack Ralph Kloppenburg, *First the Seed: The Political Economy of Plant Biotechnology* (Madison, WI: University of Wisconsin Press, 2004), 208.
[349] Howard, "Visualizing Consolidation," 1271.
[350] Falkner, *Business Power* , 144.
[351] Keith O. Fuglie et al., *Research Investments and Market Structure in the Food Processing, Agricultural Input, and Biofuel Industries Worldwide* (USDA Economic Research Service, 2011), 30.
[352] ETC Group, *Putting the Cartel*, 3.
[353] McDougall, *The Global Seed Market: Seed Industry Synopsis*, 3.

options for farmers. In 1996, 33% of the agrochemical market was controlled by Syngenta, Bayer, and BASF, increasing up to 52.5% in 2011.[354]

These numbers mean that six MNCs are selling the majority of GM seeds and the chemicals that accompany those seeds as a technological kit, it is a profitable business. Thus, these companies are eager to find new markets and assure old ones. Furthermore, the final goal of those mergers and acquisitions of biotechnology companies is to capture most of the profits from biotechnology which are complementary to their chemical technology and to protect themselves from their competitors' moves.[355] For instance, Monsanto was transformed from a chemical company into a biotechnology company, and it made the greatest number of seed companies' acquisitions in the sector.[356]

Additionally, the top companies had raised their sales considerably a decade later, shown in Table 5.2. For example, Monsanto duplicated its sales from $4 billion to over $8 billion. The three top companies, Monsanto, DuPont, and Syngenta, sell GM seeds and chemicals, having a concentrated business and making farmers more dependable on them. There are also seed companies from Germany with considerable market share, but Bayer is the most important regarding GM seeds.

Table 5.2. Top ten seed companies in the world, 2011

Rank	Company	Seed sales year 2011 (million US dollars)	% Market share
1	Monsanto	8953	26.0
2	DuPont Pioneer (US)	6261	18.2
3	Syngenta (Switzerland)	3185	9.2
4	Vilmorin (France, Groupe Limagrain)	1670	4.8
5	WinField (US, Land O Lakes)	1346 (est.)	3.9
6	KWS (Germany)	1226	3.6
7	Bayer CropScience (Germany)	1140	3.3
8	Dow AgroSciences (US)	1074	3.1
9	Sakata (Japan)	548	1.6
10	Takii & Company (Japan)	548	1.6
	Total top 10	25951	75.3

Source: ETC Group, *Putting the Cartel*.

Furthermore, to be more profitable, the big six have not only got access to other seed companies' resources by mergers and acquisitions but also concluded joint ventures or licensing agreements so that farmers may have apparently more options, and companies may cover more regions.[357] These biotechnology companies have agreed in cross-licensing germplasm and technologies to consolidate their research and development investments, organizing unprecedented alliances and reinforcing mutual beneficial market power.[358] For instance, through licensing and different branded products, it is estimated that Monsanto covers 98% of the US soybean market, 79% of the maize market, and 60% of

[354] ETC Group, *Gene Giants Seek "Philanthrogopoly,"* 2013, 2, http://www.etcgroup.org/content/gene-giants-seek-philanthrogopoly.
[355] Marvin L. Hayenga, "Structural Change in the Biotech Seed and Chemical Industrial Complex," *AgBioForum* 1, no. 2 (1998): 44.
[356] Fuglie et al., *Research Investments*, 34.
[357] Ibid.
[358] ETC Group, *Who Owns Nature? Corporate Power and the Final Frontier in the Commodification of Life*, 2008, 13, http://www.etcgroup.org/content/who-owns-nature.

the corn and soy germplasm authorized in the US.[359] In 2007, Monsanto agreed to collaborate on research and development with other two large companies, with BASF for research and development of drought tolerant and yield increased maize, cotton, canola and soybeans, collaboration valued at $1.5 billion, and collaboration with Dow Agrochemicals for developing GM maize with eight genetic traits.[360] In 2008, Monsanto and Syngenta agreed on cross-licensing agreements, and Syngenta with DuPont realized an agreement for expanding pesticide product portfolios.[361] As a consequence, Monsanto has become the dominant player in the biotechnology industry, having more than 90% of the total biotechnology hectares planted with its GM crops.[362]

Moreover, paying attention to the companies of the agrochemical sector, shown in Table 5.3, we will find that the biotechnology companies selling GM seeds are the same companies selling fertilizers, pesticides, insecticides, herbicides, and fungicides as a technological kit for GM crops. The big six appear in the first six places of the rank for the largest companies in agrochemicals, with a market share of 76.1%, that is to say, most of the market of the agrochemical sector is covered by the big six.

Table 5.3. Top eleven agrochemical companies in the world, 2011

Rank	Company	Seed sales year 2011 (million US dollars)	% Market share
1	Syngenta (Switzerland)	10162	23.1
2	Bayer CropScience (Germany)	7522	17.1
3	BASF (Germany)	5393	12.3
4	Dow AgroSciences (US)	4241	9.6
5	Monsanto	3240	7.4
6	DuPont (US)	2900	6.6
7	Makhteshim-Agan Industries (Israel) acquired by China National Agrochemical Company, Oct. 2011	2691	6.1
8	Nufarm (Australia)	2185	5.0
9	Sumitomo Chemical (Japan)	1738	3.9
10	Arysta LifeScience (Japan)	1504	3.4
11	FMC Corporation (USA)	1465	3.3
	Total top 10	41576	94.5
	Total top 11	43041	97.8

Source: ETC Group, Putting the Cartel. Abridged and adapted by this author.

Additionally, four of those companies are from the United States, and two from Germany, meaning that the major sources of sales of agrochemicals are concentrated in two developed countries. The series of mergers and acquisitions within the biotechnology industry has led to a profound concentration of agricultural biotechnology in the hands of a few American and European companies, with an international network including commercialization, research, and development.[363] The big six have a unique position in the agricultural inputs market because they combine biological and chemical

[359] Carey Gillam, "DuPont Urges U.S. to Curb Monsanto Seed Monopoly," *Reuters*, 2010, http://www.reuters.com/assets/print?aid=USN087196620100108.
[360] ETC Group, *Who Owns Nature?*, 13.
[361] Ibid.
[362] Falkner, *Business Power* , 144–145.
[363] Falkner, "The Troubled Birth," 245.

technologies.[364] Furthermore, it is important to be aware that the major commercial firms in the area of agricultural biotechnology are large chemical companies such as Monsanto or DuPont, and, therefore, they have a long history of working with policy-makers in different jurisdictions.[365]

As a result, research and development are concentrated in a few biotechnology companies. Agricultural research is no longer undertaken by the public sector, but by the private sector of a few industrialized countries.[366] These private companies focus on crop traits and geographical areas that are expected to be profitable.[367] Therefore, biotechnology companies are targeting existing big markets where they can sell the majority of their products, and they are concentrating their research and development on the most profitable crops such as soybeans, maize, cotton, and canola.

Even though agricultural biotechnology is promising for economic development, research has been concentrated just on few foods and only conducted by a few biotechnology companies. Hitherto, only 27 GM crops have been approved around the world, either herbicide tolerant or insect resistant, including the most produced ones such as maize, cotton, potato, canola, and soybean,[368] whereas the less planted are sugar beet, alfalfa, papaya, and squash.[369] Moreover, American companies seeking profits have just developed crops that are suitable for richer farmers of the world that can pay higher prices for GM seeds whereas the developing countries that are unable to afford this technology cannot gain any benefit from GM crops that fit the local needs.[370] The GM crops that are available in developing countries are those that were developed for large markets in North America, which latter were introduced into local germplasm.[371] Moreover, even though it is difficult to estimate how much research is devoted to a particular crop, the largest proportion of GM seed research by private companies is devoted to maize, followed by soybeans, cotton, and wheat.[372] This concentrates knowledge and research in only a few products in which biotechnology companies are specialized.

Research and development also concentrate in the three countries to where biotechnology companies belong. From the big six, Monsanto, DuPont, and Dow are from the US, Bayer and BASF are from Germany, whereas there is just one from Switzerland, Syngenta, all of them focusing mainly in agrochemicals and crop seeds.[373] Actually, all these big six have agricultural research and development facilities in the US, in other countries that cultivate GM seeds, and their country of origin. The budget allocated for agricultural research and development of the big six range from $294 million to $978 million, which is relevant in comparison to public investment from the Consultative Group for International Agricultural Research (CGIAR) that only allocates $178 million.[374] Therefore, new developments in the

[364] Fuglie et al., *Research Investments*, 30.
[365] Peter Newell and Dominic Glover, *Business and Biotechnology: Regulation and the Politics of Influence*, IDS Working Paper 192 (Brighton, Sussex, 2003), 4.
[366] Susan K. Sell, "Corporations, Seeds, and Intellectual Property Rights Governance," in *Corporate Power in Global Agrifood Governance*, ed. Jennifer Clapp and Doris Fuchs (Cambridge, Mass.: MIT Press, 2009), 190.
[367] Diane Osgood, "Living the Promise? The Role of the Private Sector in Enabling Small-Scale Farmers to Benefit from Agro-Biotech," *International Journal of Technology and Globalization* 2, no. 1/2 (2006): 32.
[368] James, *Global Status: 2013*, 9–10.
[369] Ibid., 3.
[370] Joseph Gopo and Patricia Kameri-Mbote, "Biotechnology: A Turning Point in Development or and Opportunity That Will Be Missed?," in *Trading in Genes: Development Perspectives on Biotechnology, Trade and Sustainability*, ed. Ricardo Meléndez-Ortiz and Vicente Sánchez (Sterling, VA.: Earthscan, 2005), 50.
[371] Osgood, "Living the Promise?," 33.
[372] Fuglie et al., *Research Investments*, 39.
[373] Ibid., 19.
[374] Ibid.

area of GM foods are dictated by knowledge originated principally in the US, mainly according to the needs of its farmers and the needs of the other developed countries participating in agricultural research.

Furthermore, research and development concentrate more when the big six partner between each other. For example, Monsanto and BASF have signed a long-term joint agreement for research and development, as well as a commercialization collaboration plan for biotechnology crops such as corn, soybeans, cotton, and canola, more tolerant to adverse conditions such as drought.[375] This joint research and development shows the collaboration of two large MNCs working only in the same crops they have already developed, focused on specific traits and narrowing down options and applications.

Additionally, patents are useful to measure knowledge in a standardized form because they are unique and have a structured format allowing analysis and comparison.[376] The flows of knowledge through patents provide a frame for understanding the sources, acquisition and patterns of the biotechnology industry, and seed companies have been the most abundant source of knowledge in plant technologies and genetic transformation.[377] A study of relevant patents has shown that the big six, DuPont, Monsanto, Syngenta, Bayer, Dow and BASF, along with their biotechnology partners, Mendel Biotechnology and Evogene, control 77%, 201 out of 261 patent families, whereas Monsanto, DuPont and BASF account for 66%, 173 out of 261.[378] In 2010, DuPont owned 44% to the climate-ready GMO patents, BASF 18% and Monsanto 4%.[379] Focusing on the big six, they encompass nearly two-thirds of the GM crop patents in the US, and from these big six, Monsanto and DuPont account for most of them, with 16.8% and 20.7% of the total patents issued from 1976 to 2001 respectively.[380] Furthermore, for MNCs having a patent portfolio in agricultural research with strategically valuable patents means trading for licenses on patents held by others such as research institutions, compromising public institutions which have fewer resources and are obliged to exchange patents in return for access to equipment, specialists techniques, and financial resources.[381]

Public institutions do not have the resources that biotechnology firms have, so private companies have conducted research. In 2007, 70% of the total global spending on research and development in biotechnology was performed by seed-chemical companies.[382] Most of this research was dominated by firms based in NAFTA countries, especially the US, with 53% of total investment done by US-based firms.[383] Indeed, for the climate-ready GMO patent families, only 9% belong to the public sector and the rest, 91%, are owned by the private sector.[384] With the possession of biotechnology patents, MNCs

[375] Monsanto, "BASF and Monsanto Announce R&D and Commercialization Collaboration Agreement in Plant Biotechnology," *Monsanto Newsroom*, accessed January 28, 2015, http://news.monsanto.com/press-release/basf-and-monsanto-announce-rd-and-commercialization-collaboration-agreement-plant-biot.
[376] David Schimmelpfenning and John King, "Mergers, Acquisitions and Flows of Agbiotech Intellectual Property," in *International Trade and Policies for Genetically Modified Products*, ed. Robert E. Evenson and Vittorio Santaniello (Cambridge, Mass.: CABI Publishing, 2006), 97–98.
[377] Ibid., 103.
[378] ETC Group, *Capturing "Climate Genes': Gene Giants Stockpile "Climate-Ready,"* 2010, 1, http://www.etcgroup.org/fr/node/5221.
[379] Ibid., 7.
[380] Fuglie et al., *Research Investments*, 41, 42.
[381] Robert J. L. Lettington, *Small-Scale Agriculture and the Nutritional Safeguard under Article 8(1) of the Agreement on Trade-Related Aspects of Intellectual Property Rights: Case Studies from Kenya and Peru*, UNCTAD/ICTSD Project on IPRs and Sustainable Development (Nairobi, Kenya, 2003), 61.
[382] Fuglie et al., *Research Investments*, 38.
[383] Ibid., 39.
[384] ETC Group, *Capturing "Climate Genes,"* 6.

hold control over distribution and may set the pace for research and development, as previously mentioned, and they are also concentrating knowledge in just a few corporations.

Patents over genetic components of plant varieties offer a high level of control to those corporations that own them because holders control the specific variety or organism in the context where they were identified or developed as well as over other organisms or varieties where the same components may occur.[385] Patents allow companies to have control over different varieties that belong to a family, thus limiting options to farmers and concentrating power, control, research and development in few companies.

5.2.2 MNC operations through associations

Apart from mergers and acquisitions, alliances or licenses, the big six have opted for grouping together to be represented in front of the government and gain more power and legitimacy among society. Sometimes MNCs group together with like-minded firms in specialized trade associations in order to advance common goals of the industry sector.[386] Biotechnology companies share the common interests of promoting the use of agricultural biotechnology and removing regulations that may be a barrier to technological innovation.[387] Therefore, in addition to their own public relations representatives, biotechnology companies choose to join industry associations to represent them.

Furthermore, corporations make efforts to promote GM foods through industry associations, not only through individual efforts.[388] Biotechnology companies associate because GM foods are controversial products, and it is more credible to project an official point of view through a group. Industry associations may be used as a means to shape the political environment because of the concentrated power that they may have. As a result, industry associations' role has become prominent in building the capacity of governments to engage in the GM food trade, which indicates a high level of engagement of industry associations with governments.[389] These industry associations have the advantage to spread knowledge without the stigma or proud of a company's name, promote scientific events, give grants and deliver pro-biotechnology information.

One of the most prominent industry association in the US is the Council for Biotechnology Information, formed by members of leading biotechnology companies and trade associations, whereas at an international outreach two organizations are important: Biotechnology Innovation Organization (BIO) (formerly know as Biotechnology Industry Organization) has an extensive list of members including companies from developing countries, and CropLife International has different national associations such as CropLife America.[390] These organizations are vital in the US because of the influence they have on the government.

[385] Lettington, *Small-Scale Agriculture*, 63.
[386] Rowlands, "Transnational Corporations."
[387] Falkner, "The Troubled Birth," 243.
[388] Williams, "Feeding the World?," 156.
[389] Newell and Glover, *Business and Biotechnology*, 15.
[390] Williams, "Feeding the World?," 156.

> The US biotechnology industry developed into a powerful industrial sector that built up a robust PR [public relations] and lobbying machinery in the form of Biotechnology Industry Organization (BIO).[391]

MNCs instrumental power is executed through their membership to key US policymaking committees in trade institutions, such as the committees to assist trade negotiators who design policies for bilateral, regional, or multilateral trade.[392] The US Trade Representative (USTR) also plays an important role in supporting biotechnology companies. The USTR Agricultural Trade Advisory Committee represents different MNCs such as Monsanto and industry groups such as CropLife America, whereas the USTR's Industry Trade Advisory Committee on Intellectual Property Rights, includes representatives from BIO.[393]

As a result, the elements that enhance the information exchange between private actors and the USTR to monitor goals fulfillment and lobby at national and international instances include industry representation in the USTR advisory committees, the overlapping memberships in industry associations such as CropLife International, and ad hoc mobilization vehicles such as the pro-industry NGO American Bio-Industry Alliance (ABIA), showing coordination between the American government and its industries.[394] Moreover, ABIA was created in 2005 by the American biotechnology industry to have a presence in international bodies such as the CBD. This organization hired experienced staff in negotiations and knowledge in the area of biotechnology, such as Jacques Gorlin as president, and Susan Finston as executive director, both well-known experts in intellectual property rights and trade, who have strong roots in governmental politics and experience in lobbying for pharmaceutical industries.[395] Thus, industry organizations hire experienced individuals to lobby governments and advance in preventing regulation, for example. Additionally, this type of industry organizations that groups biotechnology companies is successful to the point that they do not only operate domestically, but they have extended internationally in order to protect more the biotechnology industry. Thus, international industry associations are relevant to advance MNCs interests, to facilitate interaction among companies and government, and to have influence over government agencies. The principal industry organizations will be explained in the following sections.

BIO

BIO is a trade association that represents biotechnology companies, governmental biotechnology research centers, academic institutions, and organizations that are related to biotechnology across the US and more than other 30 countries in a global network.[396] This organization emphasizes that its members foster the economy by creating good-paying jobs, and it is committed to enriching the biotechnology industry by networking and creating education opportunities. This organization has strong ties with biotechnology companies because of its nature, representing more than 1000

[391] Falkner, *Business Power* , 149.
[392] Sell, "Corporations, Seeds," 191.
[393] Ibid.
[394] Ibid., 194–195.
[395] Ulrich Brand et al., *Conflicts in Environmental Regulation and the Internationalization of the State: Contested Terrain* (London, New York: Routledge, 2008), 69.
[396] BIO, "About BIO," *Biotechnology Industry Organization*, accessed January 19, 2015, https://www.bio.org/node/3089.

biotechnology companies, from pharmaceutical to agricultural biotechnology, and links to the American government gaining support in some cases. As a result, it plays a public-political role in promoting and defending biotechnology on behalf of key MNCs.

According to BIO, this organization has a network aiming to ensure that important decision-makers at federal, state, and local governments understand the perspectives and interests of BIO's members by establishing long-term relationships with government officials and educating them about the biotechnology industry.[397] BIO emphasizes the importance of maintaining contact with policy-makers because public policy affects the financial status of its members and issues such as food labeling, patent laws, FDA and EPA regulations, and GM foods moratoriums also have an effect on companies' capabilities to raise capital and conduct research and investment. As a result, BIO's members have the right to express their concerns and viewpoints on policy decision through BIO, and members will keep informed on the political activities realized in Washington DC, state capitals, and local council to advance their interests.[398] BIO is a powerful organization explicitly concerned about keeping in touch with government officials at different levels of government, and representing its members' interests.

BIO's Section of Food and Agriculture aims to create and advance food and agricultural biotechnology industry policies regarding international affairs, government relations, science, regulations, media, and public relations.[399] This section has its own governing body which includes members from the big six, such as Jerry Flint from DuPont Corporation as chair, Matthias Meder from BASF as secretary, and Philip W. Miller from Monsanto, Bradley A. Shurdut from Dow Agrosciences, and Frank Terhorst from Bayer CropScience as members of this governing body.[400] Therefore, BIO serves for promoting the interests of the big six biotechnology companies. For example, under BIO and the American Seed Trade Association (ASTA), the big six have been meeting since 2010 to plan agreements to make a seamless transition to post-patent regulations.[401] The result has been an accord named Generic Event Marketability and Access Agreement (GEMAA) that seeks to provide growers with the confidence that regulatory authorizations will continue in US exports markets and growers can access to important information about patent expiration.[402] Thus, GM seeds from these companies will continue in the market with new patents, which means more revenues, and BIO domestically will continue working in influencing policy-makers.

Internationally, BIO has different unit members that group the big six, to advance their interests abroad, seeking contact with policy-makers. For example, BIO has a branch in Argentina, named ArgenBIO, which hosts dialogues with the government for the exchange of information which is very important to advance MNCs interests.[403] There is also a branch in Mexico called AgroBIO. This

[397] BIO, "BIO Grassroots Handbook," *Biotechnology Industry Organization*, accessed January 19, 2015, https://www.bio.org/articles/bio-grassroots-handbook.
[398] Ibid.
[399] BIO, "Food and Agriculture," *Biotechnology Industry Organization*, accessed January 19, 2015, https://www.bio.org/node/3851.
[400] Ibid.
[401] ETC Group, *Gene Giants Seek "Philanthrogopoly,"* 3.
[402] Colleen Lerro, "The American Farm Bureau Federation, American Soybean Association and National Corn Growers Association Sign the Accord: Generic Event Marketability and Access Agreement," *Biotechnology Industry Organization*, accessed January 19, 2015, https://www.bio.org/media/press-release/american-farm-bureau-federation-american-soybean-association-and-national-corn-g.
[403] Newell, "Technology, Food," 275.

organization groups the main agricultural biotechnology companies with a presence in Mexico. Such firms are devoted to the development, production and commercialization of new products for agriculture with a basis in the genetic improvement of seeds, and the organization's main aim is to create a favorable environment for the development of this technology in the country.[404]

AgroBIO is intended to represent the agricultural biotechnology industry among Mexican policy-makers and regulators related to the environment, investment, and technology transfer, as well as to be a link between producers, academics, and the biotechnology industry in order to advance research and development in this area.[405] AgroBIO's main members are Bayer CropScience, Dow AgroSciences, Monsanto, DuPont Pioneer, and Syngenta. This organization clearly states that it tries to shape the political environment so that companies may be favored in regulations or approvals. As it can be seen, BIO in Argentina and Mexico operates under the same basic principle: to represent biotechnology companies in front of the government and advance their interests.

CropLife International

CropLife International is a global federation body representing the interests of the biotechnology and agrochemicals industry in the world, with an emphasis on agrochemical companies.[406] In fact, CropLife International has eight corporate members which include the big six biotechnology companies plus Sumitomo Chemical and FMC Corporation, worldwide top agrochemical companies listed in Table 5.3, and members of associations such as AgroBIO Mexico and BIO Section Food and Agriculture.[407] CropLife America groups American developers, manufacturers, formulators and suppliers of plant solutions to agriculture in the US, and its member companies sell and distribute agricultural biotechnology solutions mainly to all American farmers.[408]

This organization has a Latin America branch that includes the same members and has a presence in Mexico. Its main goal is to promote and support laws based on scientific criteria to regulate pesticides and guarantee its market, as well as promote biotechnology and dialogue between the association and society.[409] As BIO, this organization has its own governing body that includes representatives from biotechnology companies. The current president for CropLife Latin America is Roberto Giesemann, DuPont Crop Protection Manager for Mexico and Central America. Also, from Mexico is Eduardo Pérez Pico, regulatory affairs director from Monsanto.[410] Such persons in the governing body play an important role in representing these companies in Mexico as well. Additionally, appointing a person from Mexico for the presidency of this organization shows the importance that Mexico has for biotechnology companies because of the agricultural opportunities and the current debate on GM food acceptance.

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[404] AgroBIO México, "¿Quiénes Somos?," *AgroBio Mexico*, accessed January 19, 2015, http://www.agrobiomexico.org.mx/index.php?option=com_k2&view=item&layout=item&id=2&Itemid=10.
[405] Ibid.
[406] CropLife International, "Members," *CropLife International*, accessed January 20, 2015, https://croplife.org/about/members/.
[407] Ibid.
[408] CropLife America, "About CropLife America," *CropLife America*, accessed January 20, 2015, http://www.croplifeamerica.org/about.
[409] CropLife Latin America, "Descripción," accessed March 2, 2015, http://www.croplifela.org/es/quienes-somos/descripcion-croplife-latin-america.html.
[410] CropLife Latin America, "Junta Directiva," accessed March 2, 2015, http://www.croplifela.org/es/quienes-somos/junta-directiva.html.

ISAAA

Front groups are organizations that intend to reflect the voice of the civil society and have MNCs support, but firms try not to publicize their links with these organizations, consequently the status of the relationship is not easy to conclude.[411] As a result, complementary to the industry associations previously mentioned, there is a front group that generates pro-biotechnology information. The International Service for the Acquisition of Agri-Biotech Applications (ISAAA) collects and publishes figures on global GM crop production. ISAAA is an international NGO that promotes the potential and benefits of agricultural biotechnology to improve small-scale farmers' performance in developing countries by propagating scientific knowledge and facilitating technology transfer through public-private partnerships and by sharing a global knowledge network.[412] This organization is pro-GMOs and through its knowledge centers develops reports on the advance of GM crops in the world. Among its donors, there are government agencies such as the USDA, the US Department of State, and the USAID, other donors specifically in support of GM foods are the US Soybean Export Council and CropLife International, and biotechnology companies including Bayer CropScience and Monsanto.[413] Contributions from the Department of State are not only remarkable because this department tries to project a good image of the country by supporting projects that include research and development of new technologies, but also because it promotes GM crops as a means for farmers to prosper, and indirectly promotes the products of biotechnology companies involved in donations. In the case of the USDA, it is also supporting agricultural biotechnology in some way with these contributions. Moreover, as a complement, USAID has tried to donate GM seeds as humanitarian aid in Africa.

ISAAA has become an important generator of knowledge for biotechnology companies. Agricultural biotechnology industry associations and companies rely on ISAAA's information. For the last 17 years, this organization has released an Annual Brief on Global Status of Commercialized Biotech/GM Crops, authored by James Clive, who is one of the founders of the organization, and this annual report is the most quoted publication about biotechnology crops in the world.[414] Biotechnology companies regularly quote information from ISAAA reports. For example, Monsanto's website references ISAAA's reports to debunk the myth about GMOs as only harvested in the US.[415] Syngenta Mexico website also refers ISAAA's report to evidence different countries cultivating GMOs.[416] Another example is AgroBIO's website that refers to ISAAA's report to explain the different agricultural biotechnology applications under its section of GMOs in the worldwide agriculture.[417] Though ISAAA claims to be an independent organization, it is a promoter of GM foods and has the support from biotechnology companies and the American government.

As a result, industry associations such as BIO, AgroBIO, and CropLife function as negotiators and promoters of GM foods with the government, whereas ISAAA, a civil organization, works as a generator

[411] Rowlands, "Transnational Corporations," 137.
[412] ISAAA, "ISAAA in Brief," *ISAAA.org*, accessed January 25, 2015, http://www.isaaa.org/inbrief/default.asp.
[413] ISAAA, "Donor Support Groups," *ISAAA.org*, accessed January 25, 2015, http://www.isaaa.org/inbrief/donors/default.asp.
[414] James, *Global Status: 2013*, 11.
[415] See http://www.monsanto.com/newsviews/Pages/myths-about-monsanto.aspx, http://monsantoblog.com/2012/09/20/the-myth-about-who-grows-biotech-crops/
[416] See http://www.syngenta.com.mx/mitos-y-realidades.aspx
[417] See http://www.agrobiomexico.org.mx/index.php?option=com_k2&view=item&layout=item&id=92&Itemid=23Ibid.

of information for the industry associations. Because ISAAA is clearly a pro-biotechnology organization, the information it generates emphasizes the benefits of GMOs, the advantages of adopting them, and it tries not to mention the public aversion that these products may have. Therefore, the information that flows to the government promoted by industry associations is biased toward biotechnology, which is natural because of the enterprise spirit these groups have.

5.3 Strategies, instruments, and resources

MNCs are not only interested in selling products and being in the minds and hearts of their consumers, they also desire to gain support from the governments of the countries where they operate. By doing business, MNCs have economic issues and implicitly they have a political participation.[418] MNCs politically participate at different levels, either trying to do business with government agencies or trying to shape the way regulations and public policies are so that these do not affect them negatively. Furthermore, MNCs do not only negotiate at a domestic level but at an international stage too to embrace more influence. Some MNCs prefer to be engaged with the national government of their home country because they can nurture better relations and build trust, where accessibility and representation are well-known and defined, compared to international stages where processes are not opened to non-state actors.[419] Nonetheless, MNCs involved in international decision-making processes benefit from publics that usually are distant, and then it is easy to avoid scrutiny of civil society groups.[420] Though the distance from civil groups seems an advantage, in reality nowadays NGOs also have an international outreach and, as well as MNCs, operate the same strategies at home and abroad scrutinizing MNCs in other parts of the globe, especially when referring to a controversial topic such as GMOs.

In the biotechnology market, the major multinational players are the big six, which are chemical companies as well, such as Monsanto and DuPont, and they have already established a long history of relationships with regulators at different levels or jurisdictions.[421] Commercializing chemicals gives these companies additional experience, liaisons, and opportunities to interact with different regulators. Additionally, government preferences have paved the way for these chemical-biotechnology companies to have a stake when it is a time of negotiating regulations. Biotechnology companies have influenced the US government because of their increasing importance to the economy, combined with a desire of different administrations to support the rise of the biotechnology industry and to maintain the US position as a global leader in agriculture.[422] The US government does not want biotechnology companies to leave the country and operate abroad because of the jobs these companies generate domestically, the research and development endeavors, and the prestige that these firms' brands convey.

MNCs have different ways to influence governments. Firms have command of technology, are ready to access to global sources of capital, and have access to major markets such as America and Europe.[423] Therefore, because biotechnology companies have some global control over supply chains,

[418] Rowlands, "Transnational Corporations."
[419] Newell and Glover, *Business and Biotechnology*, 1.
[420] Ibid.
[421] Ibid., 4.
[422] Levy and Newell, "Oceans Apart?," 13.
[423] Strange, "Rethinking Structural Change," 107.

they are at the center of bargaining with policy-makers for regulations related to distribution and development of GM foods.[424] For example, Monsanto and other biotechnology companies have a confident position in the US market because the government gives priority to business, government agencies provide institutional and political support, and the mass public lack interest on the issue.[425] Though the mass public has been more informed lately by environmental NGOs, the combination of all these factors has allowed biotechnology companies to have interactions with government when it is time to negotiate and also when it is time to deliver information so that for future change of regulations government officials already have the knowledge distributed by biotechnology companies.

In addition to domestic influence, MNCs are also concerned about international fora where different or new regulations can be established. Biotechnology companies have employed instrumental, structural, and discursive power to alter fora, and have joined states to change rules, mainly related to intellectual property rights into trade discussions such as the USTR, the General Agreement on Tariffs and Trade (GATT), and the WTO.[426] Multilateral, regional, and bilateral fora shifting have given more force to global firms along with trade ministers.[427] This strategy of negotiating and interacting at different levels gives MNCs presence, power, and influence. Companies with more resources, high-quality sources of information and better internal organization are more likely to succeed in advancing their issues with policymakers or regulators.[428] Therefore, the big six biotechnology companies with plenty of resources will be present in the international arena, shaping the political environment according to their interests, maybe aligned with the current administration in power at the moment in the US, leaving aside the needs and interests of small producers. In the following subsection, I will identify the immediate, proactive and relationship-building strategic communications, as well as the diplomatic instruments biotechnology companies have used to promote GM foods, as proposed in Chapter 2 in my proposed model of public diplomacy, section MNCs.

5.3.1 Reactive strategic communication

In order to be successful in influencing people, companies need to win the public trust and persuade stakeholders that they are sincere.[429] Monsanto and other companies in the agrochemical business which have had troubles of values and public trust, and a shallow style of public relations, have gained the title of the villain in the GM food debate because the mass public has been skeptical about its standards and behavior.[430] Monsanto has been accused of being a firm that cannot be trusted because is the same company that developed the Agent Orange used in the Vietnam War and now sells pesticides, probably derived from this agent, which are used for GM seeds cultivation. To that accusation, in 2002 Monsanto replied that the company has converted into a new Monsanto which focuses on agricultural products, thus the former Monsanto was a company contracted by the US

[424] Newell, “Globalization,” 68.
[425] Levy and Newell, “Oceans Apart?,” 13.
[426] Sell, “Corporations, Seeds,” 188.
[427] Ibid.
[428] Newell and Glover, *Business and Biotechnology*, 2.
[429] Olins, *Trading Identities*, 38.
[430] Ibid., 38–39.

government in the period from 1965 to 1969 to produce Agent Orange under government guidelines, so the development of this product is attributed to government's research:

> The governments that were involved most often take responsibility for resolving any consequences of the Vietnam War, including any relating to the use of Agent Orange. US courts have determined that wartime contractors (such as the former Monsanto) who produced Agent Orange for the government are not responsible for damage claims associated with the chemistry.[431]

On its website, Monsanto has a section of viewpoints that covers all the controversies in which the company has been involved, such as the previous example of the Agent Orange and other topics such as European bans of GM maize, GM alfalfa, and former Monsanto's products. This website also presents news releases announcing the main achievements of the company. It also has a sign-up email alert to receive information and the latest news about the company. For example, the news release "USDA Deregulates Monsanto's Next-Generation Weed Control Trait Technology," emphasizes the different products of the company that have been deregulated and are available for farmers.[432] This kind of news releases to inform the public is a key point to communicate the achievements of the company and to let know that Monsanto is working in the development and research of new products that will bring more solutions to farmers. It also helps to project a good image and a commitment to transparency.

Another company taking advantage of releasing information to the media is Bayer. When Bayer's General Director Kurt Soland was appointed to his position in 2010, he was interviewed by two important national newspapers in Mexico, El Universal and Excelsior. In both media, he mentioned the company's objectives and Bayer's contribution to the economic development of the country. [433] He emphasized the way in which Bayer may increase Mexico's agrarian sector productivity:

> Nowadays we have an interesting demographic growth. Many persons with 25 years of age in 10 years from now will have other needs and will demand more products. And there is where we have to work, in assisting all the health services and the agriculture… In the agricultural area, Bayer has a plan for launching ten new products before 2012 that, in my opinion, will improve the Mexican agricultural sector productivity.[434]

These media releases help Bayer to build an image of commitment to Mexico's needs, portraying a company that will contribute to the progress of the country, as well as create a connection with the media, and inform the public. Media releases have also permitted the company to highlight its achievements, such as developing new products and hiring a new president who is very experienced in

[431] Monsanto, "Agent Orange: Background on Monsanto's Involvement," *Monsanto Newsroom*, accessed February 10, 2015, http://www.monsanto.com/newsviews/pages/agent-orange-background-monsanto-involvement.aspx.
[432] Monsanto, "USDA Deregulates Monsanto's Next-Generation Weed Control Trait Technology," *Monsanto Newsroom*, accessed February 10, 2015, http://news.monsanto.com/press-release/usda-deregulates-monsantos-next-generation-weed-control-trait-technology.
[433] See http://www.eluniversal.com.mx/finanzas/79568.html, Héctor Rendón, "Depender de EU Nos Limita," Excelsior, 2010, http://www.bayercropscience.com.mx/bayer/cropscience/bcsmexico.nsf/id/0C4DEC4EFEC7B0E7C1257736004AF131/$file/entrevistaexcelsior.pdf.
[434] Héctor Rendón, "Depender de EU Nos Limita," *Excelsior*, 2010, http://www.bayercropscience.com.mx/bayer/cropscience/bcsmexico.nsf/id/0C4DEC4EFEC7B0E7C1257736004AF131/$file/entrevistaexcelsior.pdf.

the industry. As a result, different communication media have emitted unbiased opinions about GM foods, in this case emphasizing Bayer's new general director.

5.3.2 Proactive strategic communication

MNCs try to influence public's point of view through different ways such as advertisements in the press and distribution of educational material.[435] The generation of material containing technical language is an instrument used in proactive strategies that helps companies to change public's opinion about their products, in this case, GM foods. This material can be in the form of audio-visual productions which have the advantages to be reviewed several times, incorporate appealing images to convey a stronger message, and easily be disseminated through different communication media. For example, biotechnology companies take the opportunity of multilateral summit meetings to circulate briefing notes, press releases, and audio-visual material to representatives of developing countries who later on will review the material without the necessity to approach directly to a company representative.[436] It gives them time to digest the information and learn the technical language.

Biotechnology companies generate audio-visual productions not only to promote benefits of GM foods but also to promote the company's products, research, development, and contribution to society. For example, DuPont has a channel in YouTube to show its audio-visual materials that relate to the company's developments and contributions to the world.[437] There is a section for food topics where GM foods are explained. In these videos, top executives from the company present the official position of DuPont about different themes. For instance, DuPont's Crop Protection President Rik Miller discusses the role of science and the importance of crop protection in contributing to food security.[438] There is also a channel for DuPont Mexico which presents the material with subtitles in Spanish, but it is relevant because DuPont's Executive Vice-President Jim Borel explains the way in which DuPont works closely with farmers to fight malnutrition by using improved seeds,[439] and it could be applied to the Mexican farmers. The fact that these top executives are present in such audio-visual productions gives the idea that they are involved in the problems of the farmers, that they care about them, and gives the company a sense of social responsibility by contributing to economic prosperity. Additionally, this material helps to disseminate the company's point of view, present specific vocabulary and promote products.

Bayer CropScience also produces audio-visual material. This company has a channel in YouTube too that contains videos addressing different issues, such as agriculture and public health, innovative solutions to increase yields or real experiences with farmers.[440] There are audio-visual productions that project the opening of different centers for research and development that Bayer CropScience wants to promote. Bayer's audio-visuals target farmers and the general public, for example, there is a video that presents questions and answers about what Bayer CropScience does.[441] This production allows the company to present technical language along with the benefits of using its technology.

[435] Rowlands, "Transnational Corporations," 143.
[436] Newell and Glover, *Business and Biotechnology*, 7.
[437] See https://www.youtube.com/user/DuPont/featured
[438] See http://youtu.be/AC-pOVIdeLs
[439] See http://youtu.be/JBnqd3PHZ8c
[440] See https://www.youtube.com/user/BayerCropScienceUS
[441] See http://youtu.be/agy3FJ5LBgg?list=PL7649122CF706ED46

Another company with a channel in YouTube is Syngenta. It presents three different categories for its audio-visual materials: The Good Growth Plan, interviews with executives, and case studies. With different videos, this company emphasizes the campaign "The Good Growth Plan." It consists of promoting the ways in which the firm may contribute to solving the world's feeding problems for the next 50 years.[442] Additionally, the interviews with executives are audio-visual materials that present the results that the company had in previous years or an introduction to other topics. For example, for the year 2014 results, there is an interview with Syngenta's CEO Mike Mack, who presents financial results in different parts of the world, business highlights, and innovation results.[443] The presentation of the CEO in audio-visual materials makes the company project a sense of trust and transparency.

Dow AgroSciences YouTube channel introduces audio-visual materials from the company around the world to let know what the company is doing in other countries, explaining how its products may solve farmers' problems.[444] It also includes some videos about how its products work in the field. Though these company videos do not include interviews with executives of the company, it incorporates interviews with general managers conducted on television. It also entails some testimonials from farmers affirming the success they have had by using Dow AgroSciences products.[445] These audio-visual productions support the company to promote its products and project a sense of social responsibility by presenting solutions.

BASFAgro displays in its YouTube channel a series of audio-visual productions related to enhancing farmers' work in the world, labeling it as "the biggest job."[446] Additionally, there are some other videos related to the events that BASFAgro has organized, and a playlist devoted to the topic of sustainability and to explaining how BASF Crop Protection contributes to sustainability around the world. These videos allow BASF to promote its products and the solutions they have for producers. Furthermore, its emphasis on recognizing the farmer's labor appeals directly to the farmer because they may feel that the BASF is sympathetic to their job and shows the importance that farmers represent to the company.

What is remarkable with all these audio-visual materials is that all biotechnology companies emphasize the way they contribute to solving the world farming problems, how producers are facing a higher demand for food in the future, and, therefore, the solutions MNCs may have to alleviate world's hunger. As a result, audio-visual productions are a very useful instrument for a proactive strategic communications that is popular among companies and stakeholders familiarized with technology. This instrument is also an excellent way to deliver information to government officials because this is public material, easy to access, and with appealing images that attract the attention. It is also an excellent way to train in scientific language because of the visual aid it conveys. This material can be used along with long-term strategies, for example including them in presentations at seminars or exhibits in order to be more successful in the promotion of biotechnological products.

[442] See http://youtu.be/tqI1kYN027U
[443] See http://youtu.be/4LtvuBqi47U
[444] See https://www.youtube.com/user/DowAgroSciences
[445] See http://youtu.be/RN34rvg_wNE
[446] See https://www.youtube.com/user/BASFAgro/featured

5.3.3 Relationship-building strategic communication

Reactive and proactive communication strategies help MNCs to persuade different stakeholders with diverse messages and thus shape opinions of current issues or to respond to possible problems that companies may face. In order to establish stronger relationships with the different stakeholders, MNCs may employ relationship-building strategic communications. Consequently, MNCs may influence the ways in which decision-makers and the general public perceive policy alternatives.[447] By influencing perceptions and convincing policy-makers on the MNCs arguments, the political environment can be shaped, and regulations may favor companies. The different instruments implemented for building relationships are analyzed in the following sections.

Lobbying

Companies have been trying to influence the government almost since their creation. However, different strategies to persuade policy-makers have evolved. Lobbying can be performed by biotechnology companies' representatives or through industry groups in order to have a stake in government and persuade policy-makers of deciding about certain regulation. Furthermore, this tactic has been so powerful that is not only implemented domestically, but it is also performed internationally due to the interests that MNCs have overseas. Lobbyists from firms consider that it is more important and effective to influence policy-makers at a domestic level where national negotiations are agreed.[448] Lobbyists hired by biotechnology companies to manage their regulatory affairs are known to the national regulators thanks to the history of frequent interactions because of the problems that the chemical industry has faced previously in the home country.[449] Moreover, lobbying focus in the home government has advantages such as access to policy-makers in regular private meetings, conversations at clubs, personal contacts because of previous issues discussions, and as a result, sometimes policy-makers may satisfy MNCs petitions.[450]

Additionally to the activity of lobbying, the environment in which lobbyists are immersed is significant for getting access to policy-makers and let their information to be passed. The informal networks and information exchanges in the form of dialogues that occur between company staff and members of the government are important to advance in the companies' interests.[451] However, there is a disadvantage of lobbying domestically. MNCs suffer from different political cultures of the countries where they are operating, and endure from the role NGOs strategies, generating peculiar challenges which companies need to adapt into their political strategies.[452]

Lobbying the Congress may be an effective instrument to influence the government to obtain certain results. An example of success is the prevention of national GM food labeling in the US, where the farm lobby and industry groups have been the most vocal about supporting GM foods.[453] Biotechnology

[447] Rowlands, "Transnational Corporations," 134.
[448] Newell and Glover, *Business and Biotechnology*, 2.
[449] Ibid., 4.
[450] Rowlands, "Transnational Corporations," 138.
[451] Newell, "Technology, Food," 275.
[452] Newell and Glover, *Business and Biotechnology*, 2.
[453] Heike Baumüller, "Trade in Biotechnology: Development and the Clash Fo Collective Preferences," in *Trading in Genes: Development Perspectives on Biotechnology, Trade and Sustainability*, ed. Ricardo Meléndez-Ortiz and Vicente Sánchez (Sterling, VA.: Earthscan, 2005), 61.

companies themselves have also lobbied to prevent such legislation. For example, Monsanto has spent a big amount of money on lobbying allocating $18.5 million from 1999 to 2004 for this activity to maintain the current regulatory system and prevent GMOs be treated differently from conventional counterparts preserving the principle of substantial equivalence.[454] Monsanto lobbying efforts have been successful to the extent that GM food opponents argue this company has an overdue influence on governments to prevent stringent regulations and has extensions in the government which generate the revolving door. Monsanto's official position about the excess of influence over government states that indeed Monsanto advocates for policies based on sound science because any organization has the rights to do so:

> It is true that Monsanto, like our opponents, advocates our position before governments. Specifically, we advocate for supportive policies, regulation, and laws that are based on the principles of sound science. In addition, we thoroughly follow local laws and conduct routine audits to ensure our efforts are transparent, appropriate, and legal.[455]

Indeed, any company must follow the laws and regulations where it operates. Therefore, in that way Monsanto does not act out of the law. Moreover, to advocate in front of governments to have policies that support companies' practices is also a part of the business spirit. Though the influence of this company over government cannot be measured, indirectly it can be seen that regulations in the US in regards to GMOs have not changed, and the principle of the substantial equivalence remains the same for the evaluations of GM foods. Furthermore, the project for labeling GMOs has not been extended further than three states in the north of the country.

Regarding the revolving door, Monsanto argues that individuals in any business sector regularly try to find a job that better match their experience, and in the pursuit of a better job they may shift from a governmental to a private position. It does not mean that people that have worked for Monsanto and now works for the government is not sympathetic to the company and is not going to favor it.

> One objection opponents of biotechnology have raised is the fact that some former government employees have gone to work for Monsanto, and some former Monsanto employees now have jobs in the public sector. Some critics say this shows conspiracy by Monsanto and the government. Such theories ignore the simple truth that people regularly change jobs to find positions that match their experience, skills, and interests.[456]

As a result, employing people who have previous experience in government may help companies to advance their interests with the government. These individuals already know the way in which government agencies work and can transfer their knowledge to companies and deal with government easier. These shifting individuals also know government officials that still work in the targeted agency that companies are lobbying, thus they facilitate people contacts and transfer of information.

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[454] Bill Lambrecht, "Monsanto Lobbies to Keep the Status Quo for Gene-Altered Crops," *St. Louis Post-Dispatch*, 2005, http://www.stltoday.com/stltoday/news/stories.nsf/nation/story/11DD9EA02CA2A2258625707900045E3F=3FOpenDocument&highlight=3D2,"Monsanto=."

[455] Monsanto, "Myth: Does Monsanto Have Undue Influence on Governments?," *Monsanto Newsroom*, accessed February 9, 2015, http://www.monsanto.com/newsviews/pages/revolving-door.aspx.

[456] Ibid.

Additionally, biotechnology companies lobby their national government pursuing a particular effect internationally. MNCs usually lobby policy-makers in their home country to have more opportunities for their preferences to be adopted in international environmental agreements.[457] MNCs have become more active as interest groups in international negotiations because multilateral environmental agreements are increasing, and as a result, the business lobbyists that focus on international policy-making are also expanding.[458] Because MNCs are affected by environmental agreements, they try to persuade the possible results. MNCs lobby for free trade and influence the discussion on international investments protocols, encouraging particular sorts of technology.[459] Moreover, industry lobby groups nowadays are present at the negotiation of environmental treaties as a routine because environmental issues have an economic impact on the industry, such as chemicals or biodiversity.[460]

To increase influence, MNCs are part of national delegations in international negotiations in the development of global environmental politics.[461] One of the strengths of MNCs is that they have many financial resources to fund lobbying activities, and such resources allow them to represent their interests in different international contexts at different periods of time.[462] Larger MNCs can employ professional lobbyists or hire ad hoc legal or scientific expertise to follow and influence international negotiations which are multiple and require many resources.[463] Such scientific experts are relevant for MNCs to gain credibility among the governmental participants who already have experts. MNCs also lobby overseas national governments, particularly sympathetic ones willing to include their ideas into intergovernmental negotiations.[464] Furthermore, MNCs do not only lobby national governments, but they also lobby international organizations such as the Food and Agriculture Organization (FAO) that has been lobbied by the agrochemical industry.[465]

Another international instance lobbied and politicized by MNCs is the CBD. Because major agricultural importers are opting for signing the Cartagena Protocol, MNCs trade may be affected by its provisions. During the Cartagena Protocol negotiations in 1999, Monsanto, DuPont, and Syngenta sent representatives to different meetings,[466] participating directly in these negotiations and indirectly through groups. In these negotiations, industry groups offered monetary contributions in the form of workshops, training for developing country regulators or policy-makers, and software for the Biosafety Clearing House of the Cartagena Protocol, support hard to refuse even though governments know it could be at risk of influence from the private sector.[467] During the first round of negotiations of the Cartagena Protocol in 1996, eight industry groups were present, whereas in the 1999 negotiations 20 groups, including BIO, were representing companies.[468]

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[457] Rowlands, “Transnational Corporations,” 138.
[458] Falkner, *Business Power* , 9.
[459] Rowlands, “Transnational Corporations,” 134.
[460] Jennifer Clapp, “Transnational Corporate Interests and Global Environmental Governance: Negotiating Rules for Agricultural Biotechnology and Chemicals,” *Environmental Politics* 12, no. 4 (2010): 3.
[461] Rowlands, “Transnational Corporations,” 141.
[462] Falkner, *Business Power* , 28.
[463] Ibid.
[464] Rowlands, “Transnational Corporations,” 139.
[465] Ibid., 140.
[466] Clapp, “Transnational Corporate Interests,” 6.
[467] Newell and Glover, *Business and Biotechnology*, 6.
[468] Clapp, “Transnational Corporate Interests,” 6.

Industry groups have been committed to advance their interests in these negotiations, so they employ individual lobbyists to perform different activities on behalf of the group to be more successful. During the party meetings of the Cartagena Protocol, industry groups lobby delegates in the corridors and host information sessions stressing the possible economic consequences of the regulations that may be adopted by the parties.[469] They track the negotiations, coordinate meetings, organize email discussions and telephone conferences, elaborate new positions of the group, give feedback, and make consultations to the group's members about developments.[470] As a result, companies have continued lobbying the Meetings of the Parties to the Cartagena Protocol despite the government has not signed the agreement.[471] Participation through industry groups has allowed companies to take a unified position that is not divided along regions or country lines, but is presented as an integrated position during the talks.[472] Consequently, biotechnology companies have participated in the form of industry groups and as individual firms to have different ways of representation.

Furthermore, during the negotiations done by the US delegation at the CBD sessions for the Cartagena Protocol, representatives from biotechnology companies have participated as industrial consulting observers, and they have lobbied to influence the US position.[473] Even though that the United States is not a part of the CBD, its delegation has participated in the negotiations. In international negotiations and working groups, there is pressure from the US to adopt GM technology, to say that there are no risks on GMOs, and even to modify methodologies for risk evaluation in Mexico.[474] Additionally, a way of pressuring is through documents and economic organizations, such as the OECD, or through working groups, through other countries alike, and lobbying.

> In the Cartagena Protocol, the United States is not a party, but it always attends as an observer. For example, in the working groups about risk evaluation, you will find that United States government and American industry specialists participate though they are not a party of the Protocol. Such condition should give them a low level of decision-making. However, they push so much, and decisions are made according to what is convenient to them. Furthermore, because it is not a participant country, they do this decision-making through like-minded countries that are parties to the Protocol, and they have tried to do it via Mexico, lobbying and filtering information and their vision.[475]

Therefore, biotechnology companies through delegations on the CBD have influenced other governments to prevent these of adopting the regulations proposed by the Cartagena Protocol. These firms have also lobbied the American government to prevent the adoption of the Cartagena Protocol as well. The possible effect is that such protocol has not been strengthened in Mexico, for example, and stricter regulations have not been adopted.

[469] Falkner, *Business Power* , 175.
[470] Newell and Glover, *Business and Biotechnology*, 16.
[471] Falkner, *Business Power* , 174.
[472] Clapp, "Transnational Corporate Interests," 4.
[473] McAfee, "Neoliberalism on the Molecular," 211.
[474] Interview with a government official of SEMARNAT (Mexico City), Februray 02, 2014.
[475] Ibid.

Conferences, Congresses, and Seminars

Conferences, congresses, and seminars are valuable instruments to deliver information, promulgate scientific findings and technical vocabulary, and present recent developments to audiences interested in a specific topic. They are also helpful for networking because attendees share converging interests. These instruments offer the opportunity for individuals to exchange information about the latest biotechnology developments, talk about what personnel has been changed in the firms, or share ideas about new policies.[476] Furthermore, biotechnology companies do not only implement conferences in the US, but they also bring this instrument to other parts of the world because it works well to promote GM foods and their products in general. They do not directly organize such events but facilitate industry groups to do this.

BIO produces an annual biotechnology industry gathering called the "BIO International Convention," bringing together biotechnology stakeholders from around the world, including meetings with industry-leading investors and partners.[477] This convention includes agricultural biotechnology that accommodates GMOs. During the convention, leading biotechnology companies and other biotechnology organizations, top pharmaceutical companies, academic institutions, researchers from laboratories, and government agencies unite to discuss trends or show their new developments. This conference is important in economic and diplomatic terms for two main reasons. First, companies pay to have a stall and be present at the event to present their information and innovations. Second, it is also a political event because government agencies are present to have a voice in the convention. Sometimes people from the government perform as keynote speakers at some point in the convention, showing the importance of this event to politicians and being an opportunity for the participants to interact with officials and to present information apart from the noise of environmental NGOs.

For example, for the BIO International Convention 2014, former Secretary of State Hillary Clinton was invited as keynote speaker. Her presence was relevant because biotechnology is an important issue in her agenda, and she is interested in gaining support from the biotechnology sector. She explained her position toward GM foods:

> I am in favor of using seeds and products that have been proven track record… scientifically approvable… Talking about drought-resistant seeds, and I promoted those all-around North Africa, by definition, they have man-engineered to be drought-resistant, and that's the beauty of them.[478]

Hillary Clinton has not only been in favor of using GM foods, but she also has promoted them as Secretary of State representing the American interests abroad. Furthermore, she recognizes that the debate about GM foods has unfolded for many years and there is a gap between what the facts and the perceptions are, commentary that attendees to the BIO Convention applauded because of the misconception about this area of research: "I've been involved in a lot of political debates in other

[476] Peter Newell, "Bio-Hegemony: The Political Economy of Agricultural Biotechnology in Argentina," *Journal of Latin American Studies* 41, no. 01 (2009): 51–52.
[477] BIO, "About BIO."
[478] Hillary Rodham Clinton, "Keynote," in *BIO International Convention* (San Diego, CA: June 25, 2014), https://mybio.org/profile/member/611436.

countries about whether or not to accept certain types of seeds."[479] This involvement means that Hillary Clinton has tried to persuade politicians and policy-makers to change perceptions about GM foods and shape the environment to make GM foods acceptable. For example, when Hillary Clinton was in the US Department of State, she started to switch the way in which food aid is done by creating a program called "Feed the Future" to shift from emergency feeding and food aid to educate the farmers on how to feed, showing them how GM seeds are not going to hurt them. This program consisted of talking directly to farmers, not just working from the top with prime ministers or presidents, but from the bottom line with the people involved in farming, eliminating their concerns and making people understand better the topic.[480] Hillary Clinton also has emphasized that changing the vocabulary is something essential to advance in GM foods, and she encouraged companies and BIO to work on that:

> We tried to change the calculation so that people understand better what we were talking about, and genetically modified sounds Frankensteinish, drought-resistant sounds really something you want, so how do you create a different vocabulary to talk about what it is you're trying to help them.[481]

Hillary Clinton is also promoting a new vocabulary to talk about GM seeds and convert them into more appealing products with no connotations of engineering or human intervention. What is remarkable is that she not only favors GM foods, but she also advises biotechnology companies on how to convey a better message to sell their products. Moreover, Hillary Clinton has been accused of forming part of the revolving door of Monsanto because she worked as a counselor for this company at Rose Law Firm in Arkansas. This firm offers services in intellectual property, trade regulation, and environmental law, among other services, and has clients from the chemical industry.[482]

In addition, BIO conference may have an effect on the Mexican political environment. Mikel Arriola, commissioner of COFEPRIS, was present at the BIO International Convention 2014. He participated in three panels as speaker, including one on global challenges and opportunities for biotechnology.[483] The participation of this Mexican government official is important because he is the director of COFEPRIS, the agency that formulates sanitary regulations of the production, commercialization, imports and exports of agrochemicals, foods, and biotechnology products. Therefore, COFEPRIS authorizes the GM foods to be consumed and commercialized in Mexico. By attending to this sort of conventions, Arriola gets the current information and trends in biotechnology, and he also can get information by interacting directly with biotechnology companies' representatives. He also projects his position in favor of biotechnology which is going to be transferred to the rest of COFEPRIS personnel because as head, he sets the agenda at the commission. Furthermore, he has been accused by Mexican NGOs of forming part of the revolving door in Mexico.

At a more local level, the International Tomato Congress takes place in Mexico each year. This event consists of gathering tomato producers from North and South America to participate in educational

[479] Ibid.
[480] Ibid.
[481] Ibid.
[482] See http://www.roselawfirm.com/about-us/our-clients. In the history section, they mention former members including former Secretary of State Hillary Clinton.
[483] "Emerging Opportunities in Global Markets Forum Day 1," *BIO International Convention*, 2014, https://mybio.org/event/member/104558#speakers.

sessions, conferences, and workshops conducted by experts, which are complemented with a commercial exposition of agricultural products.[484] Though this congress is very focused on tomatoes, biotechnology companies take advantage of the exposition to promote their products, especially agrochemicals that can be used in almost all crops. "Seminars, often on very technical themes concerning biotech, provide an opportunity for people to come together, gossip about the latest technological and political developments."[485] Besides, the environment is useful to share specific information about biotechnology. For example, DuPont Agriculture was present at the International Tomato Congress 2014 in Sinaloa, a state important because it generates 40% of the produce of the country.[486] This company attended with the objective of showing its portfolio of agricultural products to Mexican producers, particularly to those in Sinaloa interested in increasing their productivity, as the manager of pesticides, Marco Jiménez highlights:

> Since the launching of Cyazypyr® last September, we have traveled through all the country meeting farmers in more than 100 parcels, which has helped us to demonstrate consistent results in the improvement of quality and quantity of fruits, and that can contribute to the country's food security and enhance key crops exports. This is particularly important in a context in which the country has a 67% of self-sufficiency and is the second importer of foods worldwide.[487]

As a result, in such event, DuPont promoted its pesticides which are big business for the company. Pesticides are not only limited to be used on GM crops but also are used in conventional crops in which Sinaloa's farmers would like to invest to keep competitiveness in the agricultural market. Furthermore, DuPont Crop Protection Manager for Mexico and Central America, Roberto Giesemann, explained in that event that Sinaloa is a good example of agricultural success, and it is as productive as other competitive zones in the world:

> If we work together in collaboration, and replicate the experience of the use of new technologies and high productivity of states like Sinaloa in zones where agricultural potential has not been used, we can achieve the food security that Mexico needs… DuPont joins to this challenge and works closer to the Mexican agriculture.[488]

Therefore, DuPont takes advantage of such events to project its products, technology, and solutions to farmers' problems. It does not directly promote GMOs but indirectly presents them in the DuPont agricultural products portfolio. This company also gains awareness among farmers and government officials who also attend the congress.

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[484] "Congreso Internacional Del Tomate 2014," accessed February 28, 2015, http://www.cvent.com/events/international-tomato-congress/event-summary-2d6a3835afd149969940577f7f4a1bd8.aspx?lang=es.
[485] Newell, "Technology, Food," 275.
[486] DuPont México, "Agricultores de Sinaloa Adoptan Tecnologías de DuPont Para Protección de Cultivos, a Fin de Elevar Su Productividad," *Media Center DuPont*, 2014, http://www.dupont.mx/corporate-functions/media/press-releases/agricultores-de-sinaloa-adoptan-tecnologias.html.
[487] Ibid.
[488] DuPont México, "Necesario Replicar Experiencia Del Campo de Sinaloa Para Alcanzar Seguridad Alimentaria En México: DuPont Agricultura," *Media Center DuPont*, 2014, http://www.dupont.mx/corporate-functions/media/press-releases/necesario-replicar-experiencia-del-campo-de-sinaloa-para-alcanza.html.

Awards

Awards are a stimulating reward to keep individuals interested in agricultural biotechnology and to get the attention from the government agencies involved in regulations. Awards are also a way to acknowledge individuals' careers and contributions to the area of biotechnology. Moreover, biotechnology companies grant awards to government officials through industry groups; they do not perform it directly in order to prevent a possible conflict of interests. However, officials who receive these awards feel sympathetic to the industry. For example, Thomas Vilsack, former governor of Iowa and now secretary of agriculture, was awarded Governor of the Year in 2001 by BIO. This organization recognized his commitment to increment Iowa's visibility as an excellence center for agricultural research, to improve the economic climate for the biotechnology industry in the state, and to create the Governor's Biotechnology Partnership, which succeeded thanks to Vilsack's dedication to the biotechnology industry.[489] Through this award, BIO gains sympathy and preference from Vilsack. As a result, he may be promoting GMOs at the USDA.

CropLife Latin America also grants awards. During the CropLife International Forum VI in Mexico, this organization gave an award to Mikel Arriola, director of COFEPRIS, the same Mexican commissioner that attended the BIO conference and is a pro-biotechnology person. In that forum, president of CropLife, Roberto Giesemann, who is also the DuPont Crop Protection manager for Mexico and Central America, emphasized that the award recognizes the work COFEPRIS has done in teamwork with the US Environmental Protection Agency, and the Pro Modified Racing Association (PMRA) from Canada on a new analysis system for molecules, becoming a leading authority in Latin America and showing evidence of the scientific and technical level of its personnel.[490] Furthermore, Mikel Arriola announced that new molecules would be for sale in the next months, and this system allows Mexican farmers to have access to new technology and to reach the level of US and Canada. Hence, these companies use awards as an instrument to reach policy-makers and influence them in some way.

Internal research centers

Another instrument for relationship-building strategies that biotechnology companies attempt individually is setting up of internal research centers. MNCs rely on the investment in research centers for the following reasons: to expand research and development, to establish good relationships with the host government by giving prestige to the host country and projection as a vanguardist country regarding technology and innovation, and to provide new opportunities for employment. For example, in 2014, Monsanto launched its Global Center of Technology in the state of Jalisco, Mexico, to accelerate the development of hybrid maize seeds, as well as to support the programs of genetic improvement of maize from the US and other parts of the world.[491] Furthermore, Monsanto's Latin America General Director Manuel Bravo emphasized that through the creation of this center, Monsanto affirms its commitment to

[489] Dan Eramian, "Iowa's Vilsack Named BIO Governor of the Year," *Biotechnology Industry Organization*, 2001, https://www.bio.org/media/press-release/iowas-vilsack-named-bio-governor-year.
[490] CropLife Latin America, "VI Foro México 2013," *Foro Internatinal CropLife*, accessed March 4, 2015, http://www.croplifela.org/es/vi-foro-mexico-2013.html.
[491] El Financiero, "Monsanto Instala Centro Global de Tecnología Para El Desarrollo de Híbridos de Maíz En México," *El Financiero*, 2014, http://www.elfinanciero.com.mx/empresas/monsanto-instala-centro-global-de-tecnologia-para-el-desarrollo-de-hibridos-de-maiz-en-mexico.html.

Mexico because the center will hire Mexican scientists and researchers, analyze samples from over 70 countries, and propose solutions to benefit millions of farmers here:

> It is intended to obtain new varieties tolerant to diseases and distress that affect maize cultivation around the world because of the growing adverse conditions of the climate change that are occurring at an international level.[492]

In addition to respond to the adverse conditions of the climate change that Manuel Bravo foresees in different countries, establishing this center in Mexico gives Monsanto credibility and a sense of social responsibility because the company is supposed to develop products for specific needs in the country, and contribute to scientific knowledge in biotechnology with impact in other areas of science.

Additionally, in 2012 Bayer CropScience also opened a Seed Treatment Application Center (STAC) in the same state, Jalisco. This center is planned to advance the research of seeds and offer new technology that farmers may apply. Bayer's Global Director of Seeds Treatment Mathias Haug, highlighted the center's main purpose in Mexico:

> STAC's mission in Mexico, as well as the other countries where centers have established, is to provide advice and support to our clients with state-of-the-art technology for the treatment of seeds, with the objective of assisting the improvement of their productivity and competitiveness.[493]

Furthermore, through this center Bayer CropScience is interested in research of products to protect crops whether using new varieties of seeds or developing new agronomic characteristics with higher quality and yields. Activities performed by STAC are related to four main streams: products portfolio, technology applied to seeds, technical training, and equipment for seeds treatment.[494] These four streams are part of a long-term relationship-building strategy because Bayer includes new products, technology, and technical training all through the center. These four streams strategy has allowed and facilitated Bayer to commercialize its products in Mexico. Bayer has used local names in its products to appeal to farmers, such as the pesticides used for corn and sorghum named *Poncho*, which is a very typical and familiar nickname in Mexico. That pesticide is to be used with the seeds developed by Bayer, which probably are genetically modified, if not, they are hybrid seeds that the company has already developed. With this strategy, this company is also reassuring its market. Moreover, this center is part of a global network of 10 centers that Bayer CropScience is building around the world, such as China, Brazil, Argentina, and New Zealand, [495] where Bayer is assuring larger markets or gaining new ones.

Syngenta will also open the Seed Care Institute research center in Jalisco. Through this center, Syngenta will bring new seed technologies available for farmers in Mexico and the rest of Latin America,

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[492] Ibid.
[493] Bayer CropScience México, "Bayer CropScience Inauguró Su Nuevo Centro de Alta Tecnología Para El Tratamiento de Semillas," *Información de Prensa*, 2012, http://bayer.com.mx/Bayer/CropScience/bcsmexico.nsf/id/STAC.
[494] Ibid.
[495] See http://news.agropages.com/News/NewsDetail---5957.htm, http://www.soyatech.com/print_news.php?id=27969, http://www.seedgrowth.bayer.co.nz/more/promoting-a-fully-integrated-system-for-on-seed-applications-with-bayer-seedgrowth?id=%7B65AD9011-AE19-4F29-8678-5EC031905510%7D

aiding farmers in increasing productivity and profitability for the agricultural sector.[496] This firm is establishing research centers to have a presence in a specific geographical area of Mexico, Jalisco, a state characterized by developing a technology cluster. Furthermore, as a proactive strategy, biotechnology companies create public-private partnerships. In developing countries, funding for biotechnology research is affected by public-private partnerships because private sector keeps the control of these partnerships.[497] In order to coordinate research, have a stake in preparing scientific training, and contributing to knowledge, Syngenta has created a public-private partnership with CIMMYT and MasAgro (a governmental program for agriculture), as Syngenta's general director in Mexico claims:

> We have an alliance with the International Center for the Improvement of Maize and Wheat (CIMMYT) in order for the MasAgro program to have more impact in the southeast of Mexico, where we expect to convert it to the use of hybrid varieties of high technology. The secret lies in the conversion to use new technologies.[498]

Though he is referring mainly to the use of hybrid seeds, GM seeds can be included as an alternative. This partnership represents a big business for Syngenta because, in the future, it will sell its seeds to Mexican farmers or to SAGARPA which usually buys seeds to aid small-scale farmers. Additionally, SAGARPA is the government agency responsible for managing the MasAgro program and contributes with budget to this partnership.

DuPont Pioneer also has opened research centers in four states of the country that are important in terms of agriculture: Jalisco, Sinaloa, and Guanajuato,[499] and more recently in the southeast of the country, Chiapas. The southeast region center is intended to develop hybrid seeds that are resistant to adversities of climate in the region of Chiapas, Central America, and the Caribbean, focusing in maize seeds, contributing to raising agricultural productivity in the southeast of Mexico with its research and development.[500] This company also emphasizes the importance of developing maize hybrid seeds through its center, DuPont Pioneer's Director Ricardo García de Alba expresses:

> We are very satisfied with announcing that with the hybrid seeds developed by this Center, we will contribute to increasing the domestic production of corn in the next years, aligning our commitment to providing food security to more than 100 million Mexicans.[501]

Though the main objective of DuPont Pioneer apparently is not developing GM seeds through these centers, it has made a request to cultivate GM soy in the region. Also, having access to a market with over 100 million individuals becomes attractive either selling hybrid or GM seeds.

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[496] Angélica Hernández, "Syngenta Abrirá Centro de Investigación de Semillas En Jalisco," *El Financiero*, 2014, http://www.elfinanciero.com.mx/economia/syngenta-abrira-centro-de-investigacion-de-semillas-en-jalisco.html.
[497] Williams, "Feeding the World?," 160.
[498] María del Pilar Martínez, "Biotecnología Bajaría Importación de Granos: Syngenta," *El Economista*, 2014, http://eleconomista.com.mx/industrias/2014/07/29/biotecnologia-bajaria-importacion-granos-syngenta.
[499] Oscar González-Escárcega, "Ve DuPont Escenario Favorable En México," *El Universal*, 2012, http://www.eluniversal.com.mx/finanzas/93646.html.
[500] Omar Becerril, "DuPont Se Asienta En El Sureste," *Dinero En Imagen*, 2014, http://www.dineroenimagen.com/2014-02-17/32758.
[501] José de Jesús Zárate, "Inauguran Primer Centro de Investigación Para El Desarrollo Agrícola Del Sureste Mexicano," *Agrosíntesis* (Chiapa de Corzo, 2014), 13, http://www.agrosintesis.com/component/content/article/49-front-page/922-inauguran-primer-centro-de-investigacion-para-el-desarrollo-agricola-del-sureste-mexicano.

Dow AgroSciences opened in 2013 a center for research and development in Jalisco state as well.[502] This company is also interested in promoting GM seeds in Mexico because it represents a large market. This company affirms that its biotechnology business focuses in giving genetic solutions to improve agricultural products for different uses, including use for humans, by introducing genes that alter the features of food, converting Dow AgroScience in a biotechnology leader.[503] Dow AgroScience is more involved in developing GM seeds to give solutions to farmers through its research center. This strategy allows Dow AgroScience to be closer to farmers, to project the research done at the center, and to promote GM foods in a smoother way.

Exhibits

Exhibitions and expos are an opportunity for biotechnology companies to be in direct contact with producers and to show them the advantages and benefits of their technology. This instrument is helpful with a controversial issue such as agricultural biotechnology because it is a way to present the biotechnology companies' point of view away from the opponents. Attendees to the exhibits have the time and interests on the topic so they will pay attention to what companies explain. For example, in Mexico each year, the *Expo Agroalimentaria* takes place in the state of Guanajuato and is considered one of the most important expos in the country because it gathers international and domestic agrochemical, seeds and machinery companies, as well as government agencies. In November 2015, DuPont Pioneer and DuPont Crops Protection were present in the expo. DuPont Pioneer presented a demonstrative parcel showing the benefits of its hybrid seeds, whereas DuPont Crops Protection presented a portfolio of pesticides.[504] This strategy allows DuPont to present two products in different stands at the expo that are complementary when the time of cultivating. By showing an actual application of its products to the expo, farmers will be aware of the possibilities that these products may give and could be convinced of adopting DuPont's technology. It is possible that DuPont Pioneer showed GM seeds because of the importance of the event where many farmers gather. Furthermore, DuPont Pioneer's Director for Latin America Ricardo García del Alba emphasizes the research that the company undertakes:

> Because of the importance of sorghum in this zone, we have a research center in Irapuato particularly for this crop which has allowed us to develop local high-development hybrids, specifically designed to contribute to the challenges posed to the farmers of this zone.[505]

This exhibit, in addition to presenting products and technical consulting, allows DuPont to refer to its centers of research where they design the seeds. As a result, farmers and government officials who attended the seminar will be aware of the products that DuPont sells. Additionally, other companies that were present at that expo were Monsanto, Dow AgroSciences, Syngenta and BASF, along with other independent seed companies from the US such as United Genetics Seeds Co., and US Agriseeds Inc.

[502] The Dow Chemical Company, "Nuestra Historia," *Dow En México*, accessed February 25, 2015, http://www.dow.com/mexico/la/mex/es/about/history.htm.
[503] The Dow Chemical Company, "Historia de Dow AgroSciences En México," *Dow AgroSciences México*, accessed February 25, 2015, http://www.dowagro.com/mx/quienes/historia.htm.
[504] Alejandra Gaucín, "DuPont Ofrece Soluciones Sustentables Para El Campo Del Bajío Mexicano," *NN Noticias*, 2014, http://www.nnnoticias.mx/dupont-ofrece-soluciones-sustentables-para-el-campo-del-bajio-mexicano/.
[505] Ibid.

In this expo, Mexican government agencies such as SAGARPA and SENASICA, and scientific institutions such as CIMMYT were present.[506] Therefore, this expo is a great venue to present products, information, and the research that companies do. Expos are an opportunity for firms to exchange information not only with farmers but also with government representatives.

Another important expo that takes place in Mexico is the Expo Agro Sinaloa. In February 2015, expo number 25 gathered participants from different industrial sectors, around 500 companies including biotechnology, food, agrochemicals, seeds, pesticides and fertilizers companies, from 15 countries.[507] This expo is important because representatives from government agencies are also present. Furthermore, in the opening ceremony Secretary of Agriculture Martínez y Martínez gave a speech and announced the possibility to export corn and sorghum to China which is very interested in white maize from Sinaloa.[508] Negotiations with China become important because this country has rejected GM maize from the US for a particular strain from Syngenta and imported maize from Ukraine.[509] Nowadays, China is seeking for more corn suppliers such as Mexico due to the current political stability that Ukraine lives. Furthermore, GMO opponents in Mexico have considered such rejections as China's movement away from GMOs consumption by arguing that China prefers Mexican corn because it is healthier. Therefore, this expo is a popular venue where political objectives may be presented, companies may disseminate the information and research they conduct, new advances in biotechnology may be exposed, and firms may convince farmers to adopt such technologies.

Scientific training

Scientific training is a very powerful instrument that may help companies to get closer to farmers. It is also the perfect tool to educate producers about the advantages that GM foods may have. Additionally, in the long-term it contributes to a relationship between farmers and the company. This instrument has a sense of social responsibility because companies share knowledge to those who request it and are interested. Preparing and implementing scientific training involves incorporating specific ideas, vocabulary, and methods that want to be delivered to the recipients of such training.

Monsanto's scientific training is through academics and universities collaboration. This training consists of sharing agronomic data and recommendations with academics and universities to conduct field trials of GM foods with the objective of evaluating the safety and performance of new products.[510] Another way to perform scientific training is by serving as graduate degree advisors and academic mentors because Monsanto's scientists keep relations with the universities where they graduated from, and they participate in dissertation committees.[511] Furthermore, Monsanto's strategy to change its image consists in making projects of connection with the society, extended to the 130 countries where the company is present and with over 3000 collaborators as ambassadors at schools in local

[506] See http://registro.expoagrogto.ahmreg.com/directorio/giro.php#academico to know all the participants
[507] Verona Hernández and Danira Rodríguez, "Inauguran La ExpoAgro Sinaloa 2015," *Línea Directa*, 2015, http://www.lineadirectaportal.com/publicacion.php?noticia=232852.
[508] Ibid.
[509] Niu Shuping and David Stanway, "China Rejects More U.S. Corn due to GMO as State Sales Approach," *Reuters*, 2014, http://www.reuters.com/article/2014/03/25/china-corn-usa-idUSL4N0MM0KY20140325.
[510] "Collaborating With Academics and Universities," accessed March 21, 2016, http://www.monsanto.com/improvingagriculture/pages/collaborating-with-academics-and-universities.aspx.
[511] Ibid.

communities, with neighbors and families to promote the use of technology in food.[512] Working in localities allows Monsanto to be in direct contact with farmers to promote GM foods and educate them on how to use GM food technology. Consequently, working with academics and universities represents a formal scientific training, whereas working in localities means a more friendly way of training in the use of GM foods.

All the instruments and strategies presented in this section have helped biotechnology companies to promote GM foods in the first place, additionally to their regular products as seeds or pesticides. These strategies have also helped these firms to be more in contact with farmers because of the degree of specialization of some of the instruments used, and to interact with government officials who are also present in some of the events. The messages that biotechnology companies deliver are relevant as well in order to gain GM foods acceptance.

5.4 Messages delivered by biotechnology companies

MNCs routinely communicate their particular standpoint about environmental issues to the public in different ways, such as the release of advertisements, corporate publications, and annual reports, as well as the presence of corporate leaders in parliamentary hearings and public debates to promote the business perspective into the environmental debate.[513] In general, proponents of GM foods argue that these products will benefit farmers, consumers and the environment all over the world because agricultural biotechnology will increment the quantity and quality of food, reduce the use of pesticides, and the costs of production.[514] Furthermore, biotechnology companies and industry groups have narrowed down their messages to this set of solutions.

In order to promote GM foods, biotechnology companies emphasize three main arguments: the first is the improved efficiency and environmental sustainability, second the eradication of world hunger, and lastly, the enhancement of nutrition for the developing countries.[515] These messages refer to the promise that small-scale farmers will benefit someday from biotechnology because it will help feed the world's poor, finalize food insecurity by incrementing yields and nutritional value of foods, and deliver resistance to drought, virus, and salts.[516] Advertisers from the biotechnology industry promise the idea that new agricultural biotechnology is designed and implemented to serve humanity, such as BIO, which produced a campaign of $52 million-dollar to suggest that GM crops are more productive and nutritious than conventional products, and are the key to feeding the growing world's population.[517] This BIO campaign emphasized the hypothetical benefits that GM foods may provide in the future for consumers and the promise to contribute to solving these problems through the use of GMOs.

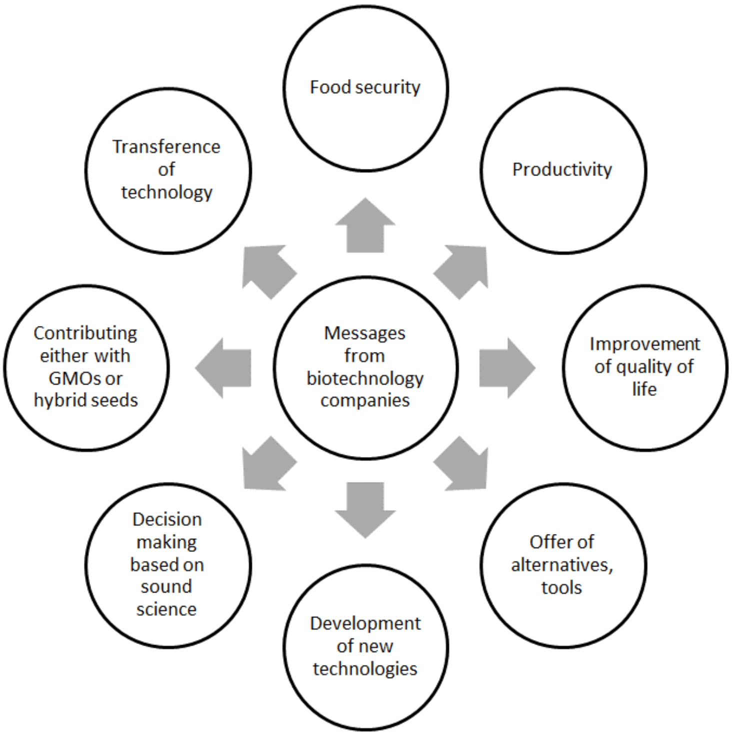
Additionally, in order to generate better perceptions in the mass public, biotechnology companies are starting to change some vocabulary to refer to GM foods. For example, these companies in Mexico

[512] Roberto Arteaga, "El Mexicano Que Quiere Cambiarle La Cara a Monsanto," *Forbes México* (Des Moines, 2014), http://www.forbes.com.mx/el-mexicano-que-quiere-cambiarle-la-cara-monsanto/.
[513] Falkner, *Business Power* , 32.
[514] McAfee, "Neoliberalism on the Molecular," 204.
[515] Williams, "Feeding the World?," 166–167.
[516] Osgood, "Living the Promise?" 30, 31.
[517] McAfee, "Neoliberalism on the Molecular," 212.

have changed the M for modified in GM foods to M for improved, for its meaning in Spanish, giving a positive connotation instead of a negative one projected with the word modified associated with transgenic. Biotechnology companies try to avoid words such as GMOs, GM foods, or transgenic food. They prefer to say improved seeds, improved food, but nothing referred to genetic engineering.

The main themes for promoting GM foods that biotechnology companies use are presented in Figure 5.1. The main message is that they will contribute to food security by producing GMOs. These companies use the estimations presented by the FAO's Development Agenda and the Millennium Development Goals that forecasts that the world has reached 7 billion people, and by 2050 there will be 9 billion people and the food demand will increase by 60%.[518] These indicators are included in the ISAAA's reports that biotechnology companies rely on. Therefore, the information presented by this organization is crucial for the design and delivery of messages by biotechnology companies.

Figure 5.1. Themes presented in the messages of biotechnology companies



Source: Elaborated by the author.

By referring to the FAO's 2050 estimates of population, biotechnology companies argue that they will contribute to food security through the use of GM foods, thus they appeal to a sentiment of political correctness of who would oppose to solve the problems of food security and save people from hunger. Because of the necessity of solving food insecurity, productivity is essential to accomplish that goal, so incrementing productivity and increasing yields become another component of the messages of these firms. Added to productivity, offering alternatives or tools for farmers come along, as well as the efforts that biotechnology companies do by developing new technologies that will contribute to solving all these problems. By using GMOs or hybrid seeds from these companies that will aid farmers, a better quality

[518] FAO, "La Agenda de Desarrollo Post-2015 Y Los Objetivos de Desarrollo Del Milenio: Tierra Y Suelos," *FAO*, accessed February 28, 2015, http://www.fao.org/post-2015-mdg/14-themes/land-and-soils/es/.

of life can be expected for these producers. Furthermore, there are some companies that consider that the transference of technology, from the company to the farmer, is the main tool they can give farmers to increase productivity. In the following section, I will explain how biotechnology companies have used these messages to target stakeholders in Mexico.

5.4.1 Companies' individual messages

Getting access to biotechnology companies representatives is not easy. These firms do not want to be in the spotlight and prefer to keep away from the media, unless they are opening research centers, giving awards or need to deliver a special message, such as adding a new member to their staff. Furthermore, some communication media have recognized that the biotechnology sector characterizes by hermeticism, such as *Revolución 3.0*, an independent electronic publication in Mexico that intends to do in-depth analysis of trending topics. This medium, however, got an interview with Monsanto's manager of biotechnology products, development, and regulatory affairs, Juan Manuel De la Fuente, who talked about the characteristics of GMOs, the need to exchange genetic information to get a product with desired features, and the policies for products whose patents have expired.[519] De la Fuente accentuates that genes are necessary to avoid certain pests, which is a message that biotechnology companies and pro-biotechnology groups usually promote, along with the specificity of genes to avoid certain problems that farmers may face. Also, he argues that GMOs are innocuous and are approved by regulators:

> A biotechnology crop has additional genetic information. DNA per se is not a problem, but what it expresses or not is what a safety analysis is about. And, to determine if it is innocuous, you have to do a whole series of evaluations to see whether it is transgenic, if it contains a non-toxic protein, that the food characteristics do not change, and this is a wide analysis. There are authorities that are in charge of gathering information from you as a developer in order to analyze what happens with that GMO from a safety point of view. In Mexico, there are regulations for GMOs.[520]

Even though Monsanto's commercialization strategy is to expand to Asia and Africa, Mexico is still an important market for their hybrid and GM seeds, Vice-President for Corporative Commitment Madrazo explains. Also, because the Mexican government now is planning a reform to the countryside that may allow the commercialization of GM foods, the company expects to contribute to improving producers' activities:

> Monsanto's commitment to Mexico is beyond the biotechnology of corn. Our commitment is to keep on bringing the innovations that, under the current and future regulations, will help farmers to produce with fewer resources and improve their quality of life whether with conventional technology or biotechnology for tomorrow.[521]

[519] Valentina Botero-Pérez, "Entrevista Exclusiva Con El Director de Asuntos Reglamentarios de Monsanto: Revolución Tres Punto Cero (VIDEO)," *Revolución 3.0*, May 26, 2013, http://revoluciontrespuntocero.com/entrevista-exclusiva-con-el-director-de-asuntos-reglamentarios-de-monsanto-video/.
[520] Ibid.
[521] Arteaga, "El Mexicano."

Additionally, Madrazo delivered a message of the company's concern about the estimated population for 2050, emphasizing that this represents an opportunity for Monsanto to contribute to solving the problem of food increasing requirements. Therefore, the use of GM foods from Monsanto may help solve this sort of problems in Mexico.

Syngenta's main objective is to develop new technologies in order to help farmers to increase their productivity, protect the environment and improve their quality of life, thus they may contribute to feeding the nine billion people that will live in the world by 2050.[522] Additionally, according to Syngenta's Mexico General Director Francisco Valdés González, farmers' productivity is one of the main issues to be solved in Mexico, and biotechnology is a way to tackle the deficient food production:

> Nowadays there are 116 to 118 million people in Mexico, in 2050 there will be 30 million more people, and we are going to be 150 million. This means that we will have to feed the current population plus a population of the size of Canada, that is to say, we [as a country] have to be prepared to be more productive in the zones where currently we are producing food… The challenge of producing food is big. However, there are alternatives to control environmental factors, and Syngenta is working very hard on developing these technologies that may help the producer to be more efficient with crops, and to have a higher productivity level in the same land surface.[523]

Syngenta's general director is delivering the main message of contributing to food security by using the company's products. This message is not only targeted to farmers who apply such products in cultivation, but also to government officials who support farmers and should be concerned about feeding more Mexicans in the future considering FAO's predictions about the growing population. Additionally, under the frame of increasing productivity, Syngenta Mexico's strategy to promote GM foods consists in the transference of technology to farmers to overcome the problem of productivity.

> What we are trying to do is the transference of technology to Mexican farmers, and we also know that the big opportunity in agriculture that we have in Mexico is to do a technological change. If we take as a reference the corn cultivation in the country, we can see that, in the north, farmers produce 10 tons per hectare, in the center, six to eight tons, and in the south, two to three tons per hectare. Therefore, the use of technologies such as improved seeds, the correct fertilization, the right protection of crops to defend them from pests, sicknesses, and weeds, is where Syngenta plays a key role. And it is where Syngenta through its investments, around 10% of global total sales, invests more than one billion dollars in research and development. Every day we are generating new technologies to place them in the hands of farmers.[524]

Through this message, Syngenta suggests that the company has the solution for increasing productivity in the vulnerable regions of the country because the company has different products.

[522] Syngenta México, "Acerca de Syngenta," *Syngenta*, 2013, http://www.syngenta.com.mx/acerca-de-syngenta.aspx.
[523] Dario Celis, "Entrevista Con Francisco Valdés González Director General de Syngenta México" (Mexico, 2014), http://youtu.be/RuQnk65ad0A.
[524] Ibid.

Investments in research and development are also emphasized to demonstrate a sense of responsibility though that budget is allocated for Syngenta's centers around the world. There is also a change in vocabulary in order not to give bad connotation to GM foods, such as the use of words like improved seeds and the correct fertilization.

DuPont has declared food security as a priority for research and development. To solve this problem, DuPont is committed to maximizing the potential of seeds under any condition and increase the nutritional value of foods by investing in infrastructure and agricultural development.[525] Furthermore, DuPont Mexico's President Luis Rebollar explains that for 2050, the world's total population will increase from seven to nine billion people, implying a worldwide food production increase of 70%, thus for DuPont it is imperative to develop new products with higher quality, quantity, and availability.[526] Consequently, DuPont Pioneer will contribute to food security by developing, and afterward selling improved, hybrids or GM seeds.

DuPont Pioneer strategy to promote GM foods in Mexico is to appeal to farmers' productivity with the promise to become exporters of corn, along with giving agricultural recommendations to farmers to improve their performance. Ricardo García de Alba, DuPont Pioneer's business director, claims

> We need to collaborate to achieve the objectives, the potential is in the agricultural sector, and farmers can produce more with fewer resources. That is why we have 30 years working in Mexico.[527]

Through these messages, DuPont makes clear that the company also has a solution for tackling the problem of an increasing world population. By using their products, farmers will increase productivity and food production to cover the demand. Therefore, productivity increment is DuPont Pioneer's message to promote GM foods, along with collaboration with farmers who need training related to these new technologies.

As a result, biotechnology companies use the same themes for promoting of GM foods. They change some words to give a different connotation and gain more acceptance. Representatives from these companies prefer to appear in the media when it is time to communicate achievements such as new technologies, centers of research or awards. Furthermore, biotechnology companies prefer to be represented by AgroBIO, organization that projects a more scientific and socially responsible image.

5.4.2 AgroBIO

AgroBIO's mission, as explained above, is to represent biotechnology companies among Mexican policy-makers and be a liaison between producers, academics, and the biotechnology industry. Furthermore, AgroBIO projects itself as an option for farmers to access to new technologies that allow them to be more productive:

[525] DuPont México, "Seguridad Alimentaria, Una Prioridad Para DuPont," *Media Center DuPont*, 2014, http://www.dupont.mx/corporate-functions/media/press-releases/seguridad-alimentaria-prioridad.html.
[526] Zárate, "Inauguran Primer Centro," 8.
[527] Notimex, "Semillas Híbridas Abatirán Importaciones: DuPont," *20minutos*, 2014, http://www.20minutos.com.mx/noticia/b117092/semillas-hibridas-abatiran-importaciones-dupont/.

> As an association, we have the mission to disseminate objective, reliable, and verifiable information from the source about what the genetically modified crops are, their applications and their benefits. In that sense, the five firms that compose our association share this interest of being able to transmit in an accessible way all this information to the stakeholders.[528]

Among its activities, AgroBIO produces events related to risk evaluation and GM crops monitoring, as well as international GMOs regulation and socio-economic aspects of biotechnology application in Mexico. Additionally, AgroBIO develops informative material to promote biotechnology knowledge, as well as current and future applications. It participates in important events involving agricultural, industrial, governmental, academic and health sectors.[529] Therefore, this organization elaborates and disseminates enough information about agricultural biotechnology and its advantages.

AgroBIO's position toward GM foods is that biotechnology is amicable to the conservation of biodiversity, it is not a panacea but a viable and sustainable alternative that may contribute to raising the productivity of maize, explains AgroBIO's General Director Alejandro Monteagudo.[530] Furthermore, he emphasizes that agricultural biotechnology should be one of the tools to be included in the structural reform to the countryside proposed by President Peña Nieto, and members of their association feel optimistic about the possibility of the inclusion of biotechnology in this reform,

> It should be, and it deserves to be evaluated in an objective way with scientific rigor, beyond beliefs, and beyond ideologies from particulars. Technology that has demonstrated to be innocuous, that can contribute to sustainable growth and development of the countryside and thus contribute to our food security. So we feel optimistic, it will be a part of the reform to the countryside for sure.[531]

The countryside reform includes a proposal for incrementing farmers' productivity as well as the introduction of biotechnology, equipment, and strategic raw material such as seeds and fertilizers.[532] Biotechnology companies expect SAGARPA to allow GM maize cultivation in order to flood farmers with GM seeds. Therefore, AgroBIO along with biotechnology companies are promoting GM foods prior the executive drafts a bill of the reform and send it to the Congress for approval.

Moreover, Monteagudo emphasizes that agricultural biotechnology could make the Mexican agricultural sector more productive because Mexico has been importing 10 million tons of maize each year. Those tons of imported maize are genetically modified and then, Mexicans consume GM foods, feed the cattle with GM maize, and also use it in industrial processes. Consequently, AgroBIO suggests that Mexico should produce what it consumes and the money spent on those imports may be utilized in making Mexican producers and the countryside prosper.[533] Furthermore, because this type of corn is

[528] Dario Celis, "Entrevista Con Alejandro Monteagudo Director General de Agrobio México" (Mexico: Excélsior TV, 2014), April 25, http://youtu.be/a9M6VuYAYrc.
[529] AgroBIO México, "Actividades Principales de AgroBIO México," *AgroBio México*, accessed January 22, 2015, http://www.agrobiomexico.org.mx/index.php?option=com_k2&view=item&layout=item&id=3&Itemid=11.
[530] Matilde Pérez U., "Maíz OGM: Entrevista Alejandro Monteagudo," *La Jornada Suplemento Maíz*, 2014.
[531] Celis, "Entrevista Con Alejandro Monteagudo."
[532] See http://www.sagarpa.gob.mx/quienesomos/reforma_campo/Paginas/default.aspx
[533] Ibid.

already consumed in Mexico, the same corn should be cultivated in the country. By adopting GM maize, the agricultural sector could be more competitive, Monteagudo argues:

> Now it is recognized that the Mexican agricultural sector is producing half of its potential, it is recognized that something must be done, and also, it is recognized that there is a necessity of introducing technology to the agricultural sector to make it more productive.[534]

Monteagudo also argues that trials of GM maize in the north of the country have generated findings that confirm that GM maize is equivalent, in agronomical terms, to conventional maize. As a result, GM maize cultivation in Mexico will help to face climate change, will bring health benefits because farmers will be less exposed to agrochemicals, will contribute to relieve the food security of the country, and will contribute to reducing farmers' migration, Monteagudo expresses.[535] Hence, AgroBIO promotes GM foods in Mexico in order to advance in food security and progress in the agricultural sector, and because GM maize is still not authorized to be planted for commercialization, just for trials, AgroBIO disseminates information to gain support and approval from the government.

GM maize is not the only product that AgroBIO promotes. Cotton and soybeans are also GM products that are worth of promoting. In the case of cotton, this crop is in a commercialization stage. This crop has been cultivated for over 17 years and is successful because Mexico moved away from being a net importer of cotton to self-sufficiency, with expectations of becoming an exporter of this commodity.[536] In the case of soybeans, Mexico imports over 93% of the soy it consumes, so there are high expectations in the southeast of the country about planting this crop in a commercial way.[537] As a result, these two GM crops have the potential to be exported in the future according to AgroBIO.

5.4.3 La Neta de Tu Planeta

AgroBIO is not only concerned about gaining support from government officials, but also from the public. AgroBIO promotes biotechnology in an informal and friendlier way through the website called *La Neta de Tu Planeta.* Consequently, Monteagudo also has encouraged information access:

> I want to make an invitation to the audience to keep informed about agricultural biotechnology, its applications, benefits, and risks, which can be identified, handled, and mitigated in a responsible way. So in that sense, please visit us, we have a campaign called *La Neta de Tu Planeta* which goal is to divulge this information. We will be glad to see you there on those media channels and on social media to contribute to a responsible dialogue for a very serious topic.[538]

As a result, there is a strong impulse for this website to be exposed and known, and it is the official statement of AgroBIO and the firms it represents. As previously mentioned, this website emphasizes the benefits of agricultural biotechnology. Moreover, AgroBIO also keeps hermeticism as biotechnology

[534] Roberto Arteaga, "Maíz Transgénico Daría Competitividad a México," *El Financiero*, 2013, http://www.elfinanciero.com.mx/opinion/columnas/jorge-ayala-blanco/.
[535] Pérez U., "Maíz OGM."
[536] Celis, "Entrevista Con Alejandro Monteagudo."
[537] Ibid.
[538] Arteaga, "Maíz Transgénico Daría."

companies because media sometimes does not present all the arguments of the organization, and it argues that AgroBIO's official position can be found on the institutional web page, media interview, and *La Neta de Tu Planeta* website.[539] Additionally, AgroBIO takes into account the current Mexican legislation such as the LBGMOs, and Mexican Official Norms (NOMs), as well as accumulated evidence and global scientific consensus about GM foods as a basis for making decisions of biosecurity.[540]

The aim of this website is to offer updated information about agricultural biotechnology in Mexico and the world, to disseminate knowledge about the responsible use of modern technologies, and to offer useful and demonstrable data about GM foods.[541] AgroBIO leads this initiative which is supported by other regional associations of seed producers in the north of the country interested in GM crops, such as National Organization of Cotton Producers which already harvest GM cotton. *La Neta de Tu Planeta* explains that AgroBIO groups up agricultural biotechnology companies in Mexico, and the data it provides include information from scientific publications and from ISAAA, which is an organization with international endorsement and an a set of research centers to mitigate hunger and poverty through the application of agricultural biotechnology.[542] Consequently, as ISAAA is a center to mitigate hunger and poverty, this idea is transferred to *La Neta de Tu Planeta* which also is concerned about the same topic

Additionally, to inform the public, *La Neta de Tu Planeta* publicized a radio debate about GM foods in Mexico in 2015. Fernanda Tapia from W Radio 96.9 FM organized the radio debate.[543] The general director from AgroBIO and two legal representatives from Monsanto defended the position of biotechnology companies and answered questions from the environmental NGOs in Mexico. In such debate, issues such as GM food potential, labeling, patents, contracts, biodiversity, and coexistence were explained, and the opponents expressed their arguments. This debate is the first of this kind with participants from both positions to take place in Mexico. As a consequence, the participation in this event is part of media relations of the immediate strategic communications that industry groups follow and is intended to reach more people and educate consumers about the benefits of GM foods. Through this strategy, biotechnology companies indirectly promote their products and try to convince the mass public that their research is based on science.

Another instrument to promote GM foods used in proactive strategies is visual productions. *La Neta de Tu Planeta* has created a series of printed advertisements that declare that GM foods can coexist with their natural counterparts, are safe for human consumption, able to take care of the environment, and are a way for self-sufficiency in Mexico, as shown in Figure 5.2. This material displays images related to corn, which is relevant in the Mexican culture, and to nature, and presents different verbal messages to convince people that GM foods are an attractive option.

[539] Jaime Padilla (scientific and technical director, AgroBIO), email message to the author, January 23, 2014.
[540] Ibid.
[541] "¿Qué es 'La Neta de Tu Planeta'?," accessed January 28, 2015, http://lanetadetuplaneta.com/cultivos-transgenicos-organismos-geneticamente-modificados-ogm.php.
[542] Ibid.
[543] Fernanda Tapia, "'Triple W': Debate Transgénico" (W Radio, 2015), http://wradio.com.mx/programa/2015/02/25/audios/1424900760_648452.html.

Figure 5.2. GM foods printed advertisements from *La Neta de Tu Planeta*

Source: *La Neta de Tu Planeta*, http://lanetadetuplaneta.com/anuncios_impresos.php.

From left to right and top to bottom, we can see the following messages: In Mexico, different ways of producing maize can coexist; Transgenic foods are safe for human consumption; Let's take care of the environment!; What if we produce what Mexico eats? These messages strongly emphasize maize because of the debate about accepting GM corn in the country. They also contain the themes that biotechnology companies encourage in every public statement they do. Consequently, biotechnology companies, AgroBIO, and *La Neta de Tu Planeta* are coordinated to send the same message about GM foods. They way in which they have promoted them among stakeholders in Mexico is indirect, through advertising, public relations, and media communication, as shown in the following section.

5.5 Stakeholders targeted in Mexico

MNCs communication strategies are directed to diverse audiences in Mexico, with different degrees of response. Biotechnology companies individually deliver messages to general audiences emphasizing different concerns they have and are consistent and coincident among the different biotechnology

companies present in Mexico. Although MNCs do not directly promote GM foods to Mexican government officials, they indirectly promote them through AgroBIO. Not all officials have responded in the same way and to the same degree, however. There are some more involved in the events that AgroBIO organizes, and there are some others still skeptical to such events. Additionally, due to uncertainty from people, questioning from NGOs, and scrutiny from the media, biotechnology companies do not feel very comfortable in sharing information directly with people, they prefer to post their information on websites, press releases, and newsletters for subscribers. Therefore, AgroBIO has made major efforts to promote GM foods on behalf of biotechnology companies, not only among policy-makers but also among media and mass public. GM food promotion has been in the way of awards and also by creating other ways of communication such as *La Neta de Tu Planeta* (The Real Truth about Your Planet) initiative, which is a website that explains the advantages of GMOs.

Moreover, biotechnology firms in Mexico are working very enclosed to public. When I contacted biotechnology companies, AgroBIO answered that the only and official position they have toward GM foods is posted on the website *La Neta de Tu Planeta*. This website is narrowed to the advantages of using GM crops, including the possible benefits for growers, more productivity in the farmland, more and better foods, better life for farmers and their families, better use of water, and agriculture and water protection.[544] Below I will explain the official position of the biotechnology companies that have made public statements in Mexico, the position of AgroBIO and afterward the messages disseminated through *La Neta de Tu Planeta* initiative.

5.5.1 Mexican government agencies

Developing countries' regulators have been subjects of pressure from biotechnology industry in order to accelerate application procedures of biotechnology development and avoid undue delay.[545] Mexico's government has made its regulation according to domestic needs. However, because this is an intermestic issue, there are international as well as domestic factors that influence biotechnology policy. Currently, Mexican stakeholders debate whether to allow GM maize cultivation and commercialization, and biotechnology companies want to take advantage of this ambivalence to present arguments in favor. In Mexico, there are only field trials of GM crops resistant to insects and tolerant to herbicides or the combination of both, but there is no cultivation of drought resistant crops, Alejandro Monteagudo from AgroBIO states and wonders when this technology will be applied in the country.[546] He insists that biotechnology companies interested in submitting requisitions to cultivate GM crops will have to follow step by step for each case, according to the LBGMOs. Monteagudo expects the government to give a resolution to the requisitions that Monsanto presented on 2013 regarding the commercialization of GM maize in the north of the country:

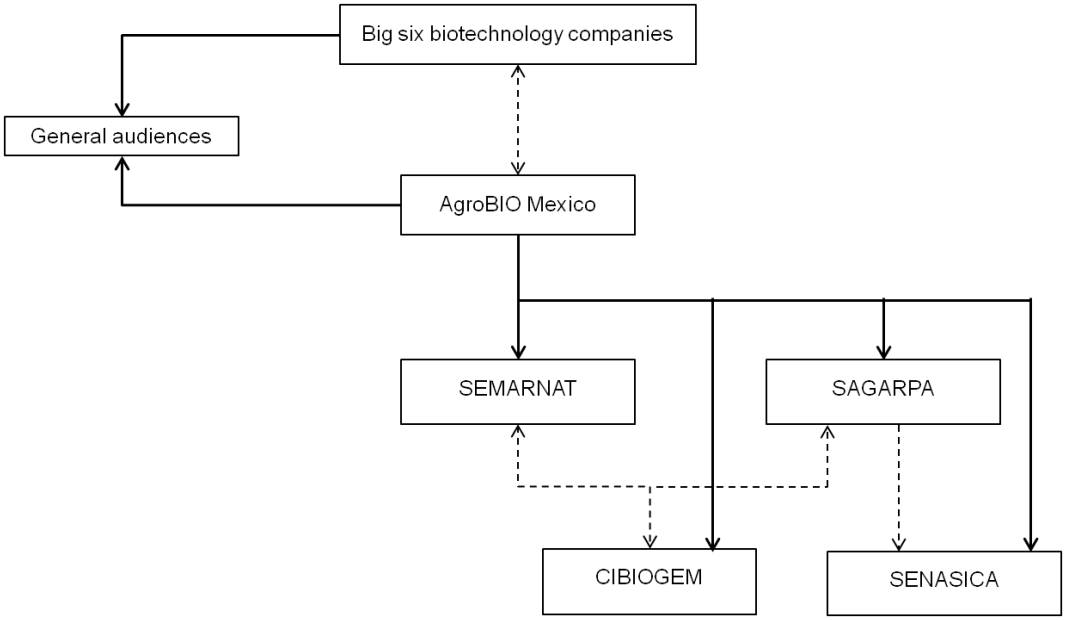
[544] "La Neta de Tu Planeta. Beneficios Y Ventajas de Los Transgénicos," accessed January 28, 2015, http://www.lanetadetuplaneta.com/#familias1.
[545] Newell, "Globalization," 66.
[546] Pérez U., "Maíz OGM."

> We expect that authorities may respond to the producers that are demanding these products. Having permissions to cultivate GM maize on a commercial scale does not mean that the country is invaded by this sort of crop because, like any other product in the market, it will have to demonstrate that is reliable and convenient. We expect that the right of the producer to choose may be recognized, that decisions are made based on scientific evidence and not in suppositions and ideologies, and to have clear instruments of public policy to take advantage of this technology.[547]

Consequently, biotechnology companies and AgroBIO try to influence the government to take a position toward GM maize based on science and lift the moratorium on these products. Though communication and pressure are not direct over government agencies, MNCs persuade through media releases. The flow of information from biotechnology companies and AgroBIO is not direct, as shown in Figure 5.3. However, government officials are regularly exposed to the public messages that this industry group emits to promote GM foods. General audiences become important in the context of Mexico because they press government through NGOs, farmers groups, and public opinion.

Furthermore, a softer way to press government agencies to accept GM foods is through events organized by AgroBIO. With the objective to encourage research and dissemination of agricultural biotechnology, AgroBIO annually awards researchers and scientists in this area since 2003. There are four categories of agricultural biotechnology awards: research, journalism, knowledge and conservation of biodiversity, and universities.[548] These awards stimulate research on agricultural biotechnology, and it seems that research highlighting the benefits of GMOs is awarded.

Figure 5.3. Information delivery from biotechnology companies to the Mexican government



Note: the dotted lines mean the communications among government agencies and the bold arrows refer to the communication between MNCs and the Mexican agencies.
Source: Elaborated by the author.

[547] Ibid.
[548] AgroBIO México, "Antecedentes," *AgroBio México*, accessed January 23, 2015, http://www.agrobiomexico.org.mx/index.php?option=com_k2&view=item&layout=item&id=17&Itemid=44.

These awards may be biased because the evaluating committee is composed of scientists from public and private institutions, which are likely to be neutral. However, the committee also includes professionals from biotechnology companies keen to recognize the research that presents the advantages of agricultural biotechnology. Arturo de Lucas, Mike Conelly and Rodolfo Gómez Luengo from Dupont-Pioneer, José Ángel Saavedra Martínez and Sergio Uhart from Dow Agrosciences, Juan Manuel de la Fuente and Sofía Elena González Pinzón from Monsanto, Graciela Alvarez Chávez and Rocío Madrid A. from Syngenta, and Sara Alonso Papayanopulos and Arturo Ledesma from Bayer, all stand for biotechnology companies' interests. Despite this, some government officials consider these awards important to disseminate research because AgroBIO gives prizes to undergraduate and graduate thesis in the biotechnology area:

> AgroBIO organizes the National Awards AgroBIO event where bachelor, master, and doctoral theses are awarded, national researchers are to be known, and regulators and people involved with the biotechnology industry are invited so that this knowledge can be delivered, and it is part of AgroBIO's communication and public relations.[549]

AgroBIO awards are an indirect way of biotechnology companies to be in contact with government officials. For example, during the 2014 AgroBIO awards, where companies' representatives and General Director of AgroBIO were present, SAGARPA's Director of Productivity and Technological Development Belisario Domínguez gave a speech to attendees about public policies toward agricultural biotechnology. In this scenery, communication exchange among the different stakeholders took place. Chats in events are sometimes the best way to pass information directly to policy-makers in a relaxed environment. This is not a direct pressure over government officials but is an informal setting to promote GM foods. As a consequence, AgroBIO awards are well appreciated among government officials and academics. However, they are openly pro-biotechnology and are supported by the big six biotechnology companies which are keen to support projects that show the advantages of this technology, leaving apart disadvantages that may interfere with their interests.

In contrast to the government officials' perception about AgroBIO awards, among some environmental NGOs these awards are not as genuine as they seem. NGOs argue that these awards are biased toward researchers highlighting agricultural biotechnology advantages and only those who discuss and project the wonders of this technology are the ones awarded. Furthermore, it is not fine that government officials receive awards from this association because biotechnology companies are contributing and this is a way to influence those officials:

> In Mexico, biotechnology companies operate behind the masquerade of a civil organization named AgroBIO… there was an event where a prize was given to Mikel Arriola, the director of COFEPRIS which authorizes GM maize imports, and I talked to that agency's officials who said that, for imports, they do not realize studies in Mexico, but they use the same studies from the United States because COFEPRIS does not have the resources to do such studies.[550]

[549] Juan Bernardo Orozco Sánchez (International Affairs Coordinator, SAGARPA), interview by author, February 14, 2014.
[550] Adelita San Vicente (general director, Semillas de Vida), interview by author, February 12, 2014.

As previously explained, Mikel Arriola is a pro-biotechnology person who has links with BIO US and is well recognized by AgroBIO. It seems that his biotechnology preferences have led COFEPRIS to be more lax about GMO regulations in Mexico. Furthermore, such award was granted by CropLife Latin America, and this organization is the same as AgroBIO to the eyes of environmental NGOs.

Another example of possible bias toward biotechnology is the AgroBIO award to *El Universal*, an important national newspaper in Mexico. The award AgroBIO 2012 was granted to Eduardo Camacho and Sara Pantoja for their article titled "Transgenic foods in Mexico, Sufficiency or Dependency?" in the category of biotechnology journalism. During the ceremony, AgroBIO's President Alejandro Monteagudo, and Deputy Secretary of Agriculture at that moment, Mariano Ruiz Funes, both were present.[551] Moreover, in the evaluating committee for the awards Juan Manuel de la Fuente from Monsanto, and Arturo de Lucas from DuPont-Pioneer were included. This committee selection shows how biotechnology companies have a big stake in these awards and want to be present and visible in this sort of events where GM foods are promoted.

In the awarded article,[552] a general explanation of the GM foods debate in Mexico is explained. On the one hand, producers claim that by planting GM maize, crops would be resistant to pests; it would increment yields and strengthen food sovereignty. On the other, environmental NGOs emphasize that an increment in the productivity would be null, there would be an increase in costs because of the use of more agrochemicals and more wastes, and more difficulties in commercializing those products. Additionally, it recognizes that Mexico imports 10 million of tons a year of GM maize, which translates into losses up to 40 billion Mexican pesos. Lastly, it gives a voice to AgroBIO and Monsanto; the first suggests that in Mexico it is convenient to adopt GMOs because of the deficit in production, and Monsanto explains that myths and beliefs about possible harm to health are not studied yet, mentioning that production costs decrease, and fewer pesticides are needed. Besides of presenting the arguments from AgroBIO and Monsanto that include the main themes projected in all their messages, this article grabs information from ISAAA, which emphasizes the success of GM crops around the world. Apparently, giving the different points of view about GM foods in the article is the main reason for this award. However, the main message of this article is that Mexico could be self-sufficient in the production of maize by adopting GMOs. Consequently, these awards are part of the relationship-building strategic communication that biotechnology companies are following domestically and internationally. Awards are a sophisticated way of promoting GM foods, and government officials do not feel pressure from this.

SEMARNAT

AgroBIO has communication with the Secretariat of Environment. Furthermore, in Mexico, top decision-makers at the level of a secretary and deputy secretary usually are appointed for political reasons and are assigned to their posts because of their affiliation with the political party of the president. They sometimes do not have technical expertise and not enough scientific knowledge in areas such as agricultural biotechnology; thus these decision-makers are more likely to be influenced and convinced

[551] Julián Sánchez, "Dan Galardón a EL UNIVERSAL," *El Universal*, 2012, http://www.eluniversal.com.mx/nacion/201299.html.

[552] Eduardo Camacho and Sara Pantoja, "Transgénicos En México, ¿suficiencia O Dependencia?," *El Universal*, 2011, http://www.eluniversal.com.mx/finanzas/89338.html.

by the arguments posed by biotechnology companies. In contrast, government officials who are not at the top of the hierarchy normally have more expertise, outstanding academic background, and scientific knowledge thus they tend to be less influenced by the biotechnology companies. Moreover, the messages sent by biotechnology companies to top decision-makers and government officials are the same, but the level of impact is different.

> After reading lots of files and dealing with them, you can notice they have many failures, and they do not sell us their arguments so easily. But we do know what they say to our top decision-makers who do not have much technical knowledge: "this GM maize is going to solve the problem of drought, more savings of agricultural raw materials, low productivity levels will be solved, it will help climate change, and it will relieve poverty," that is to say, GMOs will solve all the problems of the countryside in Mexico.[553]

The themes of these messages are the same listed in Figure 5.1. Biotechnology companies concentrate on giving the same message of a promise for the future with the use of GM foods to SEMARNAT officials. According to SEMARNAT officials, the biotechnology companies that send that sort of messages to promote GM foods in Mexico are Monsanto, DuPont Pioneer, Syngenta, Bayer, and Dow. Some of them are more measured than others in highlighting those benefits of GM foods, but the most unadvised is Monsanto, which says that its maize is going to solve all of Mexico's problems.[554] In contrast, BASF is the only one that is not sending such type of messages. It has communicated that will collaborate with Monsanto in regards to licensing but is not interested in having a regulatory team because BASF in Mexico is more focused on pesticides rather than GM foods.[555] However, some of these pesticides are the ones that work with GM seeds.

CONABIO

CONABIO, the National Commission for Knowledge and Use of Biodiversity, is an applied research unit that independently conducts research about biotechnology. In order to discuss biosecurity issues and integrate different points of view, CONABIO organized the Discussion Group on Biosecurity. This group included representatives from NGOs, the biotechnology industry, and the government. That is the only time where information promoting GM foods might have been directly distributed because after that meeting, some of the participants commented on new papers about GM foods, according to their interests.[556] CONABIO's coordinator of biosecurity and risk analysis has promoted a dialogue with biotechnology companies to understand the technology better. However, communication exchange is very limited. Monsanto, Pioneer, and Syngenta, among others, have sent her scientific papers, approximately two per year, but this information is much narrowed compared to the plethora of information published in journals each year.[557]

[553] Interview with a governmnet official of SEMARNAT (Mexico City), Februray 02, 2014.
[554] Ibid.
[555] Ibid.
[556] María Francisca José Acevedo Gasman (Biosecurity and risk analysis coordinator, CONABIO), interview by author, January 15, 2014.
[557] Ibid.

Furthermore, information delivered from biotechnology companies to CONABIO is an indirect communication through AgroBIO. Directly, biotechnology companies do not send promotional information, but at the end of the year 2013, AgroBIO distributed some material.

> Recently, AgroBIO just sent me a book that it published in 2013 about the experience of GM maize in eight countries of Latin America. I think it was sent to me as a Christmas gift so that I could read it during my vacation period, but that is the only promotional material I have received.[558]

Because this commission is a unit that has a specific position about GM foods and knows how to research and where to find information, CONABIO is not a real target for biotechnology companies because it is not likely to be influenced. This research institution is considered as a serious and independent unit in Mexico.

SAGARPA

The Secretariat of Agriculture also receives information from AgroBIO. Themes such as hunger alleviation, poverty relief, or productivity increment are so powerful to convince on the GM foods benefits. For example, some SAGARPA government officials consider that biotechnology companies are not promoting per se GM foods, but sending messages on the benefits of this technology:

> American biotechnology companies are using elements and signaling that there are not changes between biotechnology crops and their natural counterpart. Therefore, there are no variations either changes in their nutraceutical composition. In addition, they signal that there is no need to label products as GMO, non-GMO or conventional.[559]

Hitherto, commercialization of GM maize has not been authorized. According to Deputy Secretary of Agriculture Jesús Alberto Aguilar Padilla, biotechnology companies only have granted permissions for trials. Furthermore, Monsanto and Cargill are very happy with the products they sell in Mexico so far. Even though biotechnology companies send representatives and committees to press and persuade the government, they are not very successful in influencing the Mexican government.[560]

Mexico's government started to evaluate a structural reform to the countryside that may include GM seeds for domestic cultivation in 2014. During such discussions, Monsanto offered support in the form of information to congressmen with the objective to make better decisions. Monsanto's specialist in development of biotechnology products, Juan Manuel de la Fuente, expressed that Monsanto has not approached directly to SAGARPA or the agriculture commissions in the Senate to convince them of the use of GM foods:

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[558] Ibid.
[559] Juan Bernardo Orozco Sánchez (International Affairs Coordinator, SAGARPA), interview by author, February 14, 2014.
[560] Jesús Alberto Aguilar Padilla (deputy secretary of agriculture, SAGARPA), interview by author, February 17, 2014.

> There is no encouragement by Monsanto over the reform to the countryside to include the use of GM foods. We are a company that abides by the laws and regulations, but we have information available to whoever is going to establish laws or evaluate legislation bills.[561]

Companies may lobby the Mexican Congress, but they have to be officially registered. For the 2013 Congress, the LXII Chamber of Representatives has under registration 252 lobbyists, including Monsanto, Bayer and Cargill represented by the Mexican Seeds Association.[562] As a result, even though biotechnology companies are not publicly and directly promoting GM foods among government officials, they are interacting with officials and sending messages indirectly through AgroBIO, media releases, and *La Neta de Tu Planeta*.

5.5.2 Scientific institutions

Scientific institutions in Mexico receive public messages along with all the citizens. For instance, Amanda Gálvez, UNAM's researcher working in GM soybeans, has received information from biotechnology companies through email. Additionally, researchers at her laboratory receive messages through bus-stop displays, billboards, and transit advertising:

> They are constantly sending messages and designing material. AgroBIO launches non-sense information and lies, like making a complete declaration saying that bees do not pollinate in the soy crops. But that is an absolute lie because here in the lab we are detecting soy pollen in the honey due to the fact that the bees' legs transport the pollen, and there are other scientific works that show it.[563]

Consequently, information emitted by AgroBIO is considered exaggerated and skewed by some scientific institutions in Mexico. UNAM's laboratory 312 is an independent academic institution that does not receive funding from biotechnology companies but from the university. Therefore, it does not feel pressure from biotechnology firms to publish material favoring GM foods. Thus, researchers are not swayed toward biotechnology. The information received by this sort of institutions is the messages disseminated by AgroBIO and *La Neta de Tu Planeta*. In fact, the printed advertisements developed by *La Neta de Tu Planeta* have been placed on buses, billboards, and magazines, and is the information that these researchers observe as well as the mass public. Furthermore, biotechnology companies and AgroBIO are not interested in sending messages to promote GM foods to scientific institutions because they have their internal research centers and through public-private partnerships they collaborate with some scientific institutions, such as CIMMYT which is highly and openly involved in the development of GM foods.

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[561] Juan Luis Ramos, "Monsanto Quiere Apertura a Transgénicos; Niega Cabildeo," *24 Horas*, 2014, http://www.24-horas.mx/monsanto-quiere-apertura-a-transgenicos-niega-cabildeo/.

[562] Érika Ramírez, "En Las Cámaras, 250 Grupos de Cabilderos Al Servicio de Trasnacionales," *Contralínea* (Mexico City, 2013), http://contralinea.info/archivo-revista/index.php/2013/07/02/en-las-camaras-250-grupos-de-cabilderos-al-servicio-de-trasnacionales/.

[563] Amanda Gálvez (specialist on biotechnology, Laboratory 312, Faculty of Chemistry at UNAM), interview by author, February 12, 2014.

5.5.3 Non-governmental organizations

Biotechnology companies do not have a specific message directed to NGOs, they are not interested in making their statements clear to them, but would like NGOs to retract their arguments and prevent these organizations from giving the opposite side of the debate. In general, the messages received by Mexican NGOs are the same messages that target the general public. According to Mexican environmental NGOs, these messages tend to be simplistic, exaggerated, and absurd in other occasions. Also, the NGOs perception about biotechnology companies is that they make propaganda.

> Biotechnology companies through AgroBIO are making campaigns of propaganda, and companies themselves directly are doing it as well. Monsanto has the leadership in making propaganda in the media. It is making deceptive propaganda at a mass media level and through scientific and technical seminars, and scientific and specialized publications.[564]

Monsanto's implementation of scientific training is sensed as deceptive because Mexican NGOs do not see this scientific and technical instruction as genuine. NGOs argue that Monsanto pays farmers to go to Europe or the United States to receive training for free, the company pays for expenses and when producers return they feel a commitment to the company for buying its products. From the Mexican NGOs' perspective, biotechnology companies are not honest in their messages, research, and development, and consider these companies as distrustful. They consider that biotechnology companies hide behind AgroBIO because they do not desire to face NGOs scrutiny. Moreover, MNCs are perceived as having too much power without responsibility, as powerful as states, but much less accountable, with many financial resources and more anonymity, and thus these MNCs' features attract social activists' attention.[565] Biotechnology companies do not like to be scrutinized by environmental NGOs and avoid by all means any direct exchange of communication. Therefore, AgroBIO is used by biotechnology companies as a voice to represent them and keep them away from environmental NGOs.

> They [biotechnology companies] launched a website called *La Neta de Tu Planeta* without saying that it was part of AgroBIO. It was presented in Carmen Aristegui's news show as a counterpart to a youth's movement called *El Carnal del Maíz* (The Brother of Maize), trying to use the language of young people. So, these companies are constantly bombarding with information, and they are hidden behind masquerades as associations unknown to people. It is not directly Monsanto saying this, but different firms.[566]

Consequently, Mexican environmental NGOs receive indirect and simple messages from MNCs through AgroBIO. These messages include the general themes used in the promotion of GM foods. Basically, biotechnology companies emphasize that GM seeds are the means to remove Mexico's food dependency, to improve productivity, relieve poverty, and reduce pollution to the environment.[567]

[564] Víctor Suárez (general director, ANEC), interview by author, January 15, 2014.
[565] Peter Newell, "Environmental NGOs and Globalization: The Governance of TNCs," in *Global Social Movements*, ed. Robin Cohen and Shirin M. Rai (London, New York: The Athlone Press, 2000), 121.
[566] Adelita San Vicente (general director, Semillas de Vida), interview by author, February 12, 2014.
[567] Víctor Suárez (general director, ANEC), interview by author, January 15, 2014.

Furthermore, NGOs are aware of the main themes emphasized by biotechnology companies and highlight that GM seeds are projected as a unique product that will solve all the farmers' problems:

> The main message is that GM seeds are miraculous seeds that can be cultivated without water, work, soil, or energy. These seeds are so miraculous that can overpass any restriction. This is a message of miraculous product with the intention of deceiving and confusing. It is like selling to people any other commercial product employing the marketing techniques and the manipulation of the media.[568]

Under these arguments, it seems that biotechnology companies are not interested in making clear their messages and explaining the virtues of GM foods to environmental NGOs, and NGOs are not interested in listening to those arguments. As a result, the messages received by NGOs are considered as deceptive and uninformative, in contrast to what biotechnology companies expect. Therefore, there is not a direct communication between MNCs and NGOs.

In summary, this chapter has analyzed which MNCs are involved in public diplomacy, and how they have interacted with the US government to promote GM foods. How and why US biotechnology firms have encouraged the American government to promote GM foods in Mexico and what messages firms have delivered to different stakeholders in Mexico was also discussed. In the following chapter, I will analyze which NGOs are involved in public diplomacy and attempt to show how these NGOs are using the same strategies in the US and Mexico to prevent the adoption of GM foods in Mexico. I intend to explain how NGOs have informed the public about GM foods in Mexico, with what level of success and how they have interacted with the Mexican government to reject GM food cultivation and commercialization.

[568] Ibid.

Chapter 6
NGOs involved in US public diplomacy

Chapter 5 analyzed the importance of MNCs to public diplomacy and the way in which they are involved in the promotion of GM foods. I analyzed the main biotechnology companies and detected that only the big six biotechnology companies prevail after processes of mergers and acquisitions, which include Monsanto, Dow AgroSciences, DuPont Pioneer, Bayer CropScience, Syngenta, and BASF. I also discussed the operation of these firms through industry groups and the reactive, proactive, and relationship-building strategic communications, along with the instruments employed by biotechnology companies, ranging from press releases and audio-visual materials to lobbying and scientific training. There was also a schematization of the themes included in the GM food promotion messages sent from biotechnology companies and an identification of which stakeholders in Mexico are targeted with those messages.

The purpose of this chapter is to distinguish the international and Mexican environmental NGOs involved in the prevention of adoption of GM foods in Mexico. I will analyze why and how international environmental NGOs have interacted with the Mexican government in order shape the poltiical environment and prevent a change in GM food policy. I will explain what factors are relevant for US and Mexican NGOs in preventing or modifying the Mexican government GM food policy along with the way in which NGOs have interacted to prevent GM foods adoption. The degree of interaction with the government in contrast to biotechnology companies will also be explored.

In the first section, I will explain the relevance of NGOs participation in public diplomacy activities. NGOs now contribute to public diplomacy in different ways such as assisting states in designing and developing projects, even though that the state is the main actor in public diplomacy. Through an analysis of the literature, I have identified the main four reasons why NGOs are relevant to public diplomacy: they may press government to change policies or take action, NGOs may offer credibility and reputation to the state, they also may be a source of legitimacy, and NGOs can cooperate with the states and mobilize publics. These reasons will be analyzed below.

In the second section, I will identify the relevant environmental NGOs involved in the prevention of GM foods adoption and how they contribute to public diplomacy activities. Although there are multiple environmental NGOs that are concerned about the commercialization, plantation, and consumption of GM foods, there are only few that take actions at a global level. By looking closer to a local level, it can be seen that global NGOs are just a few employing the same campaigns against GM foods, such as Greenpeace and ETC Group.

In the third section, I will introduce the instruments, resources, and the reactive, proactive, and relationship-building strategic communications that NGOs employ to prevent GM foods in Mexico. Some NGOs employ similar activities as biotechnology companies, such as lobbying or developing relationships with the media. However, there are some public diplomacy instruments exclusively

employed by NGOs, such as mobilization of the general public that have not been implemented by biotechnology companies or government agencies but have helped NGOs to achieve their goals.

The fourth section presents an analysis of the messages delivered by environmental NGOs. These messages are often used by NGOs that try to stop the consumption of GM foods, as well as those concerned about the environment. Similarly to how biotechnology companies communicate their messages, environmental NGOs use common themes to promote their causes and disseminate the same main message to different audiences. However, environmental NGOs messages have a certain level of sophistication, and they adapt those messages to supporters with higher-level of education and audiences less informed about GM foods.

In the last section, I study the main messages that NGOs are delivering to Mexican stakeholders to prevent GM food adoption as well as what stakeholders are targeted. An analysis of the ways in which NGOs communicate with Mexican officials, scientific institutions, and other NGOs will be presented. In this dynamic, communication with local NGOs has been essential to halt the cultivation of GM maize in Mexico because of the fragmentation of local NGOs.

6.1 Relevance of NGOs for public diplomacy activities

In the current international arena, not only state actors are involved in influencing foreign publics, but also non-state actors participate more actively in order to achieve goals. Furthermore, advances in communication and technology have caused international actors to be more connected and able to share information. In this era where globalization has allowed communications to be more active, secretaries and ministers of foreign affairs are not only the exclusive guardians of diplomacy, they have to share the diplomatic space with other ministries as well as to engage with non-state actors in a policy dialogue.[569] Non-state actors have developed different strategies for communication and influence, techniques for engagement, and opportunities for dialogue, which are the core of the new public diplomacy.[570] Moreover, non-state actors need to generate trust or inspire it through the capacity they have to persuade or attract, thus gain legitimacy that will prevail as long as they are able to maintain such legitimacy and trust.[571]

Non-state actors performance in the international arena is also needed because governments are not able to address all the problems that globalization may bring in an emergent global society. Because nationally based political systems do not clearly address most of the world's problems on a global scale, a global civil society which includes NGOs with an international outreach and goals has risen.[572] This global civil society along with NGOs includes industry groups and groups of citizens with a stake in a concerning issue. Additionally, one of the challenges and threats that American power encounters for the new century is the increasing information revolution that is creating virtual communities and networks

[569] Raymond Saner and Lichia Yiu, "Business-Government-NGO Relations: Their Impact on Global Economic Governance," in *Global Governance and Diplomacy: Worlds Apart?*, ed. Andrew F. Cooper, Brian Hocking, and William Maley (New York, NY.: Palgrave MacMillan, 2008), 101.
[570] Teresa La Porte, "The Impact of 'Intermestic' Non-State Actors on the Conceptual Framework of Public Diplomacy," *The Hague Journal of Diplomacy* 7 (2012): 446.
[571] Ibid., 453.
[572] Ibid., 451.

across national boundaries, where NGOs and MNCs play larger roles because they have their own soft power and they attract citizens into transnational coalitions.[573] American NGOs and MNCs are particularly important because some of them have crossed borders, have developed worldwide networks, and as a result reached a global presence.

In a context of globalization, new technology has allowed non-state actors such as NGOs to participate in the debate and implementation of foreign policy, sometimes collaborating and communicating more efficiently than governments.[574] NGOs sometimes work closer to citizens because of their nature and goals. Moreover, access to technology has allowed NGOs to effectively penetrate states regardless of borders and domestic constituencies to induce political leaders to pay attention to their preferred agendas.[575] In contrast, states find penetration to other audiences more difficult because they should respect borders and respond to a constituency. It does not mean that governments are not engaged in international affairs anymore, but suggests that NGOs, as industry groups, are taking part in shaping the political environment through the use of public diplomacy. As a consequence, the use of strategic communications has allowed NGOs to be more involved in international affairs and public diplomacy.

Nowadays there is an increasing participation of NGOs in political processes which echoes broader changes in the nature of diplomacy in world politics.[576] NGOs have an impact on economic development and the environment, and they combine information, activism, and lobbying, while the media positions them as loud voices in their area.[577] For example, Greenpeace can activate different direct campaigns to confront the government, including the halt of deforestation in Canada or the protest against French nuclear testing in the Pacific.[578] Furthermore, non-state actors are important in the political arena because they are able to get involved and act in the international sphere, shaping the political agenda and suggesting different methods of action.[579] As a result, part of diplomacy can now be linked to NGOs because they are also dealing with the government in host countries, and they are also enhancers of the public diplomacy efforts done by diplomats. Through an analysis of the literature, I have identified the four main reasons why NGOs are important to public diplomacy activities: They can convey credibility and reputation about the country where they belong, they are able to set a basis for legitimacy, they can cooperate with governments in certain circumstances and even mobilize people and resources, and they have become claimers of transparency and accountability of governments.

In regards to the first reason, the government's approach to diplomacy has changed, and foreign audiences need to be considered in order to gain credibility. Diplomats are important for conducting public diplomacy because they engage in debate with other governments and political actors, but

[573] Joseph S. Nye, "The New Rome Meets the New Barbarians," *The Economist* (Cambridge, Mass., 2002).
[574] Shaun Riordan, "Dialogue-Based Public Diplomacy: A New Foreign Policy Paradigm?," in *The New Public Diplomacy: Soft Power in International Relations*, ed. Jan Melissen (Houndmills: Palgrave MacMillan, 2005), 190.
[575] Robert O. Keohane and Joseph S. Nye, "Power and Interdependence in the Information Age," *Foreign Affairs*, 1998, 83.
[576] Michelle M. Betsill and Elisabeth Corell, "Introduction to NGO Diplomacy," in *NGO Diplomacy: The Influence of Nongovernmental Organizations in International Environmental Negotiations*, ed. Michele M. Betsill and Elisabeth Corell (Cambridge, Mass.: MIT Press, 2007), 2.
[577] Crocker Snow Jr, "Public Diplomacy Practitioners: A Changing Cast of Characters," *Journal of Business Strategy* 27, no. 3 (2006): 20.
[578] Andrew F. Hocking and Brian Cooper, "Governments, Non-Governmental Organisations and the Re-Calibration of Diplomacy," *Global Society* 14, no. 3 (2000): 364.
[579] La Porte, "The Impact of 'Intermestic'," 451.

sometimes they lack credibility, expert knowledge on the issues under discussion, and the natural ways of engaging with broader civil society.[580] Governments play an important role dealing with other government actors because it is a priority. However, despite the efforts and strategies governments may have to engage with citizens, still they are far from people in contrast to NGOs who work closer to communities. NGOs possess the credibility among foreign publics that US government officials lack.[581] Besides, NGOs do research and become involved directly with the problems, so people feel those organizations are close to them and, therefore, trust them.

Additionally, NGOs have gained credibility among general audiences because of the image they project and the goals they pursue. NGOs have become central players, and hold a particular image because they have a recognized brand to protect, are not restricted to sovereignty limits or constituencies, and neither stained by realpolitik, thus they have gained a moral edge over governments and large companies.[582] People feel NGOs are keen to solve problems because they are not embedded in regular politics in contrast to diplomats, and are perceived as credible, so their performance is considered as more genuine, and stakeholders believe in them.

Generally, international NGOs proclaim they are enforcers of the human rights and engage in basic principles such as poverty or hunger.[583] These principles appeal to general audiences' sentiments and are problems that almost every sensitive citizen might be concerned about. Thus, advancing in solving poverty or hunger makes NGOs look as real problem-solvers, not just as discursive individuals as biotechnology companies or promising actors as the government officials. Furthermore, defending these principles has let NGOs gain reputation among domestic and international audiences that are worried about the problems of a globalized world. NGOs have experience in relationship-building overseas which may give value to their country of origin's reputation.[584] Therefore, NGOs reputation and networking may benefit the country they are operating because this reputation could be extended to the country's brand image and NGOs can be taken as an example of the values that a country would like to project overseas.

The second reason of NGOs relevance to public diplomacy activities is the legitimacy that these organizations may deliver to governmental activities. NGOs have popularity and legitimacy, in contrast to political parties, and their activities concentrate on practical matters or specific causes.[585] NGOs may play an important role in enhancing public programs legitimacy when working together. For example, in the case of environmental issues, NGOs are central to facilitate collective action, and as representatives of civil society, they are essential to environmental governance because they can enhance the legitimacy of policy decisions.[586] Other shared activities include proactive consultation and cooperation to ensure the legitimacy of policy decisions and security of implementation of such

[580] Riordan, "Dialogue-Based," 190.
[581] Olga Zatepilina-Monacell, "Non-State Ambassadors: NGOs' Contribution to America's Public Diplomacy," *Place Branding and Public Diplomacy* 5, no. 2 (2009): 166.
[582] Hocking, "Rethinking," 39.
[583] Manuel Castells, "The New Public Sphere: Global Civil Society, Communication Networks, and Global Governance," *The ANNALS of the American Academy of Political and Social Science* 616, no. 1 (March 1, 2008): 84.
[584] Zatepilina-Monacell, "Non-State Ambassadors," 150.
[585] Castells, "The New Public Sphere," 85.
[586] James Evans, *Environmental Governance* (Florence, KY: Routledge, 2011), 68.

policies.[587] By having a third party in policy implementation such as an NGO, general audiences perceive processes as legitimate. Consequently, by combining NGOs knowledge, giving a handy solution to problems, and engaging with citizens, NGOs acquire the trust governments do not have and gain the legitimacy needed for programs involving the government.

Another reason of relevance of NGOs in public diplomacy is cooperation. NGOs involvement in the development of policy issues is evidenced by their international cooperation and the conflicts they face with MNCs regarding natural resources' exploitation.[588] Moreover, global NGOs usually are involved in the design and execution of technical cooperation projects in developing countries so that sometimes they complement or substitute the effort of national governments.[589] Such participation is due to the reputation NGOs have gained among governments, and thus cooperation with governments is a mutual gaining scheme because governments gain credibility of the policies and projects they implement, while NGOs gain a reputation for what they do. This cooperation is regarded as authentic and free of politicization.

An example of cooperation between governments and NGOs was the project for rebuilding communities in Indonesia after the tsunami of 2004. The US Agency for International Development (USAID) and Muslim Indonesian NGOs worked together to build 100 traditional houses and help in the reconstruction of that country.[590] Additionally, from an intermestic point of view, non-state actors are able to establish norms and practices to produce international arrangements according to certain values and ideals, through the use of mobilization of sectors of public opinion that support them and the creation of alliances with other stakeholders that share the same goals.[591] That is to say, NGOs can set the rules to cooperate with governments in a project and are able to gain the support of allies that are necessary for the project to have a broader outreach.

Demanding transparency and accountability are another important reason for NGOs to participate in public diplomacy. NGOs have become adversaries of the government and MNCs because they are well-networked groups that pressure, monitor and evaluate performance, and demand more accountability and transparency.[592] Because public diplomacy consists of convincing foreign publics and shaping the political environment, NGOs asking governments to be transparent in their actions means building trust among citizens because these organizations have a close look at the governments' actions. This may be considered a practical way of changing the way things are done. Moreover, because of the perceived weakness of national governments to impose adequate environmental safeguards and the failure from international regulation of MNCs, NGOs have been adopting non-traditional means to demand MNCs' accountability such as forging alliances with consumers, institutional investors and even with companies themselves.[593] These means of action may seem threatening to governments or MNCs, but citizenry is also interested in collaborating with NGOs

[587] Saner and Yiu, "Business-Government-NGO Relations," 101.
[588] Ibid., 87.
[589] Ibid., 95.
[590] Todd Bullock, "U.S., Indonesian Partners Continue Tsunami Reconstruction Work," *Bureau of International Information Programs*, 2005, http://iipdigital.usembassy.gov/st/english/article/2005/08/20050808140629tjkcollub0.7605097.html#axzz3ZA63z1jY.
[591] La Porte, "The Impact of 'Intermestic'," 449.
[592] Saner and Yiu, "Business-Government-NGO Relations," 87.
[593] Newell, "Environmental NGOs and Globalization: The Governance of TNCs," 117–118.

concerned about specific issues because it is a way to demand accountability. By keeping contact with citizens, NGOs are gaining support and trust. As a result, the participation of NGOs in public diplomacy is vital to increase support from citizens.

Consequently, non-state actors such as NGOs become important for public diplomacy programs to be implemented in a more effective way. NGOs may offer credibility and reputation for some government programs, are a source of legitimacy, they may foster cooperation and mobilization, and they make transparency and accountability possible. Furthermore, NGOs sometimes are closer to citizens and thus may know how to implement actions in a more detailed way, especially for some projects that involve technical cooperation. For example, NGOs active involvement in international cooperation is shown by conflicts with MNCs that explode natural resources.[594] In the case of GM foods, NGOs have played an important role in shaping the environment where they are located resulting in hindrances for government policies. Sometimes these NGOs operate in different countries with the same campaigns and ideals. In the following section, I will analyze the NGOs involved in the prevention of GM foods in Mexico.

6.2 Identification of NGOs participating in public diplomacy

NGOs pursue different goals depending on what values they have, what principles they defend, and the outreach they pretend to achieve either locally or globally. Local NGOs, formed by domestic civil society actors and participants interested in consumer or environment protection are usually concerned about national issues and conduct domestic NGO diplomacy consisting in diplomatic maneuvers to start policy change.[595] In the US, there are different local groups opposing GMOs that are diverse in size and ideology. There are science-based groups, others concerned about the impact on sustainable agriculture, groups with an environmental agenda, and the consumer protection oriented groups, shown in Table 6.1.

Table 6.1. Groups of opponents to GM foods in the United States

Science based	Sustainable agriculture	Environmental concerns	Consumer protection
Union of Concerned Scientists (UCS) Council for Responsible Genetics International Center for Technology Assessment	Organic Consumers Association National Farmers' Union Pesticide Action Network	Greenpeace Friends of the Earth GeneWatch	Institute for Responsible Technology Food Democracy Now Non-GMO Project Food & Water Watch

Source: Winston, *Travels in the Genetically Modified Zone*. Abridged and adapted by this author.

Domestic NGOs are important in the US because they have provided information among society about GM foods and also know the local needs. These groups currently have different campaigns that depend on their goals, either to protect the environment or the consumer from potential harms of GMOs, or to promote GM food labeling:

[594] Raymond Saner, "Development Diplomacy by Non-State Actors: An Emerging Form of Multistakeholder Diplomacy," in *Multistakeholder Diplomacy: Challenges and Opportunities*, ed. Jovan Kurbalija and Valentin Katrandjiev (Malta and Geneve: DiploFoundation, 2006), 93.
[595] Saner and Yiu, "Business-Government-NGO Relations," 95.

> Our related campaign to GMOs is labeling genetically engineered food. We don't have a campaign to stop GMOs, that's not the case. But our current campaign that we are supporting in different areas is to label, have a mandatory requirement of labeling GMOs on packages that are produced through GMOs.[596]

These consumer protection NGOs promote the implementation of mandatory GMO labeling, some of them are focused on halting GM food consumption in the US, and others disseminate material to the public. These NGOs emit messages that contain part of their beliefs, institutional ideology, conducted research, and information analysis in order to connect with their audience.

> When we're talking about GMO labeling the message sent is that there's a lot that we still don't know about GMOs safety and all the research has been done by the industry. And we need independent science even for our agencies to do work on long-term studies looking at human health and chronic exposure to GMOs; we know nothing about it. And another thing related to that is there is not a scientific consensus that GMOs are safe. And we are not asking you to stop eating, we're not asking to stop producing the product, we're just asking for information on how food is produced, it's very simple.[597]

Consequently, some NGOs act on behalf of the American consumers and seek their protection. These NGOs take into account consumers concerns, and sometimes their fears, and construct a cause to advocate for. The right to know and the transparency on what is in the food, are the main arguments used by NGOs interested in consumer protection. Furthermore, in the literature, there is little attention paid to this sort of NGOs in regards to what they are doing, promoting and achieving, but their growth and pressure may have an impact on politicians.

> We are doing email advocacy, as well as online, to different people across the country to educate them and then have them take action to tell, either through our campaign online, or have them tell their state legislators, this is what we want, we want the right to know, we ask for mandatory labeling. And if it's more a national advert, usually to the FDA, telling them that it's time to turn into mandatory labeling… We definitely put a lot of pressure on different congressmen from constituents.[598]

The participation of NGOs in the politics of GMOs is making legislators and government officials from federal agencies more aware of what the common citizens are concerned about. These organizations represent consumers to have more visibility and a voice in front of the decision-makers. Furthermore, these NGOs are using a variety of diplomatic tools to convey their messages to politicians to try to make them have a different perspective on GMOs and include consumer's point of view in their decisions:

[596] Interview with a researcher from an environmental NGO from Washington DC, July 9, 2015.
[597] Ibid.
[598] Ibid.

> Sometimes we have personal meetings with people in the government. Recently, this NGO and some other NGOs met with the FDA, to talk about regulation of GMO animals… And we have petitions to the government through all our supporters; all our email advocacy is having people to sign the petition for labeling to be mandatory for GMO, and so we have all the members sign on, and deliver petitions.[599]

As a result, NGOs are pressing the American government through different communication tools. This pressure does not necessarily converts into a change of GMO legislations. However, the major benefit of this advocacy is GM food labeling awareness among politicians and mobilization of constituencies.

In the case of global NGOs, these organizations operate in different countries around the world and conduct transnational NGO diplomacy employing statecraft in their advocacy for pursuing economic or trade policies in the international arena, such as Greenpeace which is able to organize advocacy events and lobbying at a cross-border level.[600] Another characteristic of global NGOs is coordination. NGOs present high levels of transnational coordination, such as Greenpeace, which can be a bridge between campaigns in different parts of the world, and emulate the tactics that other groups adopt in a locality to take to another location.[601] Greenpeace activists in Europe have acted directly by removing GM crops plantings; such activity has been adopted in Brazil where Monsanto's research stations have been affected by the uprooting of trial crops.[602] This emulation allows the organization to conduct the same tactics in different regions obtaining similar results.

Furthermore, global NGOs have been successful in the environmental area. Those NGOs concerned about the environment are referred as environmental NGOs (ENGOs). Some ENGOs even join local NGOs to gain more influence and support, and thus they advance in solving environmental issues. In Europe for example, the strongest opposition to GMOs is present in countries where environmental and consumer protection NGOs work together and ally to family farmers associations who cultivate organic food.[603] At an international level, global ENGOs participated and proposed policy solutions during the multilateral negotiations of the Kyoto Protocol.[604]

Due to the influence of global NGOs in international fora, ENGOs have become important in order to have a peaceful and facilitated implementation of policies at home. Additionally, ENGOs have expanded the sense of community for individuals helping them to think as global citizens about issues that now cross traditional boundaries and the national government outreach, encouraging civic participation and letting the government implement ideas and objectives.[605] Greenpeace and Friends of the Earth are global ENGOs considered to have a high profile, and thus, they have captured the attention of politicians.[606] These ENGOs enjoy brand awareness among different audiences, and their actions are

[599] Ibid.
[600] Ibid.
[601] Peter Newell, "Trade and Biotechnology in Latin America: Democratization, Contestation and the Politics of Mobilization," *Journal of Agrarian Change* 8, no. 2 (2008): 361.
[602] Ibid.
[603] Kurzer and Cooper, "What's for Dinner," 1036–1037.
[604] Saner and Yiu, "Business-Government-NGO Relations," 95.
[605] Marissa A. Pagnani, "Environmental NGOs and the Fate of the Traditional Nation-State," *Georgetown International Environmental Law Review* 15, no. 4 (2003): 792–793.
[606] Evans, *Environmental Governance*, 68.

known globally. Furthermore, both organizations have a strong presence in the US and have campaigns to protect the environment and the food systems, including GM food prevention campaigns. Another global ENGO concerned about the GMOs impact and the concentration of power from biotechnology companies is ETC Group. This ENGO, formerly RAFI, was the first civil society organization to pay attention to scientific and socioeconomic aspects of the conservation and use of genetic resources, biotechnology, and intellectual property.[607] Although ETC Group has a strong presence in US, Canada, Mexico, and other regions in Africa and Asia, it does not have a high level of brand awareness as the other two global NGOs.

Friends of the Earth (FOE) is an active ENGO concerned about GM food producers' expansion. Friends of the Earth International yearly publishes a report called *Who benefits from GM crops?* which presents the impacts of GM crops around the world as a counterpart to the ISAAA annual report on GMOs advances.[608] This report emphasizes the different effects that GM crops have on the environment and farming in different regions of the planet signaling the negative impacts of these products. This report usually is translated into different languages for the different members of Friends of the Earth to distribute among its stakeholders. In the case of FOE in the US, this NGO has a project on genetic engineering that is intended to prevent the release of GM salmon and GM apples, but it does not include a GM maize prevention project. Moreover, FOE does not have a zealous representation office in Mexico. What FOE has done in Mexico is to collaborate with *Otros Mundos* (Other Worlds), which is a Mexican local NGO located in the south of the country, in Chiapas, that advocates for indigenous rights.[609] Although *Otros Mundos* includes materials to warn audiences about GM foods, this Mexican NGO does not have a campaign per se to prevent GM food adoption and it does not have a strong presence in the rest of the country but just in Chiapas. As a result, the ENGOs that are relevant in both, the United States and Mexico, are Greenpeace and ETC Group, which I analyze below.

6.2.1 Greenpeace

Greenpeace is the most well-known environmental NGO. This ENGO was born in 1971 and has been campaigning since that year against environmental degradation speaking on behalf of 2.8 million people worldwide.[610] Another characteristic of Greenpeace is that this NGO performs non-violent actions and exposes global environmental problems in order to find and promote solutions to such problems.[611] Finding solutions to environmental problems such as pollution in the oceans and lands are one of the main goals of the organization, as well as to protect biodiversity, terminate nuclear threats and promote peace and disarmament at a global level.[612] As a result, Greenpeace is known for its peaceful protests and the solutions it has implemented in some areas.

[607] ETC Group, "ETC Group: A Brief History," accessed May 6, 2015, http://www.etcgroup.org/content/etc-group-brief-history.
[608] FOEI, "Who Benefits from Gm Crops?," *Friends of the Earth International*, 2010, http://www.foei.org/resources/publications/publications-by-subject/food-sovereignty-publications/who-benefits-from-gm-crops-2/.
[609] See http://www.otrosmundoschiapas.org/
[610] Greenpeace, "About Greenpeace," *Greenpeace International*, accessed May 6, 2015, http://www.greenpeace.org/international/en/about/.
[611] Greenpeace, "Our Core Values," *Greenpeace International*, accessed April 2, 2015, http://www.greenpeace.org/international/en/about/our-core-values/#a0.
[612] Ibid.

> Greenpeace is an environmental organization devoted to making public denounce about different environmental issues happening in diverse regions of the world. This organization has been working for over 42 years in different countries and was born by denouncing the nuclear tests in Amchitka, Alaska… Eventually, the organization started working with other issues that are related to the impact of human activity on the environment and how this affects society.[613]

Greenpeace presents itself as ideologically independent from governments. Furthermore, Greenpeace has addressed environmental issues in terms of a single-issue campaign orientation preventing ideological claims.[614] In order to prevent ideological bias and maintain independence, Greenpeace does not accept donations either from any government or corporation.[615] Nonetheless, Greenpeace has increasingly engaged in dialogue with governments and corporations, and it has also participated in conferences related to multilateral environmental agreements.[616] This organization is very proactive in interacting with government officials in national or international arenas to protect the environment and biodiversity.

Greenpeace characterizes by its global perspective that allows its local offices not to be restricted by national interests and to have a condition to intervene internationally because of its universality.[617] Moreover, Greenpeace considers itself as a very inconvenient organization because it talks about controversial issues such as GM foods though supported by the scientific research that it performs.[618] In regards to the issues addressed by the organization, Greenpeace International has a campaign focused on ecological farming and food overarching GM foods, and such campaign has three main objectives: to prevent GMO release into the environment, to advocate for GMO labeling and to oppose to living patents.[619] Furthermore, these ideals are extended to Greenpeace US, which emphasizes the promotion of sustainable agriculture and pursues banning of GMOs and adoption of GMO labeling.[620] However, despite the fact that Greenpeace is a global ENGO and officially its campaign of sustainable agriculture extends to the rest of the world, and even though that Greenpeace US website promotes sustainable agriculture and signals the problem of genetic engineering, Greenpeace US does not have a current campaign against GMOs.[621] This might be because in the US other concerns such as fracking, or the oceans prevail, or either because there is no sense in launching a campaign against GMOs where biotechnology companies have a strong presence among farmers, and such producers already have planted and commercialized GM foods.

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[613] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[614] Brian Doherty, "Friends of the Earth International: Negotiating a Transnational Identity," in *Beyond Borders: Environmental Movements and Transnational Politics*, ed. Brian Doherty and Timothy Doyle (New York, NY.: Routledge, 2008), 166.
[615] Greenpeace, "About Greenpeace."
[616] Aynsley Kellow, "Norms, Interests and Environment NGOs: The Limits of Cosmopolitanism," *Environmental Politics* 9, no. 3 (2000): 4.
[617] Ibid., 5.
[618] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[619] Greenpeace, "Genetic Engineering," *Greenpeace International*, accessed April 2, 2015, http://www.greenpeace.org/international/en/campaigns/agriculture/problem/genetic-engineering/.
[620] Greenpeace, "Sustainable Agriculture | Genetic Engineering Dangers and Problems," *Greenpeace USA*, accessed April 2, 2015, http://www.greenpeace.org/usa/en/campaigns/genetic-engineering/.
[621] Charlie Cray (Senior research specialist, Greenpeace USA), email message to the author, May 20, 2015.

In Mexico, Greenpeace has the same campaign of sustainable agriculture as Greenpeace International. This campaign strongly emphasizes the prevention of consuming and cultivating GM foods, specifically GM maize because Mexico is a center of origin of maize and home of 50 different varieties of corn, but Mexico is at risk of losing its biodiversity.[622] The campaign concentrates on corn because it is a basic food for the Mexican diet, and the sustainable agriculture campaign overarches it. Consequently, Greenpeace Mexico promotes sustainable agriculture as established by Greenpeace International.

> That is how this organization works, working on global issues first, and then placing them in the regions where a specific issue may have a bigger impact. As a result, by the end of the 70s - 80s, a great debate about GMOs started including a discussion of what they represent. Such GMOs are generated mainly by Canada and the United States with its big companies such as Monsanto, Pioneer, Dow AgroScience, DuPont, Syngenta, among others. And this is how the working relationship between Greenpeace Mexico and Greenpeace United States begins, by sharing experiences of specialists that talk about the GMOs impacts on health and about the farmers from the United States and Canada, who have already been affected and sued.[623]

Greenpeace is following a global-local strategy that works well for this NGO to achieve goals and have a higher impact in the country it operates. Acting locally, thinking globally, and acting globally, thinking locally becomes important in order to gain local political spaces, confronting uncertainty and risk with the objective of establishing trust among individuals and institutions.[624] As a result, Greenpeace advocates for a certain set of causes around the world, just adapting the language, tone, and presentation of each campaign to the local needs. I argue that the communication strategies and activities that Greenpeace International makes in regards to GM foods are consistent around the globe though not executed in all countries. Consequently, Greenpeace Mexico follows and executes Greenpeace international guidelines.

6.2.2 ETC Group

ETC Group is an ENGO that advocates on global issues related to the preservation of biodiversity and food security, as well as the impact of technology on poor people living in the countryside.[625] This organization works at a political level analyzing the impacts of three main issues: ecological erosion taking into account cultures and human rights, new technologies specifically agricultural technologies related to genomics, and global governance considering corporate concentration.[626] In the case of new technologies, the organization monitors new developments in synthetic biology, nanotechnology and geoengineering and their impacts on indigenous communities.[627] In the corporate concentration

[622] Greenpeace, "Agricultura Sustentable Y Transgénicos," *Greenpeace Mexico*, accessed April 2, 2015, http://www.greenpeace.org/mexico/es/Campanas/Agricultura--sustentable--y-transgenicos/.
[623] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[624] Miriam Alfie Cohen, *Democracia Y Desafío Medioambiental En México: Retos, Riesgos Y Opciones En La Nueva Era de La Globalización* (México-Barcelona: Pomares/UAM-A, 2005), 57.
[625] ETC Group, "ETC Group: A Brief History."
[626] ETC Group, "Mission & Current Focus," accessed April 3, 2015, http://www.etcgroup.org/mission.
[627] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.

research, this organization has exposed how biotechnology companies have concentrated power and research and have raised awareness about GM foods among general audiences.

ETC Group is interested in issues such as patents and biopiracy which includes both, the appropriation of knowledge by monopolies and stopping the release of GMOs into the environment; and seeds and genetic diversity that address monitoring technologies and mergers and acquisitions of companies.[628] This organization is much concerned about farmer's rights and rural communities' well-being, as well as the impacts on poor and vulnerable people. Additionally, this ENGO does not perform separate campaigns to prevent GMO consumption in the different North American countries or the rest of the world, and it makes adaptations according to the local needs. The campaign in Mexico focuses on the defense of maize heightening awareness of the problems posed by biotechnology on peasant's communities, including the impact of GM maize in the center of origin of corn.[629] In order to achieve the goal of raising GM foods awareness in the local indigenous communities, ETC Group participates in a national network that prevents the cultivation of GM maize.

> All the work we do in defense of maize has already caught at the international arena. For example, we have appealed directly to the FAO and CBD representing local farmers' and Mexican civil organizations… Such groups were already fighting for other issues, such as biopiracy, or traditional medicines against pharmaceutical companies, and later on, they found a point of convergence in the defense of maize. And that is how the *Red en Defensa del Maíz* (Corn Defense Network) was born, by having more periodical meetings, more reflections, and adding more representativeness.[630]

Although ETC Group is not as large as Greenpeace, it addresses global issues and has a strong presence in Mexico. ETC Group has been involved in the defense of maize in Mexico for about 16 years. Furthermore, this ENGO started campaigning against GM corn field testing and imports along with Greenpeace back in 1999. As a result, both ETC Group and Greenpeace are important in Mexico to contribute to the solution of environmental problems such as the protection of native corn from GM maize, loss of biodiversity and unfriendly agricultural practices. However, both organizations have used different public diplomacy instruments, resources, and strategies to promote sustainable agriculture and prevent the consumption of GM foods.

6.3 Strategies, instruments, and resources

Globalization has allowed NGOs to be more connected with their supporters in a more frequent way using varied tools to communicate more easily. NGOs have constructed solid trans-border alliances through the use of internet communications, research, and publications.[631] As a result, NGOs operate beyond the region where they locate, appealing to different audiences. Global NGOs do not only target audiences at home but also address issues in different regions of the world. Thus, NGOs success or

[628] See http://www.etcgroup.org/issues/monitoring-power, http://www.etcgroup.org/issues/strengthening-diversity
[629] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.
[630] Ibid.
[631] Saner and Yiu, "Business-Government-NGO Relations," 87.

failure overseas relies on their institutional reputation defined by their relationship with foreign publics.[632] With the objective of gaining more global support, NGOs employ different strategies to target diverse stakeholders such as MNCs and governments. NGOs may exercise pressure on MNCs at home and abroad through campaigning and boycotts.[633] For example, Greenpeace can cause consumer boycotts of non-green products faster than any government regulation might.[634]

Furthermore, global and local NGOs nowadays are having a stake in international development policy debates, participating in different ways such as lobbying and campaigning across national boundaries with the aim of having more influence in the policy-making development.[635] NGOs play an important role in shaping the political environment and presenting a different perspective of issues to policy-makers. Also, NGOs challenge governments in issues such as the economy or business by means of civil protests, campaigns, and negative ranking lists.[636] Otherwise, some issues do not get discussed at the policy-making table, and the people's concerns represented by NGOs do not get listened. NGOs have also succeeded in involving MNCs in public debates about GM food environmental and human safety through media battles and alliances with supermarkets which want to declare products as GM-free.[637] Consequently, NGOs look for a commitment not only from governments but also from MNCs to have a broader solution to environmental problems.

ENGOs have been targeting companies through cooperative and confrontational strategies because governments have been retreating from developing certain regulations to control the environmental impact of MNCs activities.[638] The cooperative strategies include research and education to inform policy-makers, and persuasion for particular policies; and the confrontational include mobilizing public pressure by naming and shaming, and litigation and contestation with legal pressure.[639] Greenpeace is likely to use both collaborative and adversarial strategies in local and international arenas to influence not only governments but also companies.[640]

Persuasion is a key to get included on the agenda of international negotiations, along with spending considerable time trying to influence talks with government representatives with formal powers in the final decisions to accept the non-state actors' perspective.[641] Moreover, global NGOs actively employ different ways to influence the international governance agenda by impulsing their policy recommendations and lobbying the corridors of power.[642] NGOs also use information as an important resource.[643] For example, in the negotiations of the Cartagena Protocol of the CBD, ENGOs participated as observers and their ability to influence agenda setting was limited, but their participation was

[632] Zatepilina-Monacell, "Non-State Ambassadors," 166.
[633] Saner, "Development Diplomacy ," 95.
[634] Snow Jr, "Public Diplomacy Practitioners," 20.
[635] Saner and Yiu, "Business-Government-NGO Relations," 87.
[636] Saner, "Development Diplomacy ," 95.
[637] Newell and Glover, *Business and Biotechnology*, 27.
[638] Newell, "Environmental NGOs and Globalization: The Governance of TNCs," 117.
[639] L. David Brown, Alnoor Ebrahim, and Srilatha Batliwala, "Governing International Advocacy NGOs," *World Development* 40, no. 6 (2012): 1099.
[640] Ibid., 1105.
[641] Elisabeth Corell and Michelle M. Betsill, "Analytical Framework: Assessing the Influence of NGO Diplomats," in *NGO Diplomacy: The Influence of Nongovernmental Organizations in International Environmental Negotiations*, ed. Michelle M. Betsill and Elisabeth Corell (Cambridge, Mass.: MIT Press, 2007), 23.
[642] Saner, "Development Diplomacy ," 99.
[643] Corell and Betsill, "Analytical Framework," 24.

important to determine what to include in the agenda via statements and position papers.[644] In such negotiations, ENGOs were active by supporting the incorporation of the precautionary principle, including socioeconomic considerations, specifying documentation requirements, and trying to assign liabilities in the agreement.[645] ENGOs also provided direct commentaries on negotiating texts, distributed scientific information, and lobbied government delegates.[646] ENGOs efforts to include exporters' liabilities and compensation provisions in the Protocol included the distribution of buttons, stickers, and campaign materials with the phrase "No Liability, No Protocol."[647] ENGOs utilized these resources as the means to influence policy-makers.

Additionally, the strategy of blaming and shaming that ENGOs use in international negotiations with the aim of getting support for their positions is publicizing the noncompliance with previous international commitments or interference in negotiations, or threats to disrupt economic activities using boycotts.[648] ENGOs also involve public pressure and media exposure of problematic delegations or individuals participating in the negotiating process.[649] For example, Greenpeace International utilizes public pressure to influence its stakeholders and makes systematic use of litigation or contestation in public protests employing embarrassment of targets.[650] To Greenpeace Mexico, the most effective communication strategy to deter the acceptance of GM foods among Mexican government officials is public exhibition when officials make embarrassing statements.[651] This confrontational strategy of naming and shaming is a way of pressing decision-makers and has been successfully adapted by ENGOs in different places.

Another example of ENGOs trying to influence international institutions is to request support to prevent GM maize adoption in Mexico. With the aim of gaining support from international instances, different global ENGOs in Mexico such as ETC Group, Grain, and *Vía Campesina* on November 2012 mailed an open letter to the CBD and FAO signaling the risks of transgenic contamination in the world's center of origin of corn.[652] The CBD mailed back directly to the Mexican government, whereas FAO responded ENGOs that GM maize cultivation is a domestic issue.[653] While this was just an attempt to get intervention from an institution that is beyond borders, and Mexico is supposed to commit to the CBD because of the agreements the government has made, the result was not a direct action. However, it resulted in raising some awareness among those institutions and setting an international precedent about the risks Mexico presents with GM maize according to ENGOs.

In the following subsections, I will identify the main instruments and resources that environmental NGOs are implementing to deter GM foods adoption in Mexico. I will explain the reactive, proactive,

[644] Stanley W. Burgiel, "Non-State Actors and the Cartagena Protocol on Biosafety," in *NGO Diplomacy: The Influence of Nongovernmental Organizations in International Environmental Negotiations*, ed. Michelle M. Betsill and Elisabeth Corell (Cambridge, Mass.: MIT Press, 2007), 80.
[645] Ibid., 67.
[646] Ibid., 83–84.
[647] Ibid., 82–83.
[648] Corell and Betsill, "Analytical Framework," 23.
[649] Burgiel, "Non-State Actors," 83–84.
[650] Brown, Ebrahim, and Batliwala, "Governing International," 1104.
[651] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[652] Silvia Ribeiro, "Otro Año Contra El Maíz Transgénico," *La Jornada*, 2014, http://www.jornada.unam.mx/2014/01/11/opinion/019a1eco.
[653] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.

and relationship-building strategic communications and diplomatic instruments employed by NGOs according to my proposed public diplomacy of Chapter 2.

6.3.1 Reactive strategic communication

Press conferences to inform the public are an instrument not very used by NGOs. Unless there is a breakthrough or a sudden event, NGOs do not call for press conferences. However, when NGOs use public protests, the presence of the media is crucial to have a major effect and sound on the public. For example, Greenpeace Mexico takes advantage of press conferences and public relations with journalists to present evidence and information about what the organization has worked on.[654]

Another instrument used for reactive strategies is news releases. Greenpeace posts news releases on its website to inform the public about its activities to counter GM foods. What is remarkable on its website is the exhaustive list of Greenpeace's news releases emitted for several years.[655] All this information helps Greenpeace to show a level of transparency and commitment. In the case of ETC Group, it also has a series of news releases posted on its website. The lists of news are related to the campaigns ETC Group runs, as well as to events that the organization is concerned about.[656] Some of these news releases are available in both English and Spanish to make the information more available to stakeholders in Mexico. As a result, news releases through websites are a critical diplomatic instrument that NGOs use to deliver relevant information about events and achievements to general audiences with the advantage of highlighting information according to their perspective, without any external or journalistic bias.

Another reactive communication instrument is public protests. Greenpeace has been a very active organization in using this tool. Greenpeace's activists climbed the Pillar of Light monument in Mexico City in May 2013 in order to demand President Peña Nieto a halt of GM maize planting in Mexico, see Figure 6.1. The climbing activists displayed over the pillar a giant poster that said "No GMOs" along with a picture of a corn tied to a time bomb, and activists on the ground displayed posters proclaiming that GM maize is a betrayal for the country.[657]

Furthermore, with the intention to raise more awareness among government officials and to make the same demands to the president, Greenpeace activists protested outside the Mexican embassies in Germany, Austria, China, South Africa, Spain, France, Hungary, Israel, and Romania. Those activists dropped a petition letter to the respective ambassadors to be delivered to President Peña Nieto and prevent GM maize planting, and displayed posters asking for the protection of biodiversity in Mexico by saying No to GM maize.[658]

[654] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[655] See http://www.greenpeace.org/mexico/es/Prensa1/
[656] See http://www.etcgroup.org/news-releases
[657] Proceso, "Activistas de Greenpeace Escalan La Estela de Luz; Protestan Contra El Maíz Transgénico," *Proceso*, May 16, 2013, http://www.proceso.com.mx/?p=342168.
[658] La Jornada, "Protesta Mundial de Greenpeace Contra Siembra de Maíz Transgénico En México," *La Jornada*, May 15, 2013, http://www.jornada.unam.mx/2013/05/15/sociedad/044n1soc.

Figure 6.1 Greenpeace protesters at the Pillar of Light

Source: *Greenpeace Mexico*, http://www.greenpeace.org/mexico/es/Noticias/2013/Mayo/Greenpeace-desde-las-alturas/

These public protests along with temporary monuments seizing allow ENGOs to raise awareness among general audiences and government officials by attracting media attention, resulting in warning citizens about the existence of GM foods and the threats GMOs may pose to the environment and human health according to such ENGOs.

6.3.2 Proactive strategic communication

There are different diplomatic instruments that may be used to implement proactive strategic communications which demand mid-term planning and interaction among stakeholders. NGOs are more confident about employing this sort of instruments and have achieved more awareness about the existence of GM foods, supporters, and media attention. The main instruments for proactive communication will be discussed below.

Generate and promote audio-visual productions

Greenpeace through its website and its YouTube channel facilitates audio-visual productions. This organization has a long playlist of videos about sustainable agriculture that involve the GMO fight. There are audio-visual productions explaining what GM foods are and inform the public about this topic, and there are other videos showing the work that Greenpeace has done to prevent GM foods consumption, the protests against GM maize, and the materials elaborated and presented to the general public.[659] On the website, there is also a link to watch the organization's videos uploaded to YouTube. The idea is to concentrate all the audio-visual material on the website so that visitors can find all the advocacy activities related to Greenpeace in an easier and friendly way. Additionally, images related to their campaigns

[659] See https://www.youtube.com/playlist?list=PLdxnZOnaCXyH3-_KICO5zM2u8CLPi20ov

and public protests are also available on its website. It includes pictures of the sustainable agriculture campaign that shows how activists have taken the streets, monuments, or grounds.

In the case of ETC Group, on its website, there is a section devoted to audio-visual material where it has a list of videos about seeds and intellectual property, as well as the so-called terminator technology developed by biotechnology companies to protect the reuse of seeds for sowing in the following seasons.[660] There are links for audios about presentations that the group has had in radio programs and international seminars. The list of videos includes the events that ETC Group has managed and also the official position of the director about the different issues the organization is concerned about. In contrast, this organization does not take advantage of posting videos on YouTube. Although it has a channel in such medium, ETC Group only shows five videos related to synthetic biology,[661] which is also a cause this NGOs defends but is not related to GM food prevention.

Design and distribute printed publications

An important instrument to deter the acceptance of GMOs employed by NGOs is printed publications. The main advantages of this sort of material are that it can be taken home and be analyzed in detail later, it may content as much information as needed, and it may have appealing images to connect with the reader. This instrument is highly used by ENGOs that try to disseminate critical information to increase the level of awareness among stakeholders.

Figure 6.2 Cover of The origin and diversity of maize in the Americas

Source: *Greenpeace Mexico*, http://www.greenpeace.org/mexico/es/Footer/Descargas/reports/Agricultura-sustentable-y-transgenicos/El-origen-y-la-diversidad-del-maiz-2a-edicion/

[660] See http://www.etcgroup.org/es/node/4691
[661] See https://www.youtube.com/channel/UCMIEsye5eODSoiBB8MhgCng/feed

Greenpeace Mexico uses different printed publications that target diverse audiences, from more knowledgeable supporters about GMOs to general public that is less informed. For example, *El origen y la diversidad del maíz en el continente americano* (The origin and diversity of maize in the Americas) is a conjoined report between Greenpeace and Antonio Serratos, see Figure 6.2. This person is a scientific researcher that works in a Mexican local NGO. The report presents the different varieties and subspecies of maize that exist in Mexico, their distribution on the continent, and the impact of GM maize on native corn's diversity.[662] This report targets people who want to know more about diversity and the origin of maize in Mexico, paying attention to the Mexican countryside context. This publication has been successful so that a second edition was issued in 2012.

Another printed publication is *Cultivos transgénicos: cero ganancias* (GM crops: zero profits), Figure 6.3. This report presents a survey of the performance of different GM crops around the world, explaining the problems that GM crops such as soy, rice, maize, and canola have presented all over the years.[663] The report also discusses the farmers' experiences in regards to litigation and production and presents a general map of the world showing where GM crops are cultivated.

Figure 6.3 Cover of GM crops: zero profits and Mexican honey threatened by GM soy

Source: *Greenpeace Mexico*, http://www.greenpeace.org/mexico/es/Footer/Descargas/reports/2010/Cultivos-transgenicos-cero-ganancias/, http://www.greenpeace.org/mexico/es/Footer/Descargas/reports/Agricultura-sustentable-y-transgenicos/Miel-mexicana-amenazada-por-la-soya-transgenica/

In regards specifically to GM soy, Greenpeace Mexico published *Miel Mexicana amenazada por la soya transgénica* (Mexican honey threatened by GM soy). This report explains the ways in which GM soy crops in the Peninsula of Yucatan, south of Mexico, have contaminated the organic honey and the local ecosystems in the zone, and it examines the economic impact on apiculture. This topic is important because Greenpeace advocates in this zone for the prevention of converting forestlands into cultivation

[662] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[663] Ibid.

land, and makes efforts to ban the cultivation of GM soy that contaminates the Mexican honey and affects the exports of Mexican honey to Europe.[664] Both publications covers are shown in Figure 6.3.

Derived from the report mentioned above, Greenpeace Mexico has designed a brochure titled *Cultivos transgénicos ¿Quién pierde? (*GM crops: Who loses?) in order to target broader audiences such as farmers and the general public so that people may connect the loss of corn's diversity with economic losses.[665] Another brochure that is targeted to general public and consumers is *Y tú…¿sabes lo que comes? Guía de transgénicos y consumo responsable* (Do you know what you eat? A guide to GM foods and responsible consumption), see Figure 6.4. This brochure is aligned to the campaign with the same name that promotes a diet free of GM foods.[666] This publication offers a mapping of the different products sold in Mexico by a wide range of food companies that use GM foods as raw materials advising on organic alternatives with a more social responsible production of foods. This brochure has also been very successful, and a third edition was published in 2012.

Figure 6.4 Cover of "GM crops: Who loses?" and "Do you know what you eat? A guide to GM foods and responsible consumption" brochures

Source: *Greenpeace Mexico*, http://www.greenpeace.org/mexico/es/Footer/Descargas/reports/Agricultura-sustentable-y-transgenicos/Cultivos-transgenicos-Quien-pierde, http://www.greenpeace.org/mexico/es/Campanas/Agricultura--sustentable--y-transgenicos/Y-tu-sabes-lo-que-comes/

ETC Group also has an important editorial work. It develops posters with different topics such as Who Will Feed Us? which is available in different languages depending on the targeted country, see Figure 6.5. Additionally, ETC Group is part of the editorial board of the magazine *Biodiversidad, sustento y culturas* (Biodiversity, sustenance, and cultures) published quarterly in ten Latin American countries, including Mexico.[667] This magazine publishes topics related to agricultural systems, environmental conservation, and food systems, all of them as means to prevent the cultivation of GM crops.

[664] Ibid.
[665] Ibid.
[666] See http://www.greenpeace.org/mexico/es/Campanas/Agricultura--sustentable--y-transgenicos/Y-tu-sabes-lo-que-comes/
[667] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.

Figure 6.5 ETC Group poster on climate change and feeding

Source: *ETC Group,* http://www.etcgroup.org/sites/www.etcgroup.org/files/Food%20Poster_Design-Sept042013%20copy.pdf

Another publication from ETC Group is the book *El maíz no es una cosa, es un centro de origen* (Maize is not a thing, it is a center of origin). The first edition was in 2010 and since then, every two years there is a new edition.[668] The book topics focus on maize in Mexico and the ways to protect it and to preserve its diversity. It also presents some perspectives from people working in the cornfields and the actions that the Mexican government has taken toward agricultural communities. This book is usually distributed among Mexican stakeholders.

Mobilize general public

Mobilization of the general public has been a significant instrument employed by NGOs to halt the release GM maize for commercialization in Mexico and prevent GM maize plantation in about six million hectares.[669] For example, *Red en Defensa del Maíz* (Corn Defense Network) in conjunction with *Movimiento Urbano Popular* (Popular Urban Movement) organized a set of public fora and informative workshops simultaneously in different parts of Mexico City in December 2012, along with a public protest outside SAGARPA's office to halt GM maize.[670]

[668] Ibid.
[669] Ribeiro, "Otro Año Contra El Maíz Transgénico."
[670] Ibid.

Greenpeace has a broad experience in orchestrating the media to mobilize public opinion to influence politicians.[671] For example, in February 2013, Greenpeace along with the campaign *Sin Maíz No Hay País* (No Corn, No Country) joined to a farmers protest against GM foods in Mexico City downtown's plaza that was planned by *Red en Defensa del Maíz* and Unorca.[672] Greenpeace slogans for that event were "Monsanto, Monsanto your maize is not a saint!" and "Multinational corporations get out of our countryside!" With a phrase like that, MNCs are demonized by selling its products in the country. This protest was intended to prevent GM maize to be cultivated in the Mexican countryside because such seeds pose social, economic, and environmental risks according to the organization.

Another protest against GM foods organized by Greenpeace was the defense of pure honey in February 2012. This protest was developed outside SAGARPA's office to communicate the petition done to state courts to deny permission to Monsanto for planting GM soy in the states of Campeche, Yucatán, and Quintana Roo, south of the country.[673] Protesters used bilingual slogans stating "Mexican honey GMO-free now!" and wore appealing disguises as bees and Winnie the Pooh (because it eats honey) uniformed with a Greenpeace T-shirt, see Figure 6.6. Though this event was not a very crowded protest, it is significant because honey producers interests are putting forward and supported by Greenpeace which has a worldwide outreach.

Figure 6.6 Greenpeace protesters to protect Mexican honey's purity from GM soy

Source: *Greenpeace Mexico*, http://www.greenpeace.org/mexico/es/Noticias/2012/Febrero/Peligra-pureza-de-miel-mexicana/

In April 2013, ETC Group and Grain, in conjunction with local groups including *Red en Defensa del Maíz,* CECCAM, *Cenami*, Unorca, and 132 *Ambiental* (Environmental 132) organized a week of conferences, protests, and public activities. International participants such as the winner of the

[671] Kellow, "Norms, Interests and Environment NGOs," 6.
[672] Greenpeace, "Greenpeace Se Suma a Protesta Campesina En Contra de Transgénicos," *Greenpeace Mexico*, accessed May 9, 2015, http://www.greenpeace.org/mexico/es/Noticias/2013/Febrero/Greenpeace-se-suma-a-protesta-campesina-en-contra-de-transgenicos-/.
[673] Greenpeace, "Peligra Pureza de Miel Mexicana," *Greenpeace Mexico*, accessed May 9, 2015, http://www.greenpeace.org/mexico/es/Noticias/2012/Febrero/Peligra-pureza-de-miel-mexicana/.

Alternative Nobel Prize and anti-GMO activist Vandana Shiva from India, Pat Mooney (ETC Group executive director) from Canada, and Camila Montecinos from Chile participated.[674] The incorporation of these personalities in those events is important for these NGOs to give a sense of sympathy from other parts of the world that face similar problems, such as Chile or India.

6.3.3 Relationship-building strategic communication

NGOs as MNCs use long-term relationship-building strategic communication to have a closer and constant contact with stakeholders. The ultimate objective is to change policy-makers mentality about GM foods in order to get their ideas placed in the policies or avoid adverse regulations. NGOs as MNCs also widely use lobbying to influence policy-makers and have a stake in regulations. Even though NGOs resources for lobbying are not as splendid as MNCs, NGOs can be in contact with politicians and persuade them with arguments, research, and information. The instruments employed by NGOs for building relationships are explained below.

Lobbying

Greenpeace is an NGO capable of conducting lobbying. This organization has different resources to engage in lobbying and also has the contacts with government officials at a national and state level. Normally ENGOs tend to lobby the secretaries or ministries of agriculture who have the responsibility of biosafety measures and regulations.[675] In Mexico, at a national level, Greenpeace conducts lobbying that involves requesting appointments with politicians such as the secretary of agriculture, the secretary of environment, or government officials from CONABIO, SENASICA, and COFEPRIS:

> With all of them, there is a work of political lobbying, a work of getting in touch, a work of insisting about the issues. Many times, what we do is communication strategies in which we involve the general public so that they write to their representatives and pressure them to get things done, and to talk about the interested themes because sometimes politicians do not want to talk about such themes.[676]

As a result, Greenpeace has contacts with the executive branch and lobbies the secretaries directly involved in GM foods. At a state level, Greenpeace has been lobbying Campeche's government which is in favor of using GMOs.[677] This tactic has allowed Greenpeace to contribute to preventing the lift of the moratorium on GM maize and raise awareness among politicians.

Celebrity endorsement

For the GM food campaign, Greenpeace Mexico has used celebrity endorsement in order to gain empathy from the general public and fans of such celebrities. As a way to counter GM food consumption, Greenpeace has used chefs' endorsement for promoting organic food. For example, Aquiles Chávez, a well-known international chef, was taken with the Rainbow Warrior to Mazatlán where

[674] Ribeiro, "Otro Año Contra El Maíz Transgénico."
[675] Newell, "Trade and Biotechnology in Latin America," 351.
[676] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[677] Ibid.

he was cooking for the local people and was teaching locals how to take advantage of organic produce to prepare a variety of Mexican dishes.[678]

Greenpeace Mexico also uses celebrity endorsement from well-known Mexican writers such as Elena Poniatowska, Carlos Monsivais, and Miguel Ángel Granados Chapa, who usually write pieces of news supporting environmental causes and the defense of maize. Greenpeace also uses endorsement from Mexican actresses such as Diana Bracho, Regina Orozco, Julieta Egurrola and Gabriela de la Garza, who have participated in movies and international TV series.[679] They help Greenpeace to disseminate the message about GMOs in a more understandable way and to make a connection with the general public. The verbal message stated by Gabriela de la Garza, shown in Figure 6.7, says: "I prefer ecological products without GM foods and no agro-toxics that risk my health," next to her signature as part of her endorsement to Greenpeace.

Figure 6.7 Gabriela de la Garza endorsement to Greenpeace campaign of healthy-food, healthy-soil.

Source: *Greenpeace Mexico Facebook page,* posted on May 21, 2015.

Moreover, the use of writers gives credibility to the campaign because they are perceived as trustworthy and worried about social problems in Mexico. Celebrity endorsement as a part of a relationship-building strategic communication is important to connect with the general public because by associating a public face to the campaign the message will be easily recalled every time the stakeholders see that celebrity on the media even in another context. Besides, when these writers and celebrities show concern about environmental issues, mass public is also more attentive to these problems and would like to have a stake in the solution.

Disseminate information to publics

Dissemination of information is one of the most powerful instruments that NGOs have to influence policy-makers and general audiences. With the design and management of such information, NGOs

[678] Ibid.
[679] Ibid.

may push forward their arguments in a convenient way. NGOs can design different pieces of information according to the audience they want to target resulting in better outreach.

A way to disseminate information to publics implemented by Greenpeace is the use of opinion leaders. Ivan Restrepo, a journalist in Mexico assisting Greenpeace efforts, has expressed his support for the defense of Mexican maize in political sections of national newspapers.[680] Additionally, Greenpeace has built important relationships with the media in order to disseminate information. In regards to newspapers, *Reforma* gives an important amount of space to the organization for presenting information about its demands in the national and state sections. In the case of *La Jornada*, this newspaper is very proactive in explaining the implications of GMOs using Greenpeace information and it also requests information from scientists, in contrast to other newspapers in Mexico that do not do that.[681] Moreover, there is also available space in *El Economista, El Financiero,* and *El Universal,*[682] important national newspapers. Greenpeace access to national newspapers gives it and advantageous position to expose its solutions to environmental problems as well as to raise awareness among general audiences.

As a part of disseminating information to audiences, ETC group fortnightly publishes an article in *La Jornada*,[683] a national leftist Mexican newspaper sponsored by the UNAM. In her column, Silvia Ribeiro generally examines the GM foods status in the country, the biotechnology companies' efforts to lift the moratorium on GM maize, and the permissions that companies are requesting to the Mexican government. Through this publication, ETC Group is able to communicate frequently with different stakeholders and raise awareness about biotechnology companies' concentration of power and how new advances in technology may pose risks to the environment.

Create and maintain NGOs networks

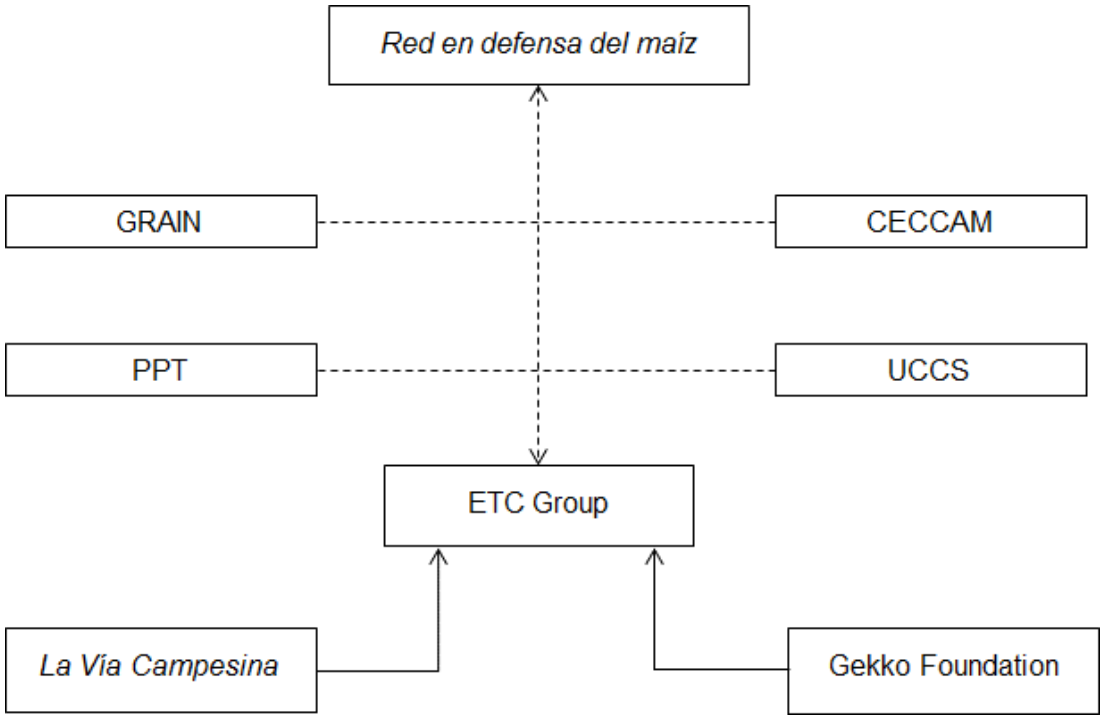
A remarkable effort that ETC Group has done in regards to the creation and maintenance of NGOs network is the participation in the establishment of the Mexico Chapter of the Permanent Peoples' Tribunal (PPT) on the topic of violence against maize, food sovereignty, and autonomy. For the PPT's introductory general audience, scientists from different parts of the world were present. ETC Group's Executive Director Pat Mooney participated as a judge, along with other scientists concerned about GM crops such as Vandana Shiva and Argentinean Andrés Carrasco, who claimed that glyphosate is carcinogenic.[684] This topic in the tribunal was set up to denounce the effects of free trade on maize agriculture and the rights of people. PPT not only discusses GM maize but comprises agricultural systems that provide a better life for corn farmers.

Additionally, ETC Group has contributed to the creation of *Red en Defensa del Maíz,* (Corn Defense Network) which has evolved into a solid network that works toward deterring the commercialization of GM maize in Mexico. According to ETC Group website and printed publications I have analyzed, I may map out the interaction of ETC Group and other NGOs in a collaborative network shown in Figure 6.8.

[680] Ibid.
[681] Ibid.
[682] Ibid.
[683] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.
[684] Ibid.

This network includes different Mexican ENGOs and farmer NGOs that interact with each other and participate in the PPT efforts to stop GM maize cultivation.

Figure 6.8 Collaborative network of ETC Group and Mexican NGOs.



Note: the dotted lines refer to the cooperation of Mexican NGOs except GRAIN, which is international, while black arrows refer to international NGOs deterring GM foods.
Source: Elaborated by the author.

ETC Group not only has interaction with international NGOs, but also with Mexican NGOs concerned about GM foods, leading to a solid network that works toward an important issue in Mexico. These organizations work together in issuing printed publications, developing workshops and contributing to the PPT in the issue of maize. The most important unit is *Red en Defensa del Maíz* that directly work in defending corn from biotechnology companies, government regulations and defending peasants' rights.

As a result, these diplomatic instruments used by NGOs have been effective in raising awareness among general audiences. Citizens have been warned about GM food existence and their disadvantages. It has also helped to show the biotechnology companies' concentration of power and the effects it may have on Mexican farmers. In order to be more effective, global ENGOs usually deliver consistent messages which are replicated by domestic NGOs. These messages will be analyzed below.

6.4 Messages delivered by NGOs

NGOs have realized they may employ powerful diplomatic instruments to influence policy-makers and MNCs. Sometimes it is easier to pressure directly MNCs rather than expecting a quick policy change from governments. ENGOs deliver messages to general audiences to appeal people interested in the environment and increase the number of supporters for their causes. In order to attract publics' attention

and get approval, NGOs engage in communication strategies that are regularly well done, controversial and sophisticated, characteristics that allow them to gain media coverage and public attention.[685]

According to the analysis of the diplomatic strategies, instruments, and resources presented in the section above, I may identify the main ways of communication that ENGOs use to deliver their messages. First, they strongly rely on printed publications such as brochures or magazines, giving special importance to publication in newspapers as a way to communicate massively. In a second level, the elaboration of audiovisual material is also very useful to communicate the actions they make. The use of videos is very practical to project actions and events. Additionally, nowadays NGOs integrate new media as an innovative way to communicate more time efficiently and interactively. Through the use of new media such as websites, weblogs or podcasts, NGOs distribute information, promote their cause and raise funds.[686] For example, Greenpeace has a very complete website that shows videos, publications and news, as well as invites visitors to donate to its campaigns.

Drawn from my empirical and documentary research, I may identify that NGOs primary interests regarding GM foods are to protect the environment and the consumer's rights. In order to achieve these goals, NGOs are determined to halt the consumption, adoption, cultivation, promotion, and development of GM foods. NGOs are also concerned about the patents of seeds because they consider biotechnology companies are patenting life as well, with a growing concentration of power in a few companies, and food sovereignty as a consumer right.

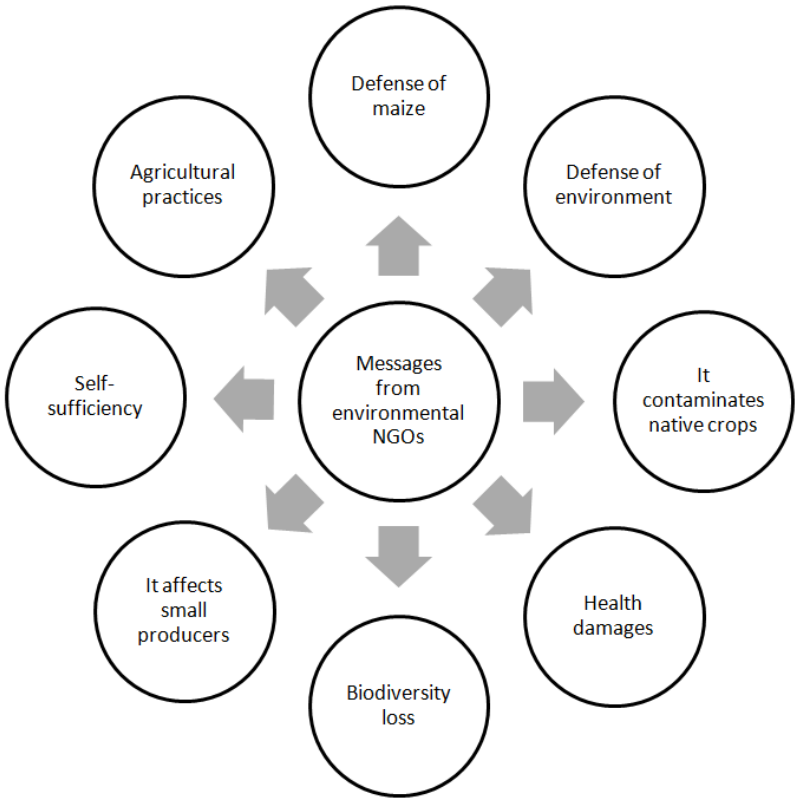
Moreover, some international NGOs such as ETC Group and its network *Red en Defensa del Maíz* use Vandana Shiva's activism and themes as a reference to have broader support and credibility. Shiva promotes the conservation of native species of seeds through the organization she founded, *Navdanya* (Seed freedom), and has been promoting the problems Indian farmers have faced by cultivating GM crops.[687] She also has popularized the term biopiracy and bioprospecting to refer to the appropriation of indigenous knowledge of biodiversity by private companies to make profits essentially through the establishment of patents.[688] Global and Mexican ENGOs have adopted this term in order to highlight the risks of patents and the loss of biodiversity. Also, ENGOs use Vandana Shiva as a celebrity endorser to gain sympathy and credibility due to the fact that she is known worldwide because of her activism, documentaries, and publications against GMOs. Also, some NGOs mention and refer to Seralini's article in Food and Chemical Toxicology about rats eating GM foods that developed tumors but, later on, was withdrew from the journal. This example is used to show how controversial the GM foods topic has been and to suggest that biotechnology companies have repressed anti-GMOs research.

Consequently, ENGOs in Mexico use consistent themes to prevent the consumption and cultivation of GM foods, presented in Figure 6.9. In general, the main message is that NGOs along with citizens need to protect the environment from GM crops. Once GM crops are planted, contamination because

[685] Sigfrido Burgos, "Corporations and Social Responsibility: NGOs in the Ascendancy," *The Journal of Business Strategy* 34, no. 1 (2013): 23.
[686] Hyunjin Seo, Ji Young Kim, and Sung U. Yang, "Global Activism and New Media: A Study of Transnational NGOs' Online Public Relations," *Public Relations Review* 35, no. 2 (2009): 123.
[687] See http://vandanashiva.com/
[688] Vandana Shiva, "Bioprospecting as Sophisticated Biopiracy," *Signs* 32, no. 2 (2007): 303.

of the transgenes and pesticides will be unavoidable and irremovable. Therefore, the defense of environment is vital to surviving in this world, and for future generations' subsistence.

Figure 6.9 Themes presented in the messages of environmental NGOs



Source: Elaborated by the author.

NGOs usually link the theme of defense of the environment to biodiversity loss. That is to say, citizens along with NGOs need to do something to prevent the loss of biodiversity that GM crops pose. By referring to such loss, audiences fear in the future there will be no more varieties of plants and animals, and thus the world will be different as to how it is known now. This message also implicates that a loss of nature will have negative consequences for human and animal health. Therefore, GM foods are considered as a threat to humans and the environment. Additionally, ENGOs also argue that there is evidence showing that GM foods are harmful to humans, and they may deteriorate health and cause diseases. In the following lines, I will explain the messages used by Greenpeace and ETC Group to target stakeholders in Mexico.

6.4.1 Greenpeace

Greenpeace main concern in regards to GM foods is the promotion of ecological farming. Through this agricultural technique, Greenpeace expects the population to reach better food by going back to the basics and benefiting small-scale producers. Furthermore, under this premise, Greenpeace Mexico promotes healthy food linked to a healthy soil through sustaining biodiversity. By adopting an organic-free of pesticides agricultural approach, farmers will be able to produce nutritious food, and thus, the

diseases generated by ingesting industrialized food may be prevented.[689] In regards specifically to GM foods, Greenpeace main message is:

> GM foods are not the solution to solve the feeding problems in the Mexican countryside. For Mexicans, obviously, this is not a successful solution to have a successful countryside. The solution is the adequate use of agricultural techniques oriented to the management of organic products with the correct supply of grains originated in some regions of the country to take them to the regions where they are really needed for distribution. And the GM food campaign is moving from only preventing GMO adoption to a scheme of organic agriculture and feeding, without agrochemical toxics.[690]

Through this message, Greenpeace emphasizes agricultural techniques to produce organic food as a solution to deter GM foods, and it is consistent with the message delivered to different audiences around the world. The adaptation made to the Mexican audience is the focus on the correct distribution of food needed in the country.

6.4.2 ETC Group

ETC Group is not only concerned about preventing the adoption of GM foods but is also interested in promoting better alimentation and agricultural practices. ETC Group campaign to deter GM foods includes an analysis of integral problems of the peasant's agricultural systems. Thus, ETC Group supports peasant's strategies that include Mesoamerican and indigenous agricultural traditions oriented toward self-sufficiency of the local communities, rather than oriented to commercialization.[691]

> We are focused on finding ways in how to strengthen the social structure, the agricultural practices that already exist where there are native and healthy seeds, in communities that still have common-property resources, in much politicized communities, and the GM maize issue falls under all this discussion, it is like a focal point or nucleus. However, we are not only thinking about maize because this would be a very weak struggle, so this is the completeness of the self-sufficiency problem and peasant's sovereignty that includes the language, territory, protection of resources, and extractivism on the one hand, and on the other, we have very scientific information to deliver to audiences of different levels of education.[692]

ETC Group's main message also emphasizes the need for more organic agricultural practices that exclude the cultivation of GM foods and improve the farmers' life. Under this scheme, large-scale productions are not envisioned because that does not fit with the practices and property rights small farmers have. Furthermore, the strategy focuses on preserving the agricultural practices that Mexican peasants already perform.

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[689] Edith Martínez, "¿Por Qué Queremos Comida Sana?," *Greenpeace Mexico*, 2015, http://www.greenpeace.org/mexico/es/Blog/Blog-de-Greenpeace-Verde/por-qu-hacemos-esta-campaa/blog/52750/.
[690] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[691] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.
[692] Ibid.

ETC Group also recognizes that its audiences have different levels of education and the way to address them needs to be different. As a result, this organization delivers a message for each of the two main audiences: supporters in the cities and farmers in the countryside. For the urban audience, ETC Group is not only focused on preventing GM maize consumption, but also promotes getting a proper alimentation and having better food on the table:

> People need to realize that we have been imposed industrialized food by companies that are not leaving their profits in Mexico, and they are the same companies that have the country in the first place for obesity, hypertension, and diabetes in international rankings. There are communities where we have talked about industrialized food contaminated with GMOs where women have more cancer since the invasion of industrial food. Therefore, we tell them, we have to stop being passive toward industrialized food that independently of being contaminated with GMOs, it is evidently causing devastation.[693]

Furthermore, ETC Group emphasizes the need to move apart from industrialized food because it is the main reason of important illnesses that the Mexican population from the city is suffering. For the rural audience, ETC Group emphasizes the importance of taking care of the cornfield and the refinement of seed's selection. The organization also advises farmers on the disadvantages of some Mexican governmental programs of cultivation that require changing from corn crops to more profitable and seasonal crops. Those crops are not a good option because farmers depend on maize cultivation which is also used for food, and the cultivation of other crops involves the use of specific agrochemicals that may spoil the soil.[694] Therefore, ETC Group warns of the effects of changing crops and also shares experiences from other farmers that have faced similar problems.

6.5 Stakeholders targeted in Mexico

Currently, there is a debate whether allowing cultivation and commercialization of GM maize because there is a suspension of permissions to cultivate GM maize in Mexico. There are other GM foods that are also in the spotlight. Nevertheless, ENGOs major concerns are related mainly to corn, soy, and cotton, because these three crops are the most cultivated and have profound implications for the majority of the small-scale farmers' activities and lifestyle.

Because there are different audiences, ENGOs in Mexico communicate ad hoc messages for each stakeholder for GM foods prevention. ENGOs have found out that farmers' needs are different to those consumers living in the city. Additionally, the level of education of each audience is different. As a result, ENGOs have developed different approaches to diverse audiences. However, the central message remains unchanged and consistent: to protect the environment, biodiversity, health, and food, as explained below.

[693] Ibid.
[694] Ibid.

6.5.1 Mexican government agencies

NGOs relations with governments vary according to the type of organization, issue, and resources that NGOs may have. In some cases, there is cooperation and even synergy between NGOs and government, in others, there is an adversarial relation and an emphasis on government deficiencies.[695] Furthermore, well-known NGOs may mobilize resources in order to take action on different issues, in addition to the high degree of brand recognition they have, such as Greenpeace, which is able to raise funds and provide services at a global level.[696] Greenpeace in Mexico enjoys a high level of reputation and has supported domestic NGOs in a collective action lawsuit to prevent GM maize cultivation at a pilot, experimental or commercial level since 2008 that led to a moratorium on GM maize cultivation. The action lawsuit was to sue government agencies such as SAGARPA, SEMARNAT, as well as biotechnology companies such as Monsanto, DuPont Pioneer, Dow AgroSciences and Syngenta Agro because of their violation of the right to have a GMO-free biodiversity in the country.[697] As a result, global and local NGOs have delivered messages to two important government agencies: SAGARPA and SEMARNAT, demanding the halt to GM foods cultivation.

Additionally, Greenpeace Mexico communicates with SAGARPA, SENASICA, and CONABIO through press conferences where the organization disseminates its research and evidence in regards to GM foods.[698] In these press conferences, Greenpeace explains the risks and implications of GM food cultivation and consumption in Mexico. Greenpeace publishes different materials about GM foods such as maize, soy, and cotton. Though this communication is indirect, the information is disseminated and listened among different government agencies. For example, CONABIO pays attention to Greenpeace's research. CONABIO has been very sympathetic to Greenpeace position about GM foods,[699] whereas SAGARPA or SEMARNAT are in an opposite position.

> Greenpeace develops a strong campaign of public relations. Recently, it has used adventurous guys that climb the Congress or the national mall mast and they deploy flags that say not to GM maize. They also drop letters to the Mexican embassies around the world to be sent to the president, to SAGARPA, and SEMARNAT to know their messages. So, these secretariats are obliged to listen to them because they have the right of audience.[700]

Consequently, government agencies in Mexico receive and perceive Greenpeace' message differently. It is because government officials feel constrained to listen to civil society groups such as NGOs and thus build a perception about GM foods, instead of desiring to be informed and include information from different organizations to build a different point of view. Even though that CONABIO shows sympathy and a sort of support for Greenpeace, the rest of the regulatory secretariats stay away

[695] Hocking and Cooper, "Governments, Non-Governmental," 367.
[696] Ibid.
[697] Revolución 3.0, "Adelita San Vicente, La Mujer Que Enfrentó a Monsanto," *El Ciudadano*, 2014, http://www.elciudadano.cl/2014/05/27/106115/adelita-san-vicente-la-mujer-que-enfrento-a-monsanto/.
[698] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[699] Ibid.
[700] Juan Bernardo Orozco Sánchez (International Affairs Coordinator, SAGARPA), interview by author, February 14, 2014.

from Greenpeace and try to maintain a balance between NGOs arguments and science having a more objective position.

> As a result, I can tell you that the government scientific agencies disagree with the political decisions made by SAGARPA, SEMARNAT, Health, and COFEPRIS, with their respective secretaries who have been imposed.[701]

Therefore, presumably government agencies do not have a concurrent opinion about GMOs resulting in an impasse on the acceptance of GM foods so far. From the NGOs perspective, this means that there is not a consensus among government agencies and some key officials are strong supporters of GM foods along with biotechnology companies.

> At a local level discourse, the Mexican government does not want to talk openly about GM foods. What is more, it has been disguised in different forms, disguised as the reform to the countryside that refers to nothing else but to opening the door to GM foods because this reform is considering the industrialization of the countryside that includes this entire technological kit that these companies are offering.[702]

The reform to the countryside is the opposite of Greenpeace current campaign on healthy food that promotes organic and sustainable agriculture. To Greenpeace, this reform will condemn small-scale farmers to poverty because they will have to buy GM seeds and the agrochemicals to produce them, resulting in the deterioration of health, loss of biodiversity, and dependence of biotechnology companies. Nevertheless, for Mexican government agencies, it seems industrialization of the countryside may be a solution to improve productivity and farmers' productivity and lifestyles.

> It is important to notice that if we do not give small-scale producers the opportunity and technological tools we are determining them to a backlog. If self-consumption producers keep on working with the *coa* (digging stick), and we get to them to take pictures to see how cute they look because of the folkloric issue, we are condemning them to slavery, poverty, and underdevelopment. However, if we give them technological tools in a consistent and informed way in order to have higher productivity, either with biotechnology or conventional technology, they will be able to associate and evolve into productive groups, and we will give them an opportunity then to overcome underdevelopment.[703]

As a result, ENGOs and government agencies seem to be in a different tune regarding GM foods. On the one hand, environmentalists would like to protect the environment, biodiversity, producers' traditional agriculture, and to protect human and animal health. On the other, government agencies would like the small-scale farmers to be more productive, modern, and independent from the government subsidies.

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[701] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[702] Ibid.
[703] Juan Bernardo Orozco Sánchez (International Affairs Coordinator, SAGARPA), interview by author, February 14, 2014.

Additionally, in order to have more influence directly on government policy-makers, Greenpeace also has direct contact with some government officials. Greenpeace Mexico's GM foods activists, Aleira Lara and Silvia Díaz, have direct access to politicians by email and phone calls.[704] This instrument is helpful to continue promoting organic agriculture as a countermeasure to agricultural biotechnology. Greenpeace Mexico has also communication with governments at a state level which can lead to identifying and understanding local needs. For example, when Greenpeace Rainbow Warrior was visiting Cozumel in the state of Quintana Roo, south of Mexico, Greenpeace was contacted by the secretary of the environment of a nearby state, Campeche. The secretary was interested in discussing the deforestation levels in the zone because of soy plantations at an experimental phase.[705]

In regards to ETC Group, the only way in which this organization communicates with the Mexican government is through the campaign *Sin maíz no hay país* (No corn, no country) because this campaign has a public representation in contrast to ETC Group that does not have the same amount of resources.[706] It is worth mentioning that ETC Group has some similarities and differences with some organizations involved in the campaign. However, when it is time to communicate with the Mexican government, the campaign has only one voice. ETC Group does not maintain direct communication with the Mexican government because ETC Group works close to indigenous communities and the PPT rather than lobbying or influencing politicians. What ETC Group has observed is that policy-makers are not knowledgeable about GM foods, but the government agency that conducts independent and objective work is CONABIO.

> There is a big ignorance about this topic among government officials, which is hopeless. There are people well prepared and impeccable in CONABIO or CIBIOGEM, but they have been ostracized, or there are people definitely influenced by AgroBIO with very specific interests in the approval of the commercial cultivation of GM maize. Therefore, it is not possible to make them aware. There is not an open channel.[707]

As a result, ETC Group only communicates indirectly with government agencies through printed publications and resources available through its website. Even though this NGO has tried to be in contact with some government officials, its priority is to have a direct effect on the countryside working with farmers rather than lobbying the government. Moreover, ETC Group conducts important research on exposing biotechnology companies concentration of power in reports that are publically available and, therefore, these reports can be consulted by any government official interested in the topic.

6.5.2 Scientific institutions

Maintaining communication with scientific institutions is important in order to get research done and shared. This communication allows NGOs to be updated on the latest research about GM foods specifically in the country they operate. Greenpeace gathers information from different institutions around the world because of its size and relations. However, keeping in touch with Mexican scientific

[704] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[705] Ibid.
[706] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.
[707] Ibid.

institutions allows it to be acknowledgeable about the locality and the problems the natural environment is encountering.

> Greenpeace communicates with Dr. José Sarukhán, Dr. Antonio Turrent, Dr. Antonio Serratos, Dr. Elena Álvarez-Buylla. All of them are the so-called big Mexican scientists, who have been working in the maize issue and have been making a strong defense against GMOs.[708]

These researchers work in different scientific institutions, but most of them studied or worked for the UNAM, an institution that conducts a plethora of research in different disciplinary areas. Therefore, Greenpeace keeps communication and cooperation with UNAM. José Sarukhán, former president of UNAM, works for the Mexican government as the national coordinator of CONABIO. As a result of his contribution to this agency, CONABIO is a research unit considered by NGOs and other government agencies as independent, objective and trustful. However, because of Sarukhán links to UNAM, CONABIO may be considered as biased toward UNAM's position. Additionally, Greenpeace has communication and cooperation with researchers. For example, Elena Álvarez-Buylla is a UNAM researcher who has been doing scientific research on GM maize and its effects on the environment, as well as Antonio Serratos who has collaborated with research and reports with Greenpeace.[709]

In the case of ETC Group, this NGO does not have a continuous cooperation with UNAM. Sometimes ETC Group has made some workshops for self-managed groups of students from UNAM who want to know more about GM maize and its effects. Additionally, these workshops have been delivered to high-schools in Mexico City.[710] It is the closest work with scientific institutions in Mexico. Because ETC Group does not have a specific contact with other institutions, it can be considered as more independent in relation to research and generation of ideas.

6.5.3 Local non-governmental organizations

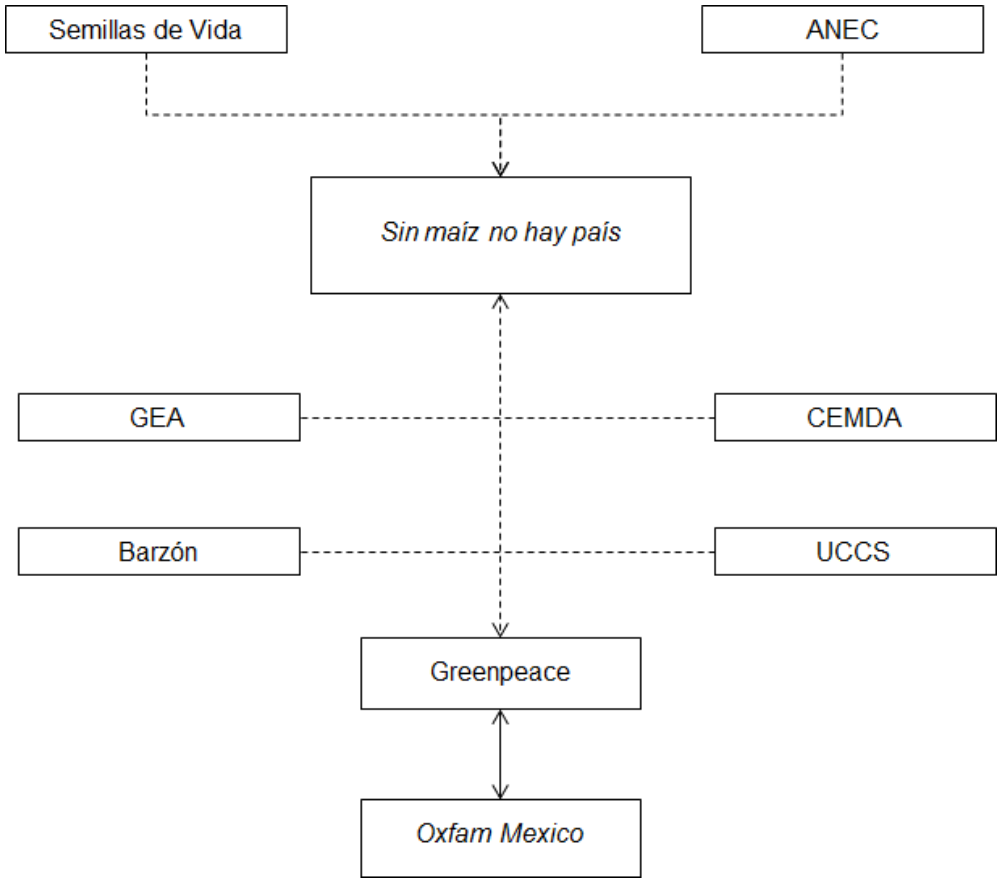
Communication from global NGOs with local NGOs is important in order to advance common goals. Even though in Mexico GM soy and GM cotton are cultivated and these crops may affect biodiversity, local NGOs focus on the protection of corn. Global and local NGOs have the common goal of preventing GM maize cultivation and commercialization in Mexico. As a result, cooperation among NGOs has concentrated on how to protect the varieties of corn existing in Mexico, which according to ENGOs, are threatened by GM maize which would turn plantations into mono-crops.

Greenpeace maintains relevant communication with the campaign *Sin Maíz No Hay País* (No Corn, No Country) and other NGOs such as GEA (Group of Environmental Studies), CEMDA (Mexican Center of Environmental Right), Oxfam Mexico and the *Barzón* (farmers' labor union),[711] as shown in Figure 6.10. *Sin Maíz No Hay País* is an organization that groups over 300 organizations from all over the country that are devoted to protecting maize and its diversity through a campaign intended to promote

[708] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.
[709] Ibid.
[710] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.
[711] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.

food sovereignty, public policies for agricultural sustainability, and the prohibition of GM maize.[712] This campaign is strongly supported by ANEC (National Association of Commercial Businesses for Farm Producers), and Semillas de Vida (Seeds of Life) which are local NGOs advocated to protect corn. This campaign is endorsed by celebrities concerned about the loss of the diversity of maize as part of the Mexican culture. This sort of communication has allowed Greenpeace to form alliances to make a more solid public protest against GM foods.

Figure 6.10 Communication of Greenpeace Mexico with local NGOs.



Note: the dotted lines refer to communication with Mexican NGOs, while black arrows refer to international NGOs deterring GM foods.
Source: Elaborated by the author.

Also, Greenpeace has had cooperation with the Union of Scientists Committed to Society (UCCS) which is an important local NGO to prevent GM maize adoption. Communication has been specifically with Antonio Serratos because UCCS has a group of scientists that, accordingly with Greenpeace, work hard not only on the GMO issue, but also on the issue of toxics, and are interested in publishing their findings on the impact of GM foods on the countryside and the communities.[713] Although it seems a diversification of cooperation with other organizations, researchers that work at UCCS also do research at UNAM. It shows how research in Mexico is highly concentrated in UNAM and UCCS as a research NGO.

[712] Sin maíz no hay país, "¿Quiénes Somos La Campaña Nacional Sin Maíz No Hay País?," accessed May 18, 2015, http://www.sinmaiznohaypais.org/?q=node/908.
[713] Raúl Estrada (communications director, Greenpeace Mexico), interview by author, February 13, 2014.

Furthermore, UCCS resembles an American NGO called Union of Concerned Scientists (UCS) which has a campaign to halt GM crops and adopt a better agricultural system by adopting public breeding programs and ecological agriculture.[714] The name of both institutions is very similar though they have not links and do not work together. Moreover, UCCS has become very proactive in persuading the Mexican government to prohibit the GM maize cultivation and commercialization.

Environmental groups tend to be defenders of long-term social interests, including the preservation of the environment against genetic contamination in the case of the biotechnology area.[715] Additionally, in order to achieve their goals, NGOs alert the public and conduct global campaigns in the name of environmental progress.[716] This is the case of UCCS which highlights GM foods environmental and health risks to advance its interests. For example, Álvarez-Buylla who is president of UCCS, in an interview in Spain made a gross comparison of GM foods with the most fearful weapon of mass destruction, the atomic bomb, to refer to the unknown effects of GM foods:

> People are subject to this public risk in favor of private profits. Because this is the only thing lying behind them, really. It exists because of profitability reasons. Do we want to throw the atomic bomb to see what happens? This is an atomic bomb with a life of its own. This is a contamination that is going to have its own evolutionary dynamic, and those responsible for this crime against humanity won't be able to be accountable.[717]

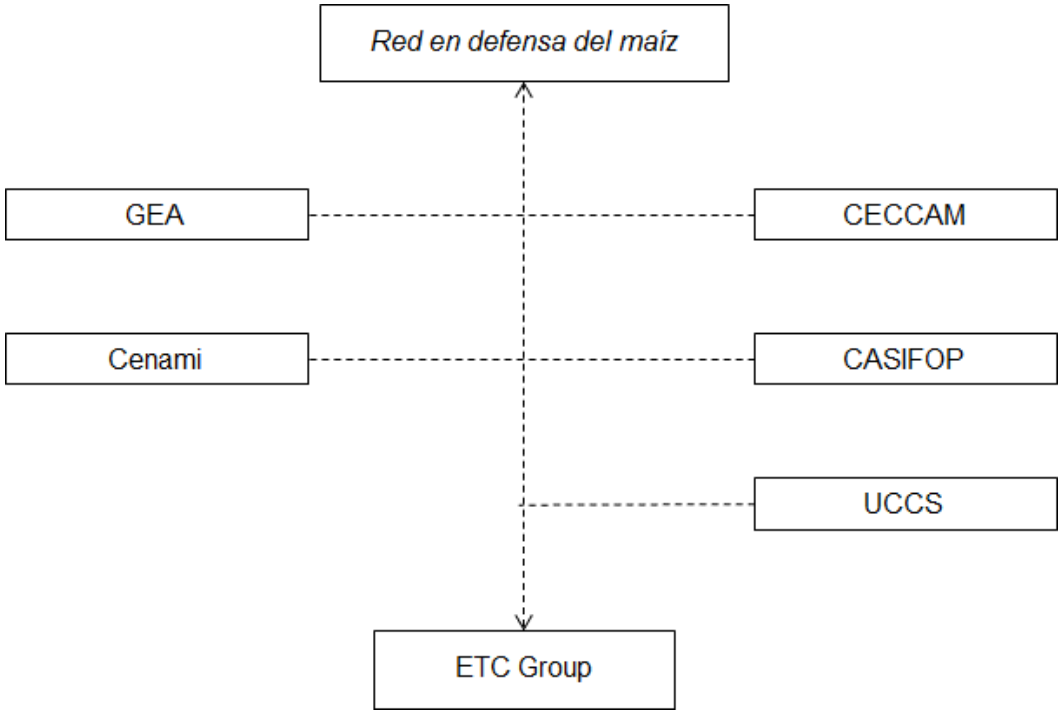
Through this statement, we can see the use of environmental victimization that some NGOs perform. Making a division of social practices into benign and destructive is essential for the success of environmentalists.[718] Furthermore, part of the global resistance to GM foods relies on a mixture of scientific irrationalism, economic protectionism, and anti-US sentiment.[719] Therefore, ENGOs sometimes use sentiments of fear, uncertainty, anxiety, and hate to appeal supporters and gain their sympathy. Moreover, NGOs try to establish morals and regimes. NGOs acumen to advance their agenda includes the capability to collect data, formulate ideas, and disseminate information so that they achieve certain protective regimes.[720] As a result, because Álvarez-Buylla disseminates ideas of environmental victimization, UCCS may be perceived as an organization that emphasizes the destructive power of GM foods and highlights the negative effects of GM foods using victimization rather than a scientific approach.

ETC Group works closely with different Mexican NGOs focused on countryside issues, see Figure 6.11. For example, there is a strong collaboration with GEA (Group of Environmental Studies) which

[714] See http://www.ucsusa.org/our-work/food-agriculture/our-failing-food-system/genetic-engineering-agriculture#.VVXvarntmko
[715] Frédéric Varone, Christine Rothmayr, and Éric Montpetit, "Comparing Biotechnology Policy in Europe and North America: A Theoretical Framework," in *The Politics of Biotechnology in North America and Europe: Policy Networks, Institutions, and Internationalization*, ed. Éric Montpetit, Christine Rothmayr, and Frédéric Varone (Lanham, MD: Lexington Books, 2007), 14.
[716] Pagnani, "Environmental NGOs," 795.
[717] Raúl Rejón, "Los Transgénicos Son Una Bomba Atómica Con Vida Propia," *Eldiario.es*, 2014, http://www.eldiario.es/sociedad/transgencios-cientifica-critica-Alvarez-Buylla_0_263173824.html.
[718] Rob White, "Environmental Harm, Ecological Citizenship and Transnational Environmental Activism," in *Engaged Environmental Citizenship*, ed. Heather J. Aslin and Stewart Lockie (Darwin NT: Charles Darwin University Press, 2013), 21.
[719] Falkner, "Global Biotech Food Fight," 100.
[720] Hocking and Cooper, "Governments, Non-Governmental," 372.

has a long history in Mexico. Another significant NGO is CECCAM (Center of Studies for the Change in the Mexican Countryside) which is an organization that makes meaningful publications about GMOs such as *El surco* (The groove) newsletter, based on official data, and some publication in cooperation with Vandana Shiva.[721] Cenami (National Center for Support to Indigenous Missions) also works along with ETC Group. This organization is very influential on Mexico's indigenous territories and supports long-term environmental protection projects. Another organization working with ETC Group is CASIFOP (Center for Social Analysis, Information, and Popular Formation).[722]

Figure 6.11 Communication of ETC Group with other NGOs.



Source: Elaborated by the author.

At a national level, ETC Group also collaborates with the UCCS, sharing information and designing material.[723] Additionally, ETC Group maintains critical communication with the network *Red en Defensa del Maíz* (Corn Defense Network) which groups indigenous and peasant communities, as well as civil society organizations that are against the cultivation of GM maize in Mexico. Furthermore, with this network ETC Group disseminates information about the problems that biotechnology generates and how it affects the indigenous communities.[724] ETC Group and *Red en Defensa del Maíz* usually gather at least once a year to discuss agricultural issues.[725]

The lack of policy influence from environmental groups is related to their fewer resources and less organization than biotechnology companies, their fragmented structure because they are considered just as social movement organizations devoted to mobilizing segments of the society, whereas typical interest groups perform activities that involve working with the government or lobbying the state.[726] As

[721] Verónica Villa (program manager, ETC Group), interview by author, February 6, 2014.
[722] Ibid.
[723] Ibid.
[724] Ibid.
[725] Ibid.
[726] Varone, Rothmayr, and Montpetit, "Comparing Biotechnology Policy," 14.

a result, we can see two fragmented groups trying to prevent GM maize cultivation. On the one hand, the campaign *Sin Maíz No Hay País* has a good amount of resources to mobilize people and promote the protection of maize and includes the cooperation of Greenpeace and to some extent the participation of ETC Group. On the other, the network *Red en Defensa del Maíz,* which also promotes the protection of maize, has fewer resources but the support of the TPP and strong collaboration with ETC Group.

In summary, this chapter has analyzed how NGOs contribute to public diplomacy. It also presented an identification of the main NGOs that currently are campaigning to prevent the use of GM foods. The strategies, resources, and instruments, as well as the messages delivered to different stakeholders in Mexico, were also discussed. In the following chapter, I will analyze how the Mexican government has incorporated arguments from both, MNCs and NGOs, and made decisions about GM foods. I will explain whether the Mexican government has changed GM food regulations in response to US government pressure and US biotechnology firms' promotion, or according to its own agencies' scientific and economic assessments.

Chapter 7.
How the Mexican government has incorporated proponents' and opponents' arguments and made decisions

Chapter 6 analyzed the importance of NGOs in public diplomacy and the way in which these are involved in preventing the adoption of GM foods in Mexico. I identified the global NGOs that currently have a campaign against GM foods in Mexico. I examined the strategies, resources, and diplomatic instruments employed by ENGOs, along with the messages used by NGOs to prevent GM foods adoption and the targeted stakeholders in Mexico.

The purpose of this chapter is to evaluate whether the Mexican government has incorporated arguments from the American government, MNCs or NGOs in its regulations or statements regarding GM foods as a result of public diplomacy activities. I will analyze the Mexico's government change of GM food policy in response to US government influence and US biotechnology firms' promotion, or according to its own agencies' scientific and economic assessments.

Because Mexico is immersed in the NAFTA and it has to accomplish commitments, shares a border with the United States, and the GM food debate is embedded in political, cultural, and economic environments, the GM food issue in Mexico may be better analyzed with an intermestic approach. That is to say, international and local actors have influenced the Mexican political environment. International factors such as the debate about GM foods, along with MNCs looking for new markets for their products or keeping the existing ones have an effect on the Mexican government decision-making. Additionally, at a domestic level, the different government agencies not only make decisions and regulations considering domestic institutions, researchers, and opinions but also take information from international perspectives that will contribute to the way in which policies, perceptions, and decisions are elaborated. Consequently, the GM food debate and regulation in Mexico are complex.

In the first section of this chapter, I will explain the evolution of the GMO legislation in Mexico. I will analyze what factors have contributed to changes in legislation. In the second section, I will explain why the Mexican government lacks a national biosecurity policy and whether it has made efforts to draft one. In the third section, I will show the current positions of the agencies concerned about the introduction of GM maize in Mexico and why they present such positions. I will also explain which GM crops are currently harvested in Mexico in the fourth section. Finally, the main challenges the Mexican government faces when addressing the issue of GM foods will be identified.

7.1 Evolution of GMOs legislation in Mexico

As I have mentioned previously, international and domestic forces have influenced the GMO regulations in Mexico. On the one hand, there are international organizations and commitments that the Mexican

government has to follow. On the other, there are domestic institutions and NGOs that have pressured the government to take a different approach to GMOs. Since the 1980s, Mexico's agricultural and food policy has been influenced by different international factors, such as lending agencies (World Bank), global regulatory bodies, trade agreements, and international standards for food safety.[727] One of the most important international factors affecting the Mexican food policy has been the NAFTA, which paved the way for a change from a nationalist to a liberal approach. With the signature of the NAFTA with the US and Canada on January 1, 1994, the agricultural and food policy turned toward free trade. NAFTA requirements implied the gradual elimination of import tariffs and quotas over 15 years, with tariffs removal for the two most important food staples for Mexico, corn and beans, scheduled for 2008.[728] The signature of NAFTA was a confirmation of openness to free trade among the three countries. It has been as a frame to liberalize agricultural products and restructure the countryside's supportive system that the Mexico's government has had with farmers.

Furthermore, the evolution of GM food regulations in Mexico has not been isolated from the international technological events. A part of it has been tied to the American government's GMO policy evolution and as a result of public diplomacy activities. Therefore, circumstantial evidence convinces me that the Mexican government has adopted similar standards, regulations, and terms of the American government. As a result, the Mexican government has adopted a practical approach to GM foods. I will explain this gradual emulation on some GMOs regulations below.

In 1986, the US government established the Coordinated Framework for Regulation of Biotechnology as a formal policy of GMOs using existing laws designed to protect public health and the environment.[729] The products derived from agricultural biotechnology are subject to oversight by three agencies, the USDA's Animal and Plant Health Inspection Service (USDA-APHIS), the EPA, and the FDA. GMOs are subject to oversight by one to three of these agencies, depending on the GMO characteristics.[730]

The USDA-APHIS regulates GM products that may pose a threat to agriculture. This agency regulates and deregulates the import, handling, interstate movement, and release into the environment of GM crops, as well as experimental use or field trials.[731] Because APHIS' main purpose is to protect the agriculture from pests and diseases, or from organisms that may pose a risk to agriculture, this agency has regulatory oversight over GM crops called "regulated articles." Such regulated articles may acquire a non-regulated status after a petition process in which petitioners supply specific scientific information about the GM crop in question.[732] EPA regulates pesticides use, distribution, and sale in order to protect the environment. EPA also oversights pesticides that are produced by biotechnology techniques, as well as the pesticides produced by GM plants. This agency also establishes the tolerance limits for pesticides residues.[733]

[727] Elizabeth Fitting, *The Struggle for Maize: Campesinos, Workers, and Transgenic Corn in the Mexican Countryside* (Durham and London: Duke University Press, 2011), 48.
[728] McAfee, "Beyond Techno-Science," 150.
[729] USDA, "How the Federal Government Regulates Biotech Plants," 2013, http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=biotech-plants.xml.
[730] Ibid.
[731] Ibid.
[732] Ibid.
[733] Ibid.

The FDA regulates the safety of all GM foods intended for human consumption, but not the pesticides used in GM crops which are under EPA regulation. In 1992, the FDA promulgated the principle of substantial equivalence.[734] This principle gives GM foods the same status as their conventional counterparts, avoiding special regulations for GM products. The FDA has also established that GM crops are not food additives, so they do not require pre-market approval. Furthermore, the FDA has established a voluntary consultation process with GMOs developers to ensure the safety of these products. In such process, GM foods developers submit a safety assessment, which is evaluated by the FDA's Biotechnology Evaluation Team for safety and compliance with the law.[735] As a result, the US government has opted for a product-base assessment approach for the GMO regulation taking into account the Coordinated Framework for Biotechnology.[736]

The US government has made clear the functions and roles that each regulatory agency should accomplish through the coordinated framework. It has set a pragmatic policy of GMOs and has established an easy regulation process that relies on the biotechnology companies' willingness to supply information. The coordinated framework for biotechnology has worked successfully hitherto. However, there are some improvements to be done in order to be more transparent, make sure GM foods are safe and make clearer the roles of each agency in the approval of GMOs. On July 2015, President Obama released a memo asking the involved agencies for a revision of the coordinated framework for biotechnology. The purpose of updating the coordinated framework is to improve transparency, coordination, and predictability, as well as a clarification of roles and responsibilities of each agency.[737] However, the substantial equivalence principle remains the same.

The regulation of GM foods in Mexico started in 1988 after the Campbell Company requested a permit for experiments with GM tomato.[738] Because the Mexican government did not have regulations of GMOs at the moment, the solution was to establish a National Committee on Agricultural Biosafety (CNBA) which later evolved into the Interministerial Commission on Biosafety of Genetically Modified Organisms (CIBIOGEM).[739] As a result, the first legislation about GMOs in Mexico was the NOM-056, which originated in 1995, and comprised procedures for GM crops field tests but did not contemplate large planting and commercialization.[740] Since 1996, GMOs have been planted in the country. The General Directorate of Plant Health (DGSV) of the SAGARPA, under the review of CIBIOGEM, authorized 141 GM crops permits by 1999.[741]

[734] FDA, "Biotechnology: Genetically Engineered Plants for Food & Feed," *Food* (Center for Food Safety and Applied Nutrition, 2015), http://www.fda.gov/Food/FoodScienceResearch/Biotechnology/default.htm.
[735] FDA, "Biotechnology - Questions & Answers on Food from Genetically Engineered Plants," *Food*, 2015, http://www.fda.gov/Food/FoodScienceResearch/Biotechnology/ucm346030.htm.
[736] Nap et al., "The Release of Genetically Modified Crops.," 9.
[737] John P. Holdren et al., "Improving Transparency and Ensuring Continued Safety in Biotechnology," *White House Blog*, 2015, https://www.whitehouse.gov/blog/2015/07/02/improving-transparency-and-ensuring-continued-safety-biotechnology.
[738] Edit Antal, "Interacción Entre Política, Ciencia Y Sociedad En Biotecnología. La Regulación de Los Organismos Genéticamente Modificados En Canadá Y México," *Norteamérica* 3, no. 1 (2008): 36.
[739] CIBIOGEM was established in 1999 to formulate and coordinate national biotechnology policies related to GMOs.
[740] Falkner and Gupta, "The Limits of Regulatory Convergence," 123.
[741] Ariel Álvarez-Morales, "Mexico: Ensuring Environmental Safety While Benefiting from Biotechnology," *Agricultural Biotechnology and the Poor*, 2000.

In 2001, COFEPRIS[742] was created in order to regulate, control, and foment safety issues.[743] COFEPRIS is the agency that evaluates, in a case by case basis, the studies that producers elaborate and present about the safety and possible risks of GMOs to request approval for human consumption.[744] Such requests should be submitted in a written format along with the studies related to innocuousness and risks. COFEPRIS gives a final resolution about the evaluation and publishes a definitive list of the traits and GM crops approved for consumption. Therefore, COFEPRIS decides which GM foods are authorized to be consumed and commercialized in Mexico. As a result, GM food producers who desire to introduce these products to the country should submit their requests to COFEPRIS in order to get the authorization for import and commercialization.

Taking into account the procedures undertaken by the FDA and the COFEPRIS, we can see that the processes are basically the same. The COFEPRIS has adopted the same steps in which companies should submit their own analysis of evaluation for GM foods, then the agency evaluates the provided information, and finally gives a resolution, such as the case of the FDA. Consequently, COFEPRIS has adopted the substantial equivalence principle that the FDA promulgated to treat GMOs in the same way as conventional foods in the 1990s.

COFEPRIS establishes the substantial equivalence to evaluate GM foods as a scientific ground to guaranty that a GM food is innocuous and nutritious as a conventional one.[745] This governmental agency trusts companies on the information they submit because it does not have the budget and time to conduct the research itself. This procedure is similar to FDA, which does not conduct independent research but analyzes data submitted by biotechnology companies. However, this information is not perceived as genuine by ENGOs which ask for independent research

> We have talked with COFEPRIS, and they, in order to import, do not realize studies in Mexico. We have foundations in the same regulatory system of the United States. We are based in the same regulation or deregulation of the United States, and we know in that country the GM food regulation is very lax.[746]

Although ENGOs believe COFEPRIS does not conduct a fair assessment of GM foods, it is in the interest of this government agency to secure the innocuousness of food. Similarly, FDA interest is also to protect its population from risks so we may think that such agency assures that the products commercialized in the US are safe, and therefore, Mexico has accepted them for consumption. However, the FDA does not request a mandatory pre-market evaluation, it is just voluntary, and some NGOs in the US suggest this procedure to be mandatory with the objective of having a more transparent procedure:

[742] COFEPRIS is the Federal Commission for the Protection against Sanitary Risk is an agency within the Secretariat of Health.
[743] COFEPRIS, "Historia: La Creación Y Desarrollo de La Cofepris," *COFEPRIS*, accessed July 5, 2015, http://www.cofepris.gob.mx/cofepris/Paginas/Historia.aspx.
[744] COFEPRIS, "Evaluacion de La Inocuidad de Un OGM," *COFEPRIS*, accessed June 9, 2015, http://www.cofepris.gob.mx/AZ/Paginas/OGMS/Evaluacion-ogms.aspx.
[745] COFEPRIS, "¿Por Qué Es Importante Evaluar El Riesgo de Todos Los Alimentos Transgénicos?," *COFEPRIS*, accessed June 9, 2015, http://www.cofepris.gob.mx/AZ/Paginas/OGMS/Evaluar-riesgo.aspx.
[746] Adelita San Vicente (general director, Semillas de Vida), interview by author, February 12, 2014.

> We also agree that the current crops on the market are safe to eat, but we still believe that there should be a mandatory pre-market approval process so that the FDA should be looking at the crop and ensure that it's safe for food made from that crop to be eaten, before the crop is grown commercially, and before the crop is turned into food and is consumed by Americans, with the intention to have a mandatory approval process, not voluntary. Right now it's a voluntary consultation process, we would want a mandatory approval process where again the government tells the consumers that the food is safe.[747]

We can see this as a weakness of the coordinated framework because more rigor is needed to make sure all companies submit a pre-market evaluation. It has provoked NGOs to criticize the work the FDA makes in regards to safety. This weakness has been translated to the Mexican context in which NGOs claim the Mexican government also relies on companies' information and perform the same approval processes as the American government.

Although the Mexico's government position toward GM foods was moderate in the 1990s, with the signing of the NAFTA it moved away from a restrictive to a pro-biotechnology approach. In 2004, the NAFTA's Commission for Environmental Cooperation of North America (CEC) published a report on the possible effects of GM maize in Mexico. This report was elaborated in response to a request from 21 indigenous communities of Oaxaca, along with three environmental groups, Greenpeace México, CEMDA, and UGAM. The report recommends the Mexican government to strengthen the already adopted moratorium on GM maize planting and to minimize imports of such crop from countries that already cultivate it in order to prevent gene flow.[748] Furthermore, it recommends establishing a requirement of GM maize labeling for all maize imports from the US to address social and cultural matters related to Mexican peasants and farmers.[749] These recommendations are based more on social and cultural reasons, rather than risks to health or biodiversity. This approach is because some contributors of the advisory group and reviewers such as José Sarukhán, Elena Álvarez-Buylla, and Antonio Turrant, are promoters of the protection of maize.

Despite the CEC report findings and recommendations, the three NAFTA governments ignored or refused them.[750] Moreover, the recommendations and conclusions of CEC were opposite to biotechnology companies and the governments, and the secretary of environment presented the report to the Mexican Congress two months later after receiving it and by the pressure of NGOs.[751] Consequently, the Congress ignored such report and speeded up the legislative process to decree the LBGMOs in March 2005.[752]

[747] Greg Jaffe (biotechnology project director, Center for Science in the Public Interest), interview by author, July 15, 2015.
[748] CEC, *Maize and Biodiversity: The Effects of Transgenic Maize in Mexico*, *Commission for Environmental Cooperation* (Montreal, 2004), 27.
[749] Ibid., 31.
[750] Fitting, "Importing Corn," 143.
[751] Ita, "La Defensa Internacional," 59.
[752] Ibid.

> We worked in the negotiations of this law and a large part of the negotiators, and the specialists that advised legislators at that time were biased. Furthermore, when the negotiations of the law started, there were five initiatives; one of them was the idea that Mexico had a holistic evaluation so that if you wanted to sell a food or a grain for example, you needed to pass an evaluation of environmental risks, and that portion of the initiative was disposed. Besides, the industry always opined that such idea was a different scope: what was related to health was a competence of the Secretariat of Health, and what was related to the environment was a competence of the Secretariat of Environment. As a result, Mexico responded to this pressure.[753]

A part of the Congress was biased toward biotechnology, and despite the fact that some PRD[754] members against GMOs suggested a cautious approach to biotechnology, the resulting law accepts and promotes biotechnology. Mexico's government did not just ignore CEC report, but also encouraged the adoption of biotechnology and GMOs. This adoption may be a result of public diplomacy interactions between the American and Mexican government exist, as well as the influence of biotechnology companies that own GM seeds on policy-makers.

The Mexican government promulgated the LBGMOs to replace NOM-056, as a regulatory framework to assess GM crops risks, allowing the limited release to the environment, as well as planting and selling GM crops, to be decided on a case-by-case basis by CIBIOGEM. This law allows commercial planting of GM maize and other GM crops, such as cotton and soy. However, GM maize importing, testing and planting is subject to permission on a case-by-case basis and plantings are allowed only in restricted zones and excluded from the centers of origin and biodiversity of maize which were undefined at that moment.

In fact, with the LBGMOs, the Mexican government set the basis for an open approach to biotechnology applications. The LBGMOs also incorporates language to encourage GMOs. It endorses CIBIOGEM with the authority to promote GMOs and the exchange of technology related. In the second chapter of the LBGMOs related to CIBIOGEM's role, some of the functions that the law mandates are the following:

- To promote the strength of capabilities of those institutions with activities related to GMOs, in order to accomplish the objectives of LBGMOs and applicable regulations.
- To promote in the international, bi-national, regional, and multilateral arenas the exchange of information related to GMOs.
- To promote programs related to technology transfer and scientific research that implies GMOs.

Additionally, the chapter six of the LBGMOs is related to scientific and technological research on biosecurity and biotechnology, and dictates mainly the following points concerning the promotion of biotechnology:

[753] Interview with a governmnet official of SEMARNAT (Mexico City), Februray 02, 2014.
[754] PRD stands Party of the Democratic Revolution, which is a center-left party in Mexico. Some of PRD members founded domestic environmental NGOs to protect maize.

- The federal executive will diffuse, support, and strengthen scientific and technological research through policies and instruments established in the law. In regards to biotechnology, this support will be oriented to encourage research and development projects in order to solve specific needs of the country and benefit domestic producers.
- To encourage scientific and technological research on biosecurity and biotechnology, a program formulated by CONCACYT will be established to include scientific research, scientific training and education, and international cooperation.

As a result, CONACYT promotes domestic and international courses, seminars, and education programs about biotechnology and biosecurity. Even though that CONACYT does not promote directly GMOs from the US, it highlights a program offered by the USDA, the Cochran Fellowship Program.[755] As discussed in Chapter 4, this program is offered by the USDA-FAS and includes agricultural biotechnology which addresses GM foods issues. This program is a public diplomacy instrument used by USDA-FAS to accomplish its goals. Therefore, the Mexican government is enthusiastic about biotechnology and the products related. Furthermore, it is not quite interested in listening to or adopting NGOs arguments, despite NGOs seem to be closer to peasants and possibly, they know more about their needs and desires.

Consequently, LBGMOs responded to biotechnology priorities, to commitments with the NAFTA members and pressure from the US government to the interests of the industries that benefit from agriculture, and maybe to politicians that are benefited and gifted by agricultural companies. Even though that the Mexican government at that time had the institutions and personnel inside agencies that conducted independent work and research, and who also suggested a more environmentally friendly and protective of biodiversity approach, policy-makers at top levels decided according to other commitment and interests rather than social needs. The Mexican government did not incorporate national environmental and farmers NGOs and international ENGOs claims. By contrast, it favored the interests of the biotechnology companies along with American interests of promoting free trade with the NAFTA members. Thus, policy-makers responded to public diplomacy work performed by the US government and biotechnology companies.

Moreover, the Mexican government at that time did not listen to domestic NGOs, and it seems it did listen to biotechnology companies or responded to requests from Monsanto:

> Calderón was the president that opened the permissions. And we requested on multiple occasions an interview with him that was never granted. However, the only one that gave us an interview was the Secretary of Agriculture, and he admitted that there were many risks, but there were also many interests.[756]

It shows how the government at the time was not interested in listening to civil society. However, it was able to listen to companies. Moreover, it seems the executive responded to MNCs interests by allowing GMO cultivation, on a case-by-case basis. Furthermore, these new permits seem to be the result of the president interaction with biotechnology companies through public diplomacy activities. In

[755] See http://www.conacyt.gob.mx/cibiogem/index.php/cursos-y-posgrados/cochran-2015
[756] Adelita San Vicente (general director, Semillas de Vida), interview by author, February 12, 2014.

January 2009, former President Felipe Calderón met Monsanto's CEO Hugh Grant in Davos, Switzerland. In that meeting, Calderón highlighted the importance of agriculture to Mexicans whereas Grant reassured Monsanto's commitment to supporting technology education in Mexico and maintaining its agricultural research programs that support the environment.[757] In his return to Mexico, Calderón proclaimed the end of the moratorium that banned GM maize cultivation and commercialization in Mexico established in 1999, opening opportunities for biotechnology companies to request permissions for GM maize cultivation.[758] The personal contact between the president of Mexico and the CEO of Monsanto are an instrument of public diplomacy that shows to be effective.

Gradually GM food regulations in Mexico advanced toward commercialization. The LBGMOs recognizes that maize and other plants for which Mexico is the center of origin need to be protected, so it requires the SAGARPA and SEMARNAT to determine which regions of Mexico are the center of origin and diversity.[759] In October 2012, both secretariats reached an agreement to determine, according to the LBGMOs, the centers of origin and centers of genetic diversity for maize. The result was the denomination of eight[760] northern states of the country.[761] Originally all Mexico was considered a center of origin and diversity. However, this designation is narrowed only to eight states. Furthermore, this decision was taken under pressure from biotechnology companies:

> Another example of pressure is when in this agency we worked with the determination of the centers of origin. In that map, you can see what officially is determined: eight states. The agreement was reached eventually… we originally had the idea of determining practically the whole country as the center of origin and center of genetic diversity for maize, in fact after many years of negotiation, a very long negotiation in which we included information from CONABIO with a very solid map, the idea was to determine the whole country. And there were so many pressures to the extent that the CEO from Monsanto came to talk to the president about the issue of the centers of origin. This is the level of pressure… There are many interests and much pressure; the embassy called on several occasions. Indeed, there was much influence over the decision-makers in order to get things done in accordance with the policy of North America.[762]

Consequently, the Secretariat of Agriculture and Secretariat of Environment during the designation of centers of origin and biodiversity for maize in 2012 were under the pressure of the same company that influenced President Calderón in 2009 to allow permits for GM maize. Monsanto is very interested in commercializing its maize products in the country. As a result, the company uses its power to access the most critical actors in the Mexican government, as the president, to induce a change in regulations

[757] Presidencia de la República, "El Presidente Calderón Se Reúne Con El Presidente Mundial de Monsanto, Hugh Grant," *Comunicación Social, Sala de Prensa*, 2009, http://calderon.presidencia.gob.mx/2009/01/el-presidente-calderon-se-reune-con-el-presidente-mundial-de-monsanto-hugh-grant/.
[758] Ita, "La Defensa Internacional," 61.
[759] Fitting, *The Struggle for Maize*, 71.
[760] The eight states are Baja California, Baja California Sur, Chihuahua, Coahuila, Nuevo León, Tamaulipas, Sinaloa and Sonora.
[761] CIBIOGEM, "Centros de Origen Y de Diversidad Genética," accessed June 27, 2015, http://www.conacyt.mx/cibiogem/index.php/sistema-nacional-de-informacion/zonas-restringidas/centros-origen.
[762] Interview with a governmnet official of SEMARNAT (Mexico City), Februray 02, 2014.

and get the production and commercialization of GM maize in Mexico. It is a public diplomacy instrument employed by an MNC in order to influence the political environment.

To respond to these actions, and to protect Mexico as a center of origin for maize, some domestic NGOs took actions against GM maize authorizations. On 2013, domestic NGOs with the support of Greenpeace started a class action lawsuit to prevent GM maize cultivation at a pilot, experimental or commercial level. This class action lawsuit was to sue both government agencies, SAGARPA and SEMARNAT, as well as biotechnology companies such as Monsanto, DuPont Pioneer, Dow AgroSciences and Syngenta Agro because of their violation of the right to have a free-GMO biodiversity in the country.[763] As a result, in October 2013, a federal judge granted a judicial suspension of the permissions to plant GM maize at a pilot, experimental or commercial level.

This class action lawsuit is an important civil society milestone because an action taken by the judiciary power regarding GM foods had not occurred previously in the country. Moreover, the intervention of the judiciary is worthwhile in terms of making checks and balances in the Mexican political system especially when the executive power has been skewed toward biotechnology.

> Yes indeed there are negotiations from Monsanto with the federal government with the intention of commercially using GM seeds… We had access to a letter that, on August 14, 2013, Monsanto's Latin America North General Director and President Manuel J. Bravo Pereira sent to Secretary of Agriculture Enrique Martínez y Martínez, which says, "I want to reiterate our commitment to continue collaborating with the authorities in the process to obtain the permissions for the commercial use of GM seeds." This statement makes us confirm that this negotiation indeed exists, and there is intention from Monsanto to commercialize GM seeds.[764]

As a result, hitherto Monsanto continues pressuring the Mexican government, specifically the Secretary of Agriculture, in order to commercialize GM maize. This company has a very bad reputation worldwide. In addition to the possibility of gaining a new large market for its products, Monsanto would also have access to research in the different varieties of maize and obtain different germplasm that is only available in Mexico because it is the center of origin for maize. Although the Mexican government has living banks and dry banks of germplasm, it is not enough to preserve all the maize varieties. Biotechnology companies could preserve them and own them in the future, becoming a profitable asset for these companies and setting aside the government and farmers from the ownership. Consequently, the LBGMOs strongly supports biotechnology and its applications, allowing biotechnology companies to initiate businesses in Mexico. Furthermore, this support to MNCs is a result of the implementation of public diplomacy activities taking into account the support of the American government and the persuasion of biotechnology companies such as Monsanto. Despite these regulations and influences, the Mexican government lacks a national policy of GMOs.

[763] Revolución 3.0, "Adelita San Vicente."
[764] Carmen Aristegui, "Suspende Juez Permisos Para Maíz Transgénico," *Aristegui Noticias* (Mexico, 2013), October 10, http://aristeguinoticias.com/1010/mexico/suspende-juez-permisos-para-maiz-transgenico/.

7.2 Lack of a biosecurity and biotechnology national policy

Mexico still does not have a national policy of biosecurity and GMOs, the only element it has is the Law of Biosafety of Genetically Modified Organisms (LBGMOs), but not a consensus or general policy on what to do with GMOs. Therefore, there is not a government vision and long-term strategy about biosecurity and biotechnology. As a government official from SEMARNAT highlights,

> What the government needs is to have a clear policy toward biosecurity, and we do not have that. The reality is that, since the LBGMOs took effect, 12 to 13 years have passed in that topic, and we have not built a national policy, we do not get to agree to say this is the strategy that Mexico is going to follow in biotechnology, or these are the points that we have to add. There is not an official governmental perspective about biosecurity or biotechnology.[765]

Additionally, some Mexican officials recognize that despite the LBGMOs, there is not an official policy about GM foods. SAGARPA is still working in elaborating a public policy. In early 2014, when I interviewed Deputy Secretary of Agriculture Jesús Alberto Aguilar Padilla, he mentioned that the Secretariat was planning to organize a forum to listen to experts in favor and against GMOs. Later on, based on the information gathered, the government would define and decree a national policy, so that the Secretariat will have a policy in the future.[766] As a result, on July 18, 2014, the National Thematic Forum on Biotechnology, Strategic Supplies (improved seeds and fertilizers) and Equipment took place in the state of Guanajuato as an attempt to gather information about biotechnology. Aguilar Padilla expressed that this forum would allow the Secretariat to listen to positions, beliefs and prejudices from producers, businesspersons, and financial agents, as well as scientific researchers, in regards to biotechnology. Furthermore, Secretary of Agriculture Enrique Martínez y Martínez emphasized that some contributions from this forum include insights to develop public policies related to biotechnology and GMOs which are supported by science.[767] Nevertheless, this forum just ended up in insights about biotechnology; no further policies have been formulated.

Moreover, there is no a national communication strategy in regards to GMOs. The federal government does not communicate very well what it is doing. In contrast, biotechnology companies and NGOs are communicating what they are interested in or the cause they want to promote. In fact, the different government agencies involved in GM foods do not agree with some points and differ in perspective:

[765] Interview with a governmnet official of SEMARNAT (Mexico City), Februray 02, 2014.
[766] Jesús Alberto Aguilar Padilla (Deputy secretary of agriculture, SAGARPA), interview by author, February 17, 2014.
[767] SAGARPA, "Analizan Instrumentos Para Elevar La Productividad Y Competitividad Del Sector Primario En Foro de Reforma Del Campo," *Sala de Prensa*, 2014, http://www.sagarpa.gob.mx/saladeprensa/2012/Paginas/2014B563.aspx.

> If the government wants to do the things right, it needs to do first a policy where we all are involved, sitting all together to reach an agreement, stop fighting, and construct a policy that says this is where the country is going, and this is what we have to do and not to do with GMOs. Once we have an agreement, then we can communicate. Otherwise, what happens is that companies communicate their interests, NGOs communicate what they are interested in, and the government pseudo-communicates, those who communicate. For example, CIBIOGEM has a bias; it is clearly biased toward biotechnology. Therefore, there is not a communication strategy from the federal government, and the one who shouts louder pays more, buys more newspapers headlines, buys more journalists, is the one that wins the battle, the battle in the media.[768]

As a result, the Mexican government needs a national policy of GMOs led by the Secretary of Agriculture to direct the inter-agency activities into actual plans to improve the Mexican agriculture and the lives of farmers, as well as to communicate accurately and precisely what the government is doing. However, taking into account the Forum on Biotechnology that SAGARPA promoted, it seems the Mexican government is changing its goal and mixing the formulation of a GMOs national policy with a reform to the countryside.

For example, in the National Thematic Forum on Biotechnology, Strategic Supplies and Equipment that took place in Guanajuato on July 18, 2014, Francisco Bolivar Zapata who is the technology advisor to the President and Executive Secretary of CIBIOGEM, was also present. As previously analyzed in chapter 4, this governmental actor is a pro-biotechnology person in favor of GMOs and promotes the adoption of GM foods as a way to evolve in agricultural issues in the country. In this forum, Bolivar Zapata emphasized the importance of research as a means to document experiences in new technologies. He also detailed that research should be focused on biotechnology with the aim of conducting actions to improve the Mexican countryside. Furthermore, he highlighted the interest that President Peña Nieto has on gradually increasing the budget for research in new technology up to one percent of the GDP.[769] These declarations make clear his level of influence over President Peña Nieto in favor of biotechnology as a way to improve the quality of the Mexican countryside.

Furthermore, in order to have a broader agenda, President Peña Nieto has proposed a Reform to the Countryside that may allow the commercialization of GM foods as explained in chapter 5. This reform intends to be a structural transformation that includes a thematic line about increasing farmers' productivity considering the introduction of biotechnology, as well as equipment and strategic raw material such as seeds and fertilizers. In relation to this point, Deputy Secretary Aguilar Padilla has expressed that the objective of this reform is to increase agricultural production so that Mexican consumers have more availability of produce at accessible prices, and reduce imports to achieve food sovereignty.[770] Nevertheless, taking into account producers' perspective, the executive director of

[768] Interview with a governmnet official of SEMARNAT (Mexico City), Februray 02, 2014.
[769] CNA, "Presente El CNA En Foro Nacional Temático Sobre 'biotecnología, Insumos Estratégicos (Semillas Y Fertilizantes) Y Equipamiento,'" *En Contacto*, 2014, http://www.cna.org.mx/encontacto_historico/Encontacto/encontacto_23jul2014.htm#FORO_BIOTECNOLOGIA.
[770] Gustavo de la Rosa, "Transformación ejidal, el reto de Peña," *CNNExpansión* (Mexico City, 2014), http://www.cnnexpansion.com/economia/2014/01/15/ejido-en-la-mira-de-la-reforma-del-campo.

ANEC[771] Víctor Suárez signals that this reform will only promote the privatization of the land, free-duty imports, and the production of GM seeds, favoring big producers.[772] As a result, on the one hand, the countryside reform may be perceived just as a green light for large MNCs to do business with the Mexican farmers and to introduce GM foods for commercialization and get control of national corn production. On the other, reform is necessary in order to be a food self-sufficient country. As Deputy Secretary Aguilar Padilla remarks, Mexico needs to achieve food sovereignty. However, adopting GMOs in Mexico means dependency because of the costs of GM seeds and because Mexico would be dependent on the biotechnology companies that sell those products.[773]

The Mexican farmers' reality is very complex. On the one hand, small-scale farmers get used to saving seeds from the previous season and plant them for the next one. So a scheme where they have to buy seeds is not possible due to their economic situation. Additionally, the Mexican government, through SAGARPA, has a program called MasAgro managed by CIMMYT. MasAgro is a program aimed at increasing maize and wheat productivity in Mexico over a period of ten years, from 2010 to 2020. It is intended to strengthen food security through research and development of skills, as well as to transfer technologies to the countryside so that small and medium-scale producers of maize and wheat achieve high-steady yields and get profits.[774] At the same time, it seeks to mitigate climate change effects in Mexico.[775] However, NGOs perceive this program as biased, that respond to American interests, as well as insufficient to improve the small-scale farmers' quality life:

> There is a very important ancestral knowledge in the Mexican countryside that is being lost and has been ignored and even despised. Nowadays the government program for the countryside is called MasAgro, which is the modernization of the traditional agriculture, with the sin in the name, which wants to modernize the traditional, and now we are clear that in such ancestral knowledge there is fundamental wisdom. It should have a dialogue with the current science, with the molecular biology and its molecular techniques. But the central point is to the service of whom it is, who owns the intellectual property rights, whom that knowledge is that enriches our maize and keeps on recreating the countryside… In fact, this MasAgro program that was put in the CIMMYT, which is not a public research center but a center linked to the Rockefeller Foundation. I think it is very important to look for and work on a separate topic of property rights in which we include the peasants' participation.[776]

Moreover, MasAgro has some failures, such as a low level of investment, farmers' resistance to adopting hybrid seeds, and some soils unable to harvest crops for conservation.[777] That is to say, the seeds developed by CIMMYT are not necessarily apt for the Mexican soil, and Mexican peasants are not accustomed to buying seeds for the following seasons. Such farmers save their seeds, and they

[771] ANEC is the National Association of Commercial Businesses for Farm Producers
[772] Rosa, "Transformación ejidal,".
[773] Jesús Alberto Aguilar Padilla (Deputy secretary of agriculture, SAGARPA), interview by author, February 17, 2014.
[774] CIMMYT, "Modernización Sustentable de La Agricultura Tradicional | Descripción General," 2012, http://masagro.mx/index.php/es/que-es-masagro/descripcion-general.
[775] Ibid.
[776] Adelita San Vicente (general director, Semillas de Vida), interview by author, February 12, 2014.
[777] Ernesto Perea, "¿MasAgro O Menosagro?," *Imagen Agropecuaria*, 2012, http://imagenagropecuaria.com/2012/%C2%BFmasagro-o-menosagro/.

plant them again. They also have knowledge about how to improve the seeds which has been transferred from generation to generation. Sometimes that knowledge cannot be found in books or laboratories. As a result, small-scale farmers, and their supporters are risk-adverse, closed to new technology opportunities, uncomfortable to governmental schemes, and confined to a limitation of the land. So, they are not considering GM maize or hybrid seeds, but a combination of different new agricultural technologies would be ideal.

Another critical point of MasAgro is the program's stakeholders. First, SAGARPA tries to find ways to modernize and help small-scale producers and all countryside people in general. CIMMYT, which is a pro-biotechnology institution, includes GMOs as an option for farmers' productivity. Second, donors are pro-biotechnology and are actors that in some way influence the political environment. For example, Bill and Melinda Gates Foundation promotes the development of new technology projects. This foundation considers the program as very innovative and strongly supports CIMMYIT. Additionally, Carlos Slim, an important businessperson in Mexico, also contributes with donations to CIMMYT and is pro-biotechnology.

MasAgro already exists to help farmers to overcome poverty and be more productive. However, the Reform to the Countryside is promoting the privatization of the communal land that peasants already have as a way to increase efficiencies in rural areas. This reform is portrayed as an agricultural development measure, but it seeks more privatization and more concentration of land among few owners. In this context, the Reform to the Countryside and privatization is not the best solution to improve peasants' productivity, but to strengthen MasAgro and emit a public policy of GMOs may be more beneficial in the short and long-term.

7.3 Current governmental positions toward GMOs in Mexico

The Mexican government has opted for a pragmatic approach to GMOs with the LBGMOs, has settled a series of procedures in order to cultivate GM crops, and has opted for a case-by-case assessment. Despite the existence of LBGMOs, the government agencies involved with GM foods seem to be working without coordination and direction. The position each agency has adopted toward GMOs is discussed in the following lines.

7.3.1 SAGARPA

The agency that leads the issue of GM foods is the Secretariat of Agriculture. In Mexico, this secretariat is politically important in comparison to the Secretariat of Environment, which is not very protagonist but exists in order to protect the environment. Furthermore, as expected from a government, this secretariat is concerned about the progress of the people in the countryside along with maintaining a correct food supply that may operate Mexico in a self-sufficient way. The Mexican government needs to consider two important structural decisions, according to Deputy Secretary of Agriculture Jesús Alberto Aguilar Padilla. He considers that the first important decision is whether to lose the right to possession of seeds and buy GM seeds, which are very expensive and thus becoming dependent on biotechnology companies. The second decision is whether the origin of maize will be lost in the future

with the introduction of GMOs because Mexico is the center of origin and diversity for corn.[778] As a result, the intellectual property rights and the possible loss of biodiversity are the main issues that the Mexican government is concerned. The government does not want to depend on a few biotechnology companies which will get the power to negotiate prices and supplies.

Additionally, SAGARPA has a set of social programs to support farmers in order to increase productivity, including the purchase of some supplies such as seeds. Hitherto, what Mexican peasants make each season to survive economically, is to save their best seeds to plant them and harvest for next season. They usually travel from town to town, and they bring they seeds with them. Then, as part of their culture, peasants save seeds, and they do not accustom to pay for them. This practice could generate many troubles with biotechnology companies that, as a part of their commercial strategy for GMOs, request not to save seeds and pay for the patents. However, the majority of Mexican farmers are small-scale growers with limited economic resources who would demand more support from SAGARPA programs in the form of subsidies. As a result, the Mexican government would have to increase SAGARPA's budget to subsidize small-scale farmers, and this would increase the federal government debt because currently it does not include buying expensive supplies such as a biotechnological kit including GM seeds and pesticides. It would lead to dependency in a few companies which would gain large profits based on governmental purchases.

Furthermore, another concern for the Mexican government is the implications that GM crops may pose the environment and farmers. Biotechnology companies sell a GM technological kit including seeds and pesticides. GM seeds only work in conjunction with specific pesticides, which may damage the environment, water deposits, soil, and the farmers' health.[779] Most importantly, it is crucial to evaluate whether the technological kit is suitable for the Mexican countryside because it was developed according to American or Canadian agronomical conditions such as soil composition, annual average temperature and precipitation, and local specific pests, not for the Mexican reality. The Mexican countryside requires seeds that imply less use of pesticides and less environmental impact so that farmers can be more productive without affecting their health and preserving the national seed varieties. Hitherto, there are no GM seeds developed by MNCs specifically for these particular Mexican conditions.

> Conventional cultivation implies the use of pesticides against caterpillars in soybeans and cotton. If you use a conventional seed variety, and there are soybean loopers or pink caterpillars, then you will use pesticides and herbicides with an impact on the environment and the farmers who sometimes do not use the necessary protection for handling these agrochemicals, and eventually, this will hurt their health, lungs, skin, etc. Therefore, if we would have a biotechnological seed variety that does not require the use of those agrochemicals, the producer along with the investor will save in many applications, and there will be benefits to farmers' health and the environment… We, rather than obliging someone to use this and not the other, should say: considering the law you have these rights and these obligations, and you will have to decide.[780]

[778] Jesús Alberto Aguilar Padilla (Deputy secretary of agriculture, SAGARPA), interview by author, February 17, 2014.
[779] Ibid.
[780] Juan Bernardo Orozco Sánchez (International Affairs Coordinator, SAGARPA), interview by author, February 14, 2014.

Consequently, adopting a biotechnological variety for the Mexican countryside requires saving on pesticides and herbicides in contrast to current biotechnological seeds offered. Therefore, the Secretariat of Agriculture faces a dilemma. On the one hand, it would like to improve the capacities of production of small-scale farmers and the countryside peasants by using and facilitating agricultural biotechnology and GMOs. On the other, the current biotechnological options will lead to a dependence on specific products, seeds, pesticides, and suppliers. As the government is the most important supporter of small-scale farmers, it would be converted into a buyer of biotechnological products representing an enormous deal for biotechnology companies and a financial burden for the Mexican government.

7.3.2 SEMARNAT

The Secretariat of Environment, which is aimed to protect and preserve ecosystems, natural resources, and biodiversity, is also intended to formulate national policies on natural resources protection in Mexico. Although SEMARNAT analyzes and assesses on a case-by-case basis GMOs release to the environment, SEMARNAT cannot issue approvals for environmental release for GM crops; the agency empowered to do that is SAGARPA. In regards to GM foods, some SEMARNAT officials think GM foods should be considered in a careful way:

> It is a very useful technology that is out there and has been developed for some reason. I have a scientific background, and I think that technological tools should be used, but the point here is that those tools need to be utilized in a responsible way, particularly on the issue of exports of GM grains that are a political matter that is linked to Mexico's entrance to the NAFTA. Thus, we import maize and oilseeds to satisfy NAFTA commitments, not necessarily because there is an actual need, but because it is an invented need due to the fact that chickens eat maize and therefore we have to import maize because there is not enough maize in the country. So the white or yellow maize that is produced in Mexico is not allocated because of the transport costs from one region to another. Besides, it is cheaper to buy old low quality maize from the United States and other countries rather than paying the costs of distribution. So this situation is derived from the NAFTA, and it is GM maize because everything that the United States harvests is genetically modified.[781]

The Secretariat of Environment position is very cautious because it tries to protect Mexico's biodiversity and its designation as a center of origin and diversity. This secretariat is very conscious of the different varieties of maize that still exist in Mexico and need to be protected. These varieties of maize are part of the Mexican culture for farmers and indigenous people; there are part of their heritage and also a lifestyle.

7.3.3 CONABIO

CONABIO is an applied research unit that was created to promote, coordinate, support, and realize activities related to the knowledge and preservation of biological diversity, as well as to generate

[781] Interview with a governmnet official of SEMARNAT (Mexico City), Februray 02, 2014.

information about biodiversity to be diffused to the general public.[782] Though CONABIO depends on nine secretariats because it is a permanent interdepartmental commission, the Secretary of SEMARNAT is also the Technical Secretary of this commission. CONABIO does not have a GMO policy, but it makes recommendations regarding requests for GMOs releases into the environment, following the Mexican biosecurity regulations. This agency emphasizes that all work is done on the frame of the LBGMOs. CONABIO collects data and information to make risk assessments for the federal government, upon request, about GMOs that need to be released into the environment, following Mexico's biosecurity regulations.

> We do emit recommendations for the federal government about the release of GMOs into the environment. In the case of plants, it implies GM seeds. We do have position documents about the requests for release to the environment about GMOs, particularly maize. It is not a policy; this is the position of the CONABIO's national coordination because this commission is comprised by several secretariats.[783]

This agency is deeply concerned about preserving the different varieties of maize. It will continue doing research on biodiversity and disseminating information in order to alert politicians and general public on the biodiversity that the country has. It is a serious agency that would like to preserve Mexico's biodiversity. However, CONABIO does not have the power to make actions regarding the protection of biodiversity or to implement any biosecurity measure to protect the environment in the country. CONABIO is limited to give recommendations, generate scientific information, and promote biodiversity protection.

7.3.4 CIBIOGEM

CIBIOGEM is a commission for biosecurity and GMOs in charge of formulating and coordinating national biotechnology policies related to biosafety, movement, release, and use of GMOs, as well as defining the Mexico's position about GMOs in the international arena.[784] Although this commission is capable of emitting recommendations, it does not have the power to enforce any policy. In contrast, the Director of CONACYT, who is also the Vice-President of CIBIOGEM, has the power to set the rules to operate for the CIBIOGEM, to inform about results of any research under his command, and to agree with the President of CIBIOGEM the issues related to the topic.[785] As mentioned in Chapter 4, the Director of CONACYT plays an important role in educational decisions, and he has been in contact with US Secretary of State Kerry in regards to a new educational program in Mexico. Consequently, CIBIOGEM is considered as a biased agency and a disorganized unit that does not address the GM food issue because it favors biotechnology.

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[782] CONABIO, "Quiénes Somos," *CONABIO*, accessed May 20, 2014, http://www.conabio.gob.mx/web/conocenos/quienes_somos.html.

[783] María Francisca José Acevedo Gasman (Biosecurity and risk analysis coordinator, CONABIO), interview by author, January 15, 2014.

[784] CIBIOGEM, "Funciones de La CIBIOGEM," *CIBIOGEM*, accessed May 19, 2014, http://www.conacyt.gob.mx/cibiogem/index.php/cibiogem/funciones/funciones-de-la-cibiogem.

[785] CIBIOGEM, "Funciones de La Secretaría Ejecutiva," *CIBIOGEM*, accessed May 19, 2014, http://www.conacyt.gob.mx/cibiogem/index.php/cibiogem/funciones/funciones-de-la-secretaria-ejecutiva.

> CIBIOGEM was supposedly created to gather the different secretariats and promote the policy coordination, promote dialogue, etc…Obviously, the different secretariats have different attributions at a federal level and therefore, they have different points of view about the use of GMOs in general and the imports of seeds, grains, foods, and the release to the environment. As a result, some promote, others protect, and there are confronting points of view. And what is needed is a national policy that allows the confronting points of view to achieve a consensus and a win-win situation for Mexico.[786]

CIBIOGEM is an agency that does not like to be scrutinized or be accessible to the public. When I contacted CIBIOGEM, this agency answered that its policy of GM foods is established in the LBGMOs and the official position can be found on the official website, specifically in the section of current national regulations.[787] Furthermore, the only answer I got to all my questions was that the CIBIOGEM does not receive any promotional information about GM foods from the US government agencies, and it follows the LBGMOs.[788] However, this government official does not deny exchanging communication at all with the American government or other institutions from the US. Apparently, this agency feels unconformable talking about its interactions and exchanges of information with the American government.

Since its inception, CIBIOGEM has been controversial because of the actors involved in its management. Due to the fact that CIBIOGEM is an interdepartmental commission, it is formed by six different secretariats, where SAGARPA, SEMARNAT, and the Secretariat of Health are the most influential agencies because they rotate the presidency of CIBIOGEM every two years.[789] For the first scientific advisory council, researchers from the academia such as Amanda Gálvez, and José Luis Solleiro from UNAM were appointed. Solleiro turned very contentious because after a long academic career pointing and analyzing biotechnology and GM foods, he became the general director and subsequently advisor for AgroBIO, extensively promoting GM foods and biotechnology in Mexico.[790] Furthermore, he debated that the biotechnology industry is part of the civil society, so its inclusion in regulatory bodies would help on the diversification of opinion, besides Greenpeace was also present in the consultative groups of CIBIOGEM.[791] Therefore, he felt his position was correct because NGOs also had a voice in the agency.

Consequently, despite that CIBIOGEM has had serious advisors such as Amanda Gálvez who works at Laboratory 312 of UNAM and has been cautious about GMOs at the time, the commission has been biased toward biotechnology from the beginning because of people that already were strongly linked to biotechnology companies. Furthermore, CIBIOGEM hitherto is strongly biased toward biotechnology to the point that sometimes it does not allow scientists to emit their points of view. For example, in January 2014, Amanda Gálvez received a letter from the executive secretary of CIBIOGEM letting her know that

[786] María Francisca José Acevedo Gasman (Biosecurity and risk analysis coordinator, CONABIO), interview by author, January 15, 2014.
[787] Rosa Inés González Torres (Director, Office of Biotechnology and Biosecurity Communication and Divulgation at CIBIOGEM), email message to the author, February 10, 2014.
[788] Ibid.
[789] CIBIOGEM, "Acerca de La CIBIOGEM."
[790] Massieu Trigo, "Cultivos y Alimentos," 232.
[791] Fitting, *The Struggle for Maize*, 64.

her opinion on GM crops contamination was erroneous.[792] It is worthwhile to clarify that the Executive Secretary of CIBIOGEM is Francisco Bolivar Zapata, he is the coordinator of science, technology, and innovation for the presidency and is the person that advises President Peña Nieto about new technology developments, and he is a pro-biotechnology promoter. Gálvez also mentioned that CIBIOGEM considers her as an inconvenient researcher and thus she has been suppressed from events organized by this agency.

CIBIOGEM does not address issues such as the cultural background of peasants and indigenous people, and their lifestyle attached to the cornfield. It does not take into account the heritage and knowledge of such peasants who try to transfer the maize knowledge to their descendants, knowledge that has been transmitted from generation to generation throughout centuries. As a result, despite the importance of cultural heritage in the countryside, and pressure from NGOs, some biotechnology companies that have followed the LBGMOs have managed to get permission to plant and harvest GM crops in the country.

7.4 GMO cases in Mexico

Currently, two GM seeds cultivated in less-strategic and non-cultural sensitive crops in Mexico are cotton and soybeans. GM cotton is cultivated in the north of the country. Farmers in the northern states of Baja California, Sonora, Sinaloa, Chihuahua, Coahuila, and Tamaulipas requested permissions to cultivate 85,000 ha of GM cotton.[793] Although cotton is used for food and feed, as well as for textiles, there are not relevant concerns about the effects of GM cotton consumption in Mexico. Additionally, there was not much opposition to GM cotton cultivation because of its biological characteristics, which do not relate them with other plant varieties.[794] Furthermore, GM cotton has been adopted in the north because of the influence of the American farmers at the border. Mexican farmers and American farmers are integrated into the commercialization of this product.

Another GM food that has been cultivated in Mexico is soy. Since 1999, permits were granted for Pioneer and Monsanto's GM soy in Chiapas and Campeche covering 18,000 ha.[795] In 2012, the first permits for commercial cultivation were granted in 253,500 ha.[796] It has represented an increase of GM soy production and higher soy consumption in a country that does not rely its nutrition on soy. However, Mexican honey producers are concerned about genes from GM soy moving into honey because of these plantations. Greenpeace has signaled that the Court of Justice of the European Union has banned sales of contaminated honey with GM pollen, so European suppliers are requesting lab tests to discard the presence of that pollen.[797] Greenpeace claims GM soy is affecting organic honey producers in the Yucatán Peninsula whose exports go to the European Union. However, the government perspective is different:

[792] Amanda Gálvez (specialist on biotechnology, Laboratory 312, Faculty of Chemistry at UNAM), interview by author, February 12, 2014.
[793] Roberto Morales, "Pioneer prepara campo para transgénicos," *CNNExpansión* (Mexico City, 2008), http://www.cnnexpansion.com/negocios/2008/09/08/semillas-bajo-la-manga.
[794] Antal, "Interacción Entre Política, Ciencia Y Sociedad."
[795] Morales, "Pioneer prepara campo para transgénicos."
[796] Otero, *Mexico Continous*, 5.
[797] Greenpeace, "Peligra Pureza de Miel Mexicana."

> Mexico is a large producer of honey worldwide, and our capacity and quality for exports are a great strength. One of our main markets is in Europe, Germany, and honey producers are very concerned about messages that say that if GM pollen is found, they are not going to be able to sell their products. This debate has been among suppliers but not among policy-makers. Additionally, honey does not have any kind of restriction; there is not the obligation of presenting analysis or certificates to the authorities, but to suppliers who are demanding purity certificates… It is a fact that there is not a single shipment rejected, we have been informed by our honey production regulators, not a single shipment of Mexican honey that has been rejected for containing GMOs.[798]

As we can see, NGOs are taking advantage of the threat posed by possible contamination of GM pollen, but actually, there are not official rejections of Mexican honey because of contamination with GMOs. As a result, these southern producers are skeptical about the neutrality of GM crops growing in the zone and fear GMO contamination in their products. Furthermore, they consider apiculture as a way of life which can be threatened by GM soy crops:

> Honey from Merida is one of the best honey… It is a very delicate situation because they are finishing an activity. A female beekeeper from Campeche recently came to visit us and told us "honey is our life, and around honey the orchards are, along with food and everything. [GMOs] is about finishing our whole life".[799]

Therefore, GM foods in Mexico, more than environmental, economic or healthy issues, have socio-cultural aspects which have been ignored in the governmental decisions. By allowing more GM crops, the Mexican government is gradually hurting farmers' culture and their way of living, which relies on the countryside activities. The Secretariat of Agriculture has not found yet a middle point in which small-scale farmers can increase productivity and simultaneously, preserve its cultural heritage tied to the cornfield. Accordingly, the GM food debate in Mexico is centered in maize. This debate is not focused on the consumers' right to know like in the US; it is focused on peasants' disruption of traditional sowing, as well as to the loss of identity by losing the origin and diversity of maize. In fact, environmental NGOs portray maize peasants as producers and guardians of traditional corn varieties and national cultural practices and traditions.[800] The executive director of ANEC Víctor Suárez, who represents the interests of the Mexican farmers of his association, highlighted the relevance of maize:

> First, this is the main crop for Mexican agricultural producers, it is the main food of the Mexican diet, it is the basis of identity and culture, it is many things. It is the possibility of preserving for the next generations a useful plant that is able to keep on feeding and to face the problems of climate change. So it is a patrimony of the Mexicans and of the humankind that we cannot allow being deteriorated, degraded, contaminated and privatized for the benefit of monopolistic companies.[801]

[798] Juan B. Orozco Sánchez (International Affairs Coordinator, SAGARPA), interview by author, February 14, 2014.
[799] Adelita San Vicente (general director, Semillas de Vida), interview by author, February 12, 2014.
[800] Fitting, *The Struggle for Maize*, 67.
[801] Víctor Suárez (general director, ANEC), interview by author, January 15, 2014.

Corn is part of the Mexican national identity, pre-Hispanic cultural heritage, traditional food, and an element of the mega biodiversity that exists in the country. These are the main reasons why the introduction of GM maize into the cornfields has been controversial, struggled, and rejected. Since the introduction of GMOs to Mexico, it was a priority for NGOs and some groups representing the Mexican peasants to protect corn from being genetically modified, from introducing new varieties different to the natural ones, and to protect the soil and water from the pesticides that accompany GM crops.

Under pressure from groups that opposed to GM maize, DGSV halted field trials of commercial GM maize in July 1998 just allowing the CIMMYT to conduct limited field trials.[802] This facto moratorium only halted scientific GM maize field trials that already had started in 1993, but it did not restrict GM maize imports, setting a gap in regulations about GM maize.[803] Furthermore, the Mexican government has had a policy of free trade in which agricultural biotechnology products are included. Under the NAFTA commitments, the Mexican government has to import GM maize. As a result, the government has encouraged the imports and use of these products.

> SAGARPA's policy focuses on imports. Mexico needs supplies for the industry, particularly grains such as maize, which is part of the Mexican culture since pre-Hispanic times, we are the people of maize who consume white maize for elaborating *tortillas*, for domestic consumption, and in the production of white maize we are self-sufficient. However, we also need large quantities of yellow maize for industrial processes, for the livestock industry, starches, and industrial processing, so we have a great necessity for importing maize. The United States and Canada are large producers of industrial maize, and we need to import such quantities, and obviously the maize they produce is GM.[804]

It seems the Mexican government has accepted the importation of GM maize as a result of the US pressure under the NAFTA commitments, as well as a result of the implementation of public diplomacy instruments. It encourages dependence on imports of corn and moves away the work performed by local farmers. Even though that the Mexican government argues to be self-sufficient for white maize, it is still dependent on imports of yellow maize. There is a growing corn flour industry that manufactures ready-made mix flour for *tortillas* and packaged *tortillas*, highly consumed in urban zones of Mexico, which relies on yellow maize imports.[805] As a result, Mexico keeps on importing maize to support the growth of this corn flour industry, and this mainly benefits the leading company in the sector: Gruma. Furthermore, opponents of the NAFTA and GMOs, consider that small-scale farmers have suffered many consequences under NAFTA commitments:

[802] Álvarez-Morales, "Mexico: Ensuring."
[803] Fitting, "Importing Corn," 139.
[804] Juan B. Orozco Sánchez (International Affairs Coordinator, SAGARPA), interview by author, February 14, 2014.
[805] Fitting, *The Struggle for Maize*, 54.

> Our people are subscribed to a policy of modernization of this country, which has meant that 20 years of NAFTA have implied the expulsion of thousands of peasants in the worst conditions because there is not an agreement for them. Their expulsion from the countryside into the cities has meant a model of feeding that keeps 20% of Mexicans hungry and 70% obese, which is a dramatic density in this country. And GM foods are just the tip of the iceberg of this model; it is not even a technological revolution.[806]

In order to keep a free-trade policy, the Mexican government has to commit to imports that are not necessary and leaves the Mexican farmers working in the countryside behind, in the promised progress for the country. By choosing to import yellow maize instead of reordering the distribution system, it is condemning peasants to leave the countryside for the cities and abandon their lands, which is also causing a rupture in families. Furthermore, the Mexican government has not encouraged development in rural areas so that peasants keep on working on the land and do not have to emigrate, with innovative and accurate technical assistance, not just with the introduction of GM foods. Apparently, GM maize is not the right answer for Mexican peasants who need to solve problems of hunger, poverty, productivity, and development, before thinking or deciding whether GM maize is right for them. They do not want a change in their cultural heritage or traditions.

7.5 Challenges faced by the Mexican government

As a result, the Mexican government faces several challenges regarding GM foods that will have to overcome to respond to different needs of citizens. First, some social protests may evolve into social movements. Some advocacy groups and NGOs have sought the preservation of biodiversity in the country and have pressured the government to halt GM foods cultivation. Citizens concerned about the environment, healthiness, and corn preservation have protested against GM maize consumption. Hitherto GM maize cultivation has been halted because of efforts of NGOs and some producer groups and because it is not a priority for the current economic policy.[807] Consequently, this social pressure needs to be considered because these forces are confrontational, and there is not collaboration for aims of equity and sustainability.[808] Pressure and protests may evolve into a social movement in which thousands or millions of citizens may react and try to change the current GMO legislation, or may destroy commercial plantations in the case of approval. These movements will try to halt GM cotton and soy cultivation because they have already succeeded in maize, and would like Mexico to be all GMO-free.

The second challenge is about the Mexican research institutions. In Mexico, there are national public scientific institutions that research and develop GMOs suitable for the Mexican countryside. For example, in 2013 CINVESTAV researchers, led by Beatriz Xoconostle, developed a variety of GM maize (CIEA-9) that is 25% more resistant to drought and cold than conventional seeds and is suitable for the Mexican countryside, specifically for the northern region.[809] Despite this trait was develop to meet the

[806] Adelita San Vicente (general director, Semillas de Vida), interview by author, February 12, 2014.
[807] Massieu Trigo, "Cultivos y Alimentos," 231.
[808] Ibid., 228.
[809] CINVESTAV, "Obtiene Cinvestav Maíz Resistente a Heladas Sequías," *CINVESTAV*, 2013, http://comunicacion.cinvestav.mx/Prensa/ObtieneCinvestavmaizresistente.aspx.

needs of the region and not to make profits, ENGOs claim that these researchers respond to MNCs and the US because CINVESTAV receives grants from the Bill & Melinda Gates Foundation. In contrast, the American government has recognized CINVESTAV's effort in a USDA-FAS report that mentions Xoconostle's development as a way to change the perception of biotechnology and MNCs in Mexico.[810]

Additionally, public-private partnerships may shadow the Mexican institutions research. Public-private research in agricultural biotechnology is unclear because of the complex institutional and funding arrangement implied.[811] Furthermore, there is a possible bias of public-private partnerships. In the case of CIMMYT, the only biotechnology public-private partnership in Mexico that I identified, is openly pro-biotechnology. This institution promotes biotechnology and the use of GM crops. This fact is well known to politicians and government agencies officials. For instance, deputy secretary of agriculture mentioned that even though Mexico is considered as a center of origin and diversity for maize, the CIMMYT is an institution in favor of GMOs, and its members are also in favor of GM crops. CIMMYT's position toward GMOs is worrisome and uncertain because by allowing GM maize cultivation, the origin of maize, and its varieties could be lost.[812] Consequently, this sort of public-private international partnership apparently does not work for the specific interests of farmers, in contrast to other Mexican research institutions such as the CINVESTAV previously mentioned.

Consequently, the national public research institutes such as CINVESTAV are in a disadvantageous position because ENGOs and some audiences perceive them as colluded with biotechnology companies and respond to American interests. Furthermore, because of the lack of financial support from the Mexican government, these institutions do research at a slower pace than biotechnology companies or other American institutions that have higher budgets. In fact, these institutions usually apply for external grants in order to continue innovating. The Mexican government has not allocated a higher budget for these research institutes. These institutes do strategic research focused on the local needs and are more likely to solve local farmers' problems. Also, as the law indicates that GMOs approvals shall be on a case-by-case basis, this specific case has not been prioritized by COFEPRIS to get approval and has been grouped with the GM maize moratorium encouraged by ENGOs.

The third challenge is to develop a national biosecurity policy. As previously mentioned, Mexico's government still does not have a national policy toward GMOs that clearly establishes what approach to take. It is not just the LBGMOs that already exists, but the biggest challenge is to develop a clear, inclusive, and protective biosecurity policy. According to a specialist from the Secretariat of the Environment, Mexico needs an ad-hoc biosecurity policy that considers the following points:

[810] Otero, *Mexico Continous*.
[811] Fitting, *The Struggle for Maize*, 39–40.
[812] Jesús Alberto Aguilar Padilla (Deputy secretary of agriculture, SAGARPA), interview by author, February 17, 2014.

> Technology must be used but in a case-by-case basis. We as a country should be able to say yes to this, and not for that. I believe for maize it should be a no because it is a center of origin and diversity, it is the basic food for Mexicans, the seeds belong to farmers, and we all are tied to maize, it is part of our national identity. For other foods, it could be a yes but under biosecurity guidelines. However, we have to decide as a country, and whether the technology they want to impose us is worthy, as they desire in the times they like.[813]

Corn is a cultural heritage and an important local economic activity in Mexico. However, NGOs feel the government is not succeeding in protecting it from the GMOs threat. The Secretariats of Agriculture, Environment, and Health have not taken into account cultural, social, economic, and technological factors to design and implement successfully a national biosecurity policy.

For example, New Zealand's approach on GMOs is clearly established by the Ministry for Primary Industries and the Ministry for the Environment. With the Hazardous Substances and New Organisms Act 1996 (HSNO Act), it was established that GM foods should be regulated by the Food Standards Australia New Zealand (FSANZ) which will concede a permit to GM foods that are safe. Under HSNO, the Environmental Risk Management Authority (ERMA) was created in order to determine GMOs that can be imported, developed, field tested or released into the environment.[814] New Zealand has a clear policy about genetic modification that allows this technology mainly for research, including plant and animal breeding techniques, as well as an aid to solving environmental problems.[815] GMOs and GM foods approvals are done on a case-by-case basis and labeling is mandatory. Furthermore, the most important characteristic of this policy is the inclusion of cultural, spiritual, and ethical issues related to genetic modification. For that purpose, the Bioethics Council was created in 2003 with the mission to undertake public dialogue on genetic modification, and considering that, to advise the government on the development of biotechnology policies that include the Maori perspective and values.[816]

In this case, New Zealand's inclusive culture, the importance of Maori people to politics, and the Maori culture and values are involved in a very complex and controversial issue. New Zealand is protective of its environment and also is concerned about its green image. In contrast, Mexico's government has not considered the perspective of indigenous people working the cornfields. NGOs take as a fact that peasants are not interested in agricultural biotechnology, but in reality, peasants do not know this technology, and they do not have a stake in the government decisions. It is time for indigenous groups and peasants to have a voice before government in order to have a national policy that is culturally inclusive and ethically managed. The LBGMOs is just a compendium of regulations, but it is not a declaration of a national biosecurity policy that clearly establishes whether GM maize crops will be authorized or not and on what basis.

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[813] Interview with a governmnet official of SEMARNAT (Mexico City), Februray 02, 2014.
[814] Ministry for the Environment, *Genetic Modification: The New Zealand Approach* (Wellington: Ministry for the Environment, 2004), 7.
[815] Ministry for the Environment, "About GM in New Zealand," accessed August 6, 2015, http://www.mfe.govt.nz/more/hazards/risks-new-organisms/genetic-modification-new-zealand/about-gm-new-zealand.
[816] Ministry for the Environment, *Genetic Modification: The New Zealand Approach*, 7.

In summary, Mexico's legislation of GMOs has been tied to the US legislation because of three reasons: The NAFTA commitments of both countries, the US promotion of agricultural biotechnology, and the pressure of some groups of interest on the Mexican government to change its perspective on GMOs, all these reasons embedded in public diplomacy activities. Consequently, Mexico's legislation has evolved from a restrictive approach to a more liberal perspective allowing the imports of GM maize. Despite the promulgation of the LBGMOs, Mexico lacks a national policy of GM foods. This law only presents a compendium of regulations and guidelines, but it does not state a clear policy with roles, functions, priorities, and objectives toward what specific GMOs will be allowed and why.

As a result, I can argue that the Mexican government, in addition to responding to its own institutions and advisors, has also responded to the NAFTA commitments, to the pressure of some interest groups, and to the implementation of public diplomacy instruments. It has incorporated some elements of the American government by adopting a model as a result of the lack of knowledge and experience in biotechnology. Furthermore, Mexico's government has had other agricultural priorities and concerns rather than investing and researching in biotechnology suited to local needs. The extent of these changes as a result of public diplomacy will be evaluated in the following chapter.

Chapter 8.
Assessment of the public diplomacy model: Lessons from the effectiveness of government agencies, MNCs and NGOs food diplomacy

Chapter 7 analyzed the ways in which the Mexican government has changed its position toward GMOs and its correspondent legislation. The chapter pointed out that, in addition to the NAFTA commitments, the Mexican government has adopted a free-trade policy that allows the imports of GM maize. Furthermore, the government has adapted principles, standards, and procedures similar to the American government in order to be more integrated into the North American market and to facilitate trade. Despite the GM food regulations and the LBGMOs promulgated in 2005, the Mexican government still lacks a national biosecurity policy to address GMOs in the country. There are three different secretariats involved in the regulation of GMOs, SAGARPA, SEMARNAT, and Secretariat of Health, but the leading one seeking a national policy is the SAGARPA. Additionally, the main challenges faced by the government were also discussed.

The purpose of this chapter is to evaluate whether the Mexican government has responded to the influence of state and non-state actors involved in the public diplomacy activities of the United States. I will assess the public diplomacy model that I proposed in Chapter 2 which establishes the diplomatic instruments employed by each actor that disseminates information about GM foods. Some limitations of the public diplomacy model will also be observed in this chapter.

8.1 Government agencies

State actors are the core of public diplomacy. In order to accomplish its foreign policy goals, evidence suggests that the US government has employed different public diplomacy instruments for the promotion of biotechnology in Mexico utilizing different strategic resources, including reactive, proactive, and relationship-building strategic communications. The Department of State is the main actor involved in issues related to food diplomacy.

Moreover, the proposed model suggests that despite the fact that public diplomacy is an inherent activity of the Department of State, evidence shows that public diplomacy activities have also been performed by other government agencies which are primarily focused domestically but also have international operations. That is to say, the US government agencies pursue biotechnology promotion among their Mexican counterparts to change perceptions, give different perspectives, and provide scientific information about agricultural biotechnology and GMOs. The model has also helped to identify the main arguments used by American government officials who emphasize the cooperation that exists among governments on agricultural biotechnology, the promotion of all American staples not just biotechnological ones, and the promotion of transparent, predictable, and science-based regulatory systems. All those elements work together to influence the political environment in Mexico. Additionally,

evidence shows that the US government's discourse about agricultural biotechnology is aligned to the global challenges of food security, climate change, and to the goal of feeding the world for the year 2050 as proposed by the UN. These arguments are also used by MNCs to promote their products. The assessment of each actor, strategy, and instrument will be explained below.

8.1.1 Reactive strategic communication

The proposed model has been useful to identify what actors and instruments are employed for reactive strategic communication. The Department of State uses different instruments to communicate with different audiences. In the case of reactive communication strategies, evidence suggests that the Department of State through the Office of Trade and Policy Programs has utilized the following instrument to communicate about biotechnology: Develop media relations by coordinating with journalists to release information and inform the public.

This instrument is a traditional way to disseminate messages and has been effective to communicate with the public. Additionally, the Department of State has a website where it posts press releases available at any time for any audience. Traditionally, the department has communicated through mass media channels. However, nowadays it also uses social media communications including Twitter and Facebook to disseminate messages. The proposed model does not contemplate social media releases, but these media are a new way to share information with the public so should be included in an updated model.

8.1.2 Proactive strategic communication

The Department of State and the USDA have developed proactive strategic communications to promote biotechnology. These strategies are more oriented to seek tangible results. The public diplomacy model for the promotion of GM foods is manifested in the following agencies and instruments.

Department of State

According to my primary research, I have found evidence of this department coordinating inter-agency actions and functions to promote specific interests, specifically among the Department of State, the USDA and universities in the US. For example, the Department of State organizes conferences or manages talks with experts about biotechnology that the USDA requests through the US embassy in Mexico. Consequently, an effective instrument to shape opinions of biotechnology among politicians in Mexico is the following: Coordinate inter-agency actions and functions to promote specific interests.

Through the public diplomacy model, I have also identified that the American government is not concerned about monitoring public opinion in regards to GM foods because biotechnology regulations are based on sound science rather than taking into account ideologies or beliefs from the general public. Nevertheless, the Department of State is more concerned about traditional diplomacy issues such as security, trade, refugees, the Arctic, and the bilateral or multilateral relations with other countries, rather than biotechnology. The Department of State does not design and distribute publications with thematic information about GM foods or biotechnology because its publications focus on diverse international issues. It does not mean that the Office of Trade and Policy Programs is not concerned about the

perceptions of biotechnology that persist worldwide, but there is no evidence of employing the following instruments:

- Monitor public opinion
- Design and distribute publications with thematic information about GM foods or biotechnology

Other agencies

The proposed public diplomacy model has been helpful to identify that the agency more involved in the promotion of agricultural biotechnology is the USDA through the FAS. Evidence suggests that the USDA-FAS has implemented technical and scientific assistance and advice through different programs. Furthermore, it has also designed and distributed publications with thematic information, specifically about agricultural biotechnology among Mexican officials along with technical assistance. As a result, the following instruments have been used by the USDA-FAS:

- Implement technical and scientific assistance and advice
- Design and distribute publications with thematic information

These instruments have been successful because Mexican officials have requested both thematic information and technical programs in order to be updated in regards to biotechnology, especially targeted to officials who are new in their agencies' positions. These instruments have been effective in facilitating technical cooperation between the USDA and its counterpart SAGARPA. Moreover, Mexican agencies staff officials have been involved in technical professional exchanges with their American counterparts.

The proposed model also helps to understand agencies targeted in Mexico. The American government has targeted two key stakeholders in Mexico: government agencies and farmers. The US government is not concerned about convincing the general public in Mexico about the benefits that biotechnology applied to agriculture may bring. However, some of its programs are targeted to Mexican government officials, and other programs are targeted to farmers in order to share experiences directly with other American farmers about advantages and disadvantages of agricultural biotechnology.

8.1.3 Relationship-building strategic communication

US government agencies have employed different instruments to develop long-term relationships with relevant stakeholders in Mexico. Activities performed by the Department of State and the USDA have resulted in cooperation and harmonization in procedures. The diplomatic instruments applied by these agencies will are explained below.

Department of State

The proposed public diplomacy model has helped to identify the instruments implemented by the Department of State. An important diplomatic instrument that the US government uses to promote GM businesses in Mexico is establishing and maintaining personal contact with key Mexican policymakers and decision-makers. This personal influence is important in Mexico where the government

establishment is very hierarchical, and high-level officials in the structure make decisions. The establishment and maintenance of personal contact are crucial to promoting American values and the US businesses abroad. In that regard, there has been personal contact between the secretary of state and the president of Mexico. I speculate that Secretary Kerry's visit to President Peña Nieto reinforces the diplomatic relationships between the two countries and signals the relevance of the issues discussed even though there is no evidence about an explicit discussion about biotechnology in this meeting.

There has also been personal contact between the US secretary of state and the Mexican secretary of foreign affairs, and they have exchanged information about educational programs. This instrument is widely used in public diplomacy and may have an impact on promoting biotechnology because government officials privately talk about issues that are not on the official agenda, and the exchange of information in person may give a different perspective on a specific topic. This is a very persuasive instrument because sharing information in person gives a sense of confidence.

Additionally, personal contact by US diplomats with biotechnology companies has also been in evidence. Ambassador Wayne has discussed with biotechnology firms' representatives different options to incorporate their products in the Mexican agricultural sector. Also, through the Bureau of Educational and Cultural Affairs, the Department of State promotes the Fulbright programs which contemplate international educational exchanges. This activity has led to the creation and maintenance of networks and relationships at different levels, such as government officials, academics, and researchers, as well as farmers. As a result, the Department of State has used the following instruments as proposed in the public diplomacy model:

- Establish and maintain personal contact
- Promote exchanges
- Create and maintain networks and relationships

There is no evidence that the Department of State has sent letters or faxes explicitly promoting GM foods in Mexico. Official communication among the US and Mexican diplomats is related to more general issues such as agriculture, but not explicitly related to GMOs. Consequently, there is no evidence that the Department of State has employed the following instruments that originally were included in the public diplomacy model:

- Undertake advocacy activities
- Send letters/fax

Other agencies

The proposed public diplomacy model has been useful to identify that through agencies such as the USDA-FAS, technical and scientific exchanges are promoted. These exchanges have been popular and accepted among government officials. Furthermore, this has led to the use of another diplomatic instrument: creating and maintaining networks and relationships. After officials attend to these exchanges, these people initiate networks that later on are useful to discuss information related to GMOs. The USDA-FAS probably maintains email lists that facilitate information sharing among the

interested. These two instruments were initially proposed in the model and have been used by the USDA-FAS.

- Promote technical and scientific exchanges such as the Cochran Program and the Borlaug program
- Create and maintain networks and relationships

In addition to the proposed public diplomacy model, I have found evidence of other instruments that the USDA has utilized and initially were not included in the model:

- Establish and maintain personal contact
- NABI initiative
- Farmer-to-farmer dialogues
- Talks with experts in biotechnology

The governmental programs involved in public diplomacy, such as the NABI initiative, farmer-to-farmer dialogues, talks with experts in biotechnology, as well as exchange programs such as the Cochran Program where Mexican government officials participate, and the Borlaug program that has been used by members of the Mexican Congress, have been effective. Evidence suggests that these diplomatic instruments have changed in some form stakeholders' perceptions of agricultural biotechnology, and now the stakeholders that have participated at least have a better understanding of GMOs. The American government public diplomacy in terms of informing and influencing foreign audiences, in this case the Mexican one, has been effective because the programs related are still running and have captive Mexican audiences.

Additionally, the proposed model suggests that the FDA and EPA are utilizing public diplomacy instruments. However, there is no evidence of these two agencies conducting these activities. Furthermore, the role of the FDA in public diplomacy remains secondary. It stands as an agency of reference in regards to regulations for food safety, but it does not play a central role in the promotion of GM foods or biotechnology in Mexico up to the present. This agency is only concerned about regulations and technical collaboration.

In general, the American government is interested in regulatory frameworks based on science. Furthermore, all the American government agencies are aligned and communicate similar messages, which can be summed up as no promotion but cooperation and facilitation of information and training. The majority of the public diplomacy instruments related to agricultural biotechnology are proactive and relationship-building strategic communications. The Department of State and the USDA maintain contact with biotechnology companies because they are a critical stakeholder in the US. So, personal contact from the government side and lobbying from the MNCs are a pragmatic and effective division of labor in public diplomacy to advance US interests in a host country such as Mexico. Moreover, the public diplomacy model has been effective to identify the diplomatic instruments that the Department of State and the USDA have applied. However, there is no evidence of an official program of agricultural biotechnology diplomacy. In my view, it would be in the interest of the Department of State to take advantage of designing and operating a public diplomacy program of agricultural biotechnology with

clear strategies in order to formally conduct more activities and advance in the acceptance of this technology. This might be the focus of future research, outside the scope of this dissertation.

8.2 MNCs

MNCs' advancement and commercialization success have indirectly been reinforced by the US government public diplomacy activities that promote agricultural biotechnology in Mexico. The proposed model has been helpful to identify what diplomatic strategies and instruments MNCs apply to change the political environment. MNCs have access to media and operate in a particular way through industry associations so that they appear as organizations concerned about innovations in agricultural productivity rather than firms selling products. Through industry groups, MNCs may persuade government officials and the public, employing successful diplomatic instruments such as lobbying and personal contact. They group together so that they can be represented with one voice and they can be identified as novel organizations that are not as aggressive and dominant as the biotechnology companies. MNCs are well-organized across borders and operate in similar ways in different parts of the world. The industry associations have different representative offices around the world that adapt to their host locality. Moreover, some executives of these biotechnology companies have access to top government officials in Mexico, and have influenced the perceptions about GMOs among politicians and thus the regulations in Mexico. The public diplomacy strategies and instruments implemented by MNCs are analyzed below.

8.2.1 Reactive strategic communication

I have found evidence of MNCs developing media relations and staging press conferences in order to inform audiences. MNCs such as Monsanto and Bayer have taken advantage of these instruments, and they inform the public through their websites where they have information available and up to date at any time. Also, evidence suggests that MNCs have developed media relations by coordinating with journalists to release information and inform the public, disseminating the information through different websites and the media. These instruments have been successful in informing persons who are seeking specific information on a topic related to these companies, especially topics involving problems related to the company though these specific press releases are not targeted to politicians because they convey only general information. As a result, the instruments employed by MNCs which are included in the proposed public diplomacy model are the following:

- Develop media relations by coordinating with journalists to release information for the public
- Realize press conferences /press releases to inform the public

8.2.2 Proactive strategic communication

MNCs have used different instruments for implementing proactive strategic communications. A potent instrument widely employed has been the generation and promotion of audio-visual productions. Biotechnology companies generate audio-visual productions in order to achieve two main purposes, to

promote benefits of GM foods, and to promote the company's products, research, development, and contribution to society. This instrument has been very popular among MNCs and most of the biotechnology companies have YouTube channels to share their information. This instrument has been successful because biotechnology companies with these audio-visual materials are able to emphasize the way they assist in solving the world's farming problems and contributing to food security, which is an appealing approach for general audiences and it could be an inspiration for farmers. Furthermore, some of these materials are also available in a Spanish version. Therefore, the instrument included in the proposed public diplomacy model that MNCs have used for the promotion of GM foods is the following: Generate and promote audio-visual productions

The proposed model considers several instruments to perform proactive strategic communications. However, because of the secrecy of biotechnology companies, I have not been able to find evidence about MNCs using the following instruments though maybe at some point they may have used them:

- Elaborate and propagate documentaries
- Initiate and maintain scientific networks
- Prepare and implement technical language training
- Monitor public opinion

8.2.3 Relationship-building strategic communication

MNCs have employed different instruments to develop long-term relationships with relevant stakeholders in Mexico. Evidence suggests that these sorts of instruments are implemented to accomplish long-term objectives such as more relaxed regulation as well as higher volume of sales and more profits. Lobbying has been performed by biotechnology companies' representatives or through industry groups to have an influence on governments and persuade policy-makers to relax current regulations. Furthermore, lobbying is performed at a domestic and international level. This technique has been successful because GM foods labeling in the US has been prevented hitherto, for example. In the case of Mexico, evidence suggests lobbying has been directed to the executive branch. This is the most popular and effective instrument in the US in order to prevent a change in policies regarding GM foods. In Mexico, lobbying is also significant but is conducted in a more discrete way.

Evidence also shows that MNCs are using conferences, congresses, and seminars as an effective way to deliver technical information, promulgate scientific findings and technical vocabulary, as well as to present biotechnological developments to audiences interested in a specific topic. Being present in conferences about agriculture and biotechnology is a soft way to convince stakeholders of the benefits GMOs may convey, in an amicable atmosphere such as a conference where different participants are present. Moreover, evidence shows that some Mexican government officials have been present at international conferences. Thus, these venues are helpful to target different worldwide audiences and deliver specific information. The participation of biotechnology companies in these sorts of events has had positive results because they can reach government officials, researchers, and other stakeholders and show their portfolio in a business and scientific environment.

The establishment of internal research centers is another diplomatic instrument helpful to establish good relationships with the host government. This instrument has been effective because it implies two main benefits, to give prestige to the host country and projection as a vanguardist country in terms of technology and innovation, and to provide new opportunities for employment. This instrument has had a cascade effect in Mexico where MNCs have installed facilities one after another, for research and development especially for seeds.

Another effective instrument employed is exhibitions and expos. These events are the best opportunity for biotechnology companies to be in direct contact with producers and farmers, and to directly and tangibly show them the advantages and benefits of their technology. It also involves venues to present all the companies' portfolios and raise awareness about the companies. There are some exhibitions and expos that run yearly in Mexico, thus being present there helps companies to deliver up to date information directly to farmers that are the final users of their products.

Scientific training is another effective instrument for companies to get closer to farmers interested in biotechnology. It is also a means to educate producers about the advantages GM foods may have. It also contributes to building a long-term relationship between farmers and the company because they share some common interests. This instrument helps to project an image of social responsibility because companies share knowledge to those who request it and are concerned about an agricultural problem. Scientific training has been successful because it involves incorporating specific ideas, vocabulary, and methods that want to be delivered to the recipients of such training programs.

Another instrument that was not contemplated in the public diplomacy model that firms use is awards. This instrument seems to be more diplomatic than the previous ones mentioned. Awards are effective to stimulate interest in agricultural biotechnology and to get the attention from the government agencies involved in regulations. Awards are also a way to acknowledge people with academic and professional careers, as well as contributions to the area of biotechnology. Furthermore, in order to increase support from the government and policy-makers, awards have been granted to government officials through industry groups in Mexico and the US.

In summary, the diplomatic instruments that MNCs successfully employ to promote GM foods in Mexico are the following:

- Lobbying executive agencies
- Create and promote MNC networks
- Develop internal research centers
- Prepare and implement scientific training
- Organize exhibits
- Coordinate and deliver seminars/ conferences
- Disseminate research to policy-makers
- Awards

However, there are two instruments from the proposed public diplomacy model that are not in evidence. Despite that NGOs' accusations that MNCs send Mexican farmers to travel to the US to know more about their products and to interact with American farmers that successfully have adopted GMOs, or MNCs pay researchers to publish only positive claims about biotechnology, I did not find evidence of the use of the following instruments:

- Sponsor biotechnology scientific institutions and universities
- Organize and promote scientific exchanges

8.3 NGOs

The public diplomacy model has been helpful to acknowledge that NGOs play an important role in shaping the environment in which GM foods are discussed, debated or regulated. Though there are some American NGOs in the US that support biotechnology, evidence suggests that their zone of influence is only domestic. In contrast, some global ENGOs campaigning against GM foods have an international outreach and can operate in different parts of the world, raising awareness among the general public and hindering MNCs advance on GMOs. Global ENGOs in Mexico are concerned about protecting maize because it is part of the national identity, a part of the cultural background of peasants and small-scale farmers, and the main food in the Mexican diet. ENGOs are also concerned about Mexico's loss of biodiversity and contamination of native varieties of corn. Consequently, NGOs have also adopted public diplomacy instruments to have a more subtle and long-term effect on the places they operate, shaping audiences point of view and influencing the political environment. The instruments and strategies employed by ENGOs opposing GM foods are assessed below.

8.3.1 Reactive strategic communication

Evidence suggests NGOs usually employ news releases through their websites as a way to communicate with the public. News releases are a critical diplomatic instrument that NGOs use to deliver relevant information about events and achievements to different audiences. NGOs posts in their websites news related to GM foods and victories they achieve creating awareness about these issues. This instrument has been successful to inform stakeholders and donors about the actions and achievements that NGOs have succeeded on. Though this instrument is very informative and helps to present evidence, only followers interested in the ENGOs actions will review the material posted on the websites. ENGOs also have developed media relations to inform the public and usually have columns in national newspapers and connections with important journalists in Mexico to share information with stakeholders. Additionally to the proposed public diplomacy model, another instrument that ENGOs have utilized for reactive strategies is public protests. This instrument allows attracting public attention and media coverage which are necessary to increase visibility and awareness about GM foods, as well as to appeal more supporters and donors for ENGOs. As a result, the instruments for reactive strategic communication employed by ENGOs are the following:

- Develop media relations by coordinating with journalists to release information and inform the public
- Realize press releases to inform the public
- Public protests

8.3.2 Proactive strategic communication

NGOs have successfully developed proactive strategic communication to strengthen core messages and influence audiences' perceptions, over weeks and months. An instrument that has been used by ENGOs included in the proposed model is audio-visual productions. This material generally is presented through a YouTube channel. This popular social media option allows NGOs to upload material, and it has been effective to generate awareness about GM foods. It is a way to deliver information in a very graphic form, and it can appeal to different audiences. Some of these audio-visual productions are also employed for fundraising so that people connect the causes that the environmental organization is promoting and the way it actually acts in the field to prevent the related environmental and social problems. Evidence suggests that ENGOs are becoming more aware of social media potential and are using these media to share their messages. However, ENGOs should consider that social media have limitations, such as the outreach and the audiences these media can reach. This instrument has been effective because it allows NGOs to have material available all the time, which may give a sense of transparency.

Another significant instrument used by NGOs which is contemplated in the proposed public diplomacy model is the mobilization of the general public. This instrument allows ENGOs to gather a relevant number of people together to present a position regarding an issue, in this case against GM foods consumption and cultivation in Mexico. This sort of meeting allows these organizations to attract media attention and thus communicate their cause with broader audiences. This also may generate a sense of belongingness for those participating in rallies or public demonstrations in important and interesting landmarks, and followers may feel that they form part of a community concerned about the environment. This instrument has been effective in Mexico to halt the release of GM maize and prevent its commercialization and ban large plantations of this crop. NGOs such as Greenpeace have wide experience in organizing these events, even gathering people in different cities around the world to protest against GMOs, and influencing policy-makers as well.

Additionally, an instrument not included in the proposed model that NGOs have used to promote their causes successfully is designing and distributing printed publications. Through this material, NGOs emphasize the disadvantages of GM foods, all the negative effects posed to the environment, or the concentration of power from biotechnology companies. This sort of publication is frequently used to disseminate specific information from the ENGOs point of view. The advantage of printed publications is that ENGOs can tailor material for different audiences, from people with some knowledge about GM foods to a more general audience that barely have an idea about the topic. Also, the inclusion of images and photographs has a deeper impact on those audiences. Evidence suggests that this instrument has

assisted ENGOs to communicate effectively with stakeholders. Moreover, all the following instruments have helped ENGOs to implement proactive strategic communication:

- Generate and promote audio-visual productions
- Mobilize general public
- Design and distribute printed publications

The proposed public diplomacy model considers several instruments to perform proactive communication strategies. However, evidence shows that NGOs have not used the instruments from the model mentioned below. These instruments should be considered by ENGOs though their implementation implies more resources, time, and analysis of the material to be included.

- Produce and distribute documentaries
- Monitor public opinion
- Design and promote education programs

8.3.3 Relationship-building strategic communication

The level of influence of ENGOs depends on the credibility and persuasiveness of information they deliver to stakeholders. Dissemination of information to publics has been a critical instrument to influence policy-makers and different audiences. By designing and managing information, NGOs can push forward their arguments to government officials in a convenient way. The advantage of this instrument is that ENGOs can design different pieces of information according to the audience they want to target, resulting in better outreach.

Another instrument from the proposed public diplomacy model is the creation of networks. Evidence suggests that ENGOs are able to create and maintain NGOs networks across borders. ETC has a well-established network of operation, cooperation, and dissemination of information. In contrast, an NGO that is more known and globally expanded, Greenpeace, has not taken advantage of this instrument. ENGOs should take advantage of this instrument to have a higher impact on influencing policy-making processes.

I have found evidence of two additional instruments employed by ENGOs to have a broader impact on stakeholders and raise more awareness. Lobbying is another instrument that has been utilized by ENGOs in Mexico and the US and has been effective to prevent changes in the current regulations of GM foods. Another appealing instrument is celebrity endorsement. This instrument has been effective to connect the NGOs cause with the general public because people associate a public face to the ENGOs' campaign that offers a solution to the problem. Thus, the message can be more easily recalled when supporters see the celebrity on the media. In summary, the instruments NGOs use for the establishment of long-term strategies are the following:

- Disseminate information to publics
- Create and maintain NGOs networks
- Lobbying
- Celebrity endorsement

In the proposed public diplomacy model there are several diplomatic instruments intended for relationship-building. However, there is no evidence that NGOs have organized exhibits. NGOs work closer to people and directly approach policy-makers rather than spending time and money on exhibits.

Therefore, the proposed public diplomacy model has been found to facilitate the analysis and assessment of how the American government, biotechnology companies, and ENGOs have applied diplomatic instruments to interact with the Mexican government, producers, general audiences, and domestic NGOs. The revised model is shown in Table 8.1. This model also helps to explain how international forces and domestic groups have influenced the political environment in which GMOs have been discussed and regulated. The major interaction has been between the American and Mexican governments which have been cooperating and sharing information since the 1980s when biotechnology started rising in importance. In contrast, the participation of MNCs and NGOs in public diplomacy is less notorious but has a relevant effect on the regulations changes in Mexico. MNCs have a large amount of financial and human capital allowing them to participate in politics, and the competitive advantage of being listened to and represented with one voice before the government, whereas NGOs with less power and more ideological arguments seem to be weak in the eyes of policy-makers. This model also discounts the contribution of public-private partnerships to public diplomacy activities to promote GM foods because the author did not find evidence of this sort of participation. Despite the assessment of all these international forces, this public diplomacy model does not assess how other domestic actors, such as political parties, domestic industry groups, labor unions, and other governmental agencies have influenced the Mexican government to change the regulations of GMOs and the elaboration of LBGMOs of 2005.

Table 8.1. Revised model of actors, instruments and targeted institutions and publics involved in US public diplomacy activities to promote/prevent GM foods in Mexico

Organizational Structure	Strategic Communications Resources			Targeted institutions and publics in Mexico	Hypothesized outcomes
	Reactive Communications	Proactive Communications	Relationship-Building		
State directed • US Department of State	• Develop media relations by coordinating with journalists to release information and inform the public	• Coordinate inter-agency actions and functions to promote specific interests	• Establish and maintain personal contact	• Executive agencies SAGARPA, CIBIOGEM, SEMARNAT, SENASICA, executive office of the president	• Mexican politicians and some producers have been receiving US technical assistance for GM foods cultivation, commercialization and use • Mexican executive agencies personnel have been involved in technical professional exchanges with their American counterparts • GM foods have been promoted by Mexican governmental agencies • Mexican government has been purchasing US GM food technology • Mexican producers and national corporations have been purchasing US GM food technology • Mexican farmers and producer groups have planted GM seeds • Producer groups and national corporations have commercialized GM foods domestically and outside Mexico • Mexican executive agencies have allowed the imports of all varieties of GM foods from the US • Producer groups and national corporations have imported all varieties of US GM foods, except GM maize. • Mexican companies have used GM foods to manufacture food products • Ongoing networks to facilitate GM food research and development among US executive agencies, Mexican executive agencies, Mexican scientific institutes and Mexican corporations have been developed
• USDA		• Design and distribute publications with thematic information • Implement technical and scientific assistance and advice	• Promote exchanges • Create and maintain networks and relationships • Establish and maintain personal contact		

Table 8.1. Continued

Organizational Structure	Strategic Communications Resources			Targeted institutions and publics in Mexico	Hypothesized outcomes
	Reactive Communications	Proactive Communications	Relationship-Building		
MNC directed • Monsanto • Dow AgroSciences • DuPont Pioneer • Bayer CropScience • Syngenta • BASF	• Develop media relations by coordinating with journalists to release information and inform the public • Realize press conferences /press releases to inform the public	• Generate and promote audio/visual productions	• Lobby executive agencies • Create and promote MNC networks • Develop internal research centers • Prepare and implement scientific training • Organize exhibits • Coordinate and deliver seminars/ conferences • Disseminate research to policy-makers • Awards giving	• Executive agencies SAGARPA, CIBIOGEM, SEMARNAT • Scientific institutions: CINVESTAV, PRONASE, CYMMITA	• MNCs have commercialized GM foods with Mexican producers and domestic corporations • Mexican citizens have been consuming GM foods • Ongoing networks to facilitate GM food research and development among US executive agencies, MNCs, Mexican executive agencies, Mexican scientific institutes and Mexican corporations have been originated • The Mexican public has been educated about GM foods advantages • Producer groups have been purchasing GM foods from MNCs • Media has accepted GM foods and emitted unbiased opinions about GM foods • Mexican government has been purchasing

Table 8.1. Continued

Organizational Structure	Strategic Communications Resources			Targeted institutions and publics in Mexico	Hypothesized outcomes
	Reactive Communications	Proactive Communications	Relationship-Building		
NGO directed • Greenpeace • ETC	• Develop media relations by coordinating with journalists to release information and inform the public • Realize press releases to inform the public • Public protests	• Generate and promote audio/visual productions • Mobilize general public • Design and distribute printed publications	• Disseminate information to publics • Create and maintain NGOs networks • Lobby executive agencies • Celebrity endorsement	• Executive agencies SAGARPA, CIBIOGEM, SEMARNAT • Producer groups: ANEC • Domestic NGOs: UCCS, Semillas de Vida, CEMDA, GEA. • Citizens	• Citizens have been warned about GM foods existence, disadvantages • Citizens and producer groups are aware of the biotechnology companies concentration of power • The Mexican public has been educated about GM foods disadvantages • There has been massive protests for preventing the use of GM foods with the participation of producer groups, domestic NGOs and citizens • Media has been covering NGOs during massive protests for preventing the use of GM foods • Local producers and producer groups have been avoiding the use of GM foods • Ongoing networks with domestic NGOs, citizen groups and local producers to prevent the use and commercialization of GM foods in Mexico have been developed

Source: Elaborated by this author, based on the model proposed by Williamson, “The Last Three Feet”, and the model of public diplomacy proposed by Antal and Tigau, “GMO PD for Biosafety.”

8.4 Lessons

After applying a proposed public diplomacy model to assess the roles of state and non-state actors involved in the promotion of GM foods in Mexico, there are five lessons to be learned from the interaction of government, MNCs and ENGOs in politics and their influence on Mexico's regulation and policy-making processes. The first lesson is that cooperation on a controversial issue such as agricultural biotechnology and GM foods between two technologically asymmetrical countries is possible. The US has been able to develop technologies applied to agriculture whereas Mexico has been trying to resolve basic issues in the countryside and has not paid enough attention to biotechnology development. Furthermore, Mexico does not have enough resources to develop its own agricultural biotechnology research centers and solutions. The governments of both countries have different national interests, and thus each of them promotes different solutions to solve the problems of productivity in agriculture and advance in prosperity.

Moreover, promotion of GMOs is embedded in technical cooperation and agricultural products promotion. Although the American government emphasizes that it does not promote GM foods, the government highlights that Mexico cooperates and collaborates with the American government in agricultural biotechnology. Though there is no promotion involving advertising campaigns, my research points out that the American government is promoting GMOs overseas by using public diplomacy instruments, and by using soft power rather than coercive measures. By these means, the US government has gradually advanced the adoption of this technology in Mexico's agriculture. Maintaining personal contact and promoting exchanges among policy-makers are effective diplomatic instruments than enhance cooperation and harmonization between biotechnology regulations of the two countries. Consequently, technical and scientific cooperation between these two countries is plausible and effective.

The second lesson is that some American agencies traditionally focused on domestic issues, such as the USDA and FDA, whose strategies and activities are expected to have an impact only on the US, nowadays have an international outreach. Furthermore, they participate in public diplomacy and employ diplomatic instruments in order to achieve goals. Traditionally, the Department of State has the absolute power and authority to conduct diplomatic activities. However, under the new public diplomacy approach, different actors enter into the picture. These executive agencies typically perform domestic activities, but at the same time, they have activities overseas. In that sense, the USDA has an active participation in public diplomacy activities.

The third lesson is that although MNCs and NGOs are involved in public diplomacy, only the government has the authority to make negotiations with foreign governments and harmonize regulatory systems. Participation of MNCs and NGOs in public diplomacy is relevant to shape the political environment in which regulations are made, providing information, persuading policy-makers to see the GMOs from a different point of view, and mobilizing constituencies. However, the relation government to government is preponderant for business to flow, regulations to be inclusive and transparent, and for

opening more trade opportunities. MNCs and NGOs' supporters are limited, but their actions have an effect on broader segments of the population.

The fourth lesson involves biotechnology companies which play an important role in public diplomacy activities because they can interact and negotiate with the host government, and open centers of research which may give reputation to the host country. This participation enables biotechnology companies to shape the political environment in which regulations of GMOs are debated and designed. Moreover, CEOs play an important role as influencers in politics; they have access to top policy-makers, and they also have power, resources and exposure to the media because of the products and research their companies offer. Monsanto's CEO contact with two Mexican presidents is evidence of the power this company has. The fact that MNCs top executives are present in audio-visual productions gives the sense that they understand the problems of the farmers, that they care about farmers' improvement, and gives the company a sense of social responsibility by contributing to economic prosperity. Companies also engage in partnerships with centers of research. The only evidence of public-private partnerships found so far is that Syngenta has created a public-private partnership with CIMMYT and a governmental program for agriculture called MasAgro. As a result, agricultural biotechnology companies have the structural, instrumental, and discursive power to shape the political environment in which GMOs regulations take place.

Fifth, despite NGOs appear to be well organized across borders and push forward similar topics, they still do not have the structural power to change regulations regarding GM foods. At a domestic level, they have developed networks of operation in order to have a broader impact on the general public and exercise more pressure on policy-makers. The best way to shape the political environment is by demanding transparency, social responsibility, and commitment to the environment from government and MNCs. NGOs have employed diplomatic instruments, have successfully used national newspapers and have got an advantageous position to expose its solutions to environmental problems as well as to raise awareness among general audiences. NGOs have been creative to advance in achieving its goals and have introduced new instruments such as celebrity endorsement which enables NGOs to connect an audience with a public figure and feel they are sharing a common cause. They have also used lobbying which is an instrument more associated with MNCs economic power rather than NGOs promoting social causes. However, they still lack the power as well as financial and human capital to push their causes forward in a more effective way.

In summary, this chapter presented the assessment of the participation of state and non-state actors in public diplomacy activities to promote GM foods in Mexico. The proposed public diplomacy model has been found to be very useful in assessing the roles, strategies, activities, and results of state and non-state actors involved in the promotion of GM foods in Mexico, specifically the Department of State, USDA, biotechnology companies, and ENGOs. This model has been relevant to illuminate how these different actors interact with stakeholders in Mexico to change perspectives about GMOs. The participation of the US government, biotechnology companies, and environmental NGOs was clarified and evidenced. Also, the five lessons learned from the application and assessment of the proposed

public diplomacy model for the promotion of GM foods in Mexico were discussed. The main lessons are cooperation of two asymmetrical countries on a controversial issue such as GM foods; domestic agencies operate with international outreach; participation of MNCs and NGOs in public diplomacy activities is relevant; biotechnology companies are important to public diplomacy activities because of the influence and resources they have to influence host governments; and NGOs lack structural power to change regulations but are able to form networks. In the following chapter, the political implications, policy recommendations, limitations, further research, and final conclusions will be presented.

Chapter 9
Summary, political implications, policy recommendations, limitations, further research, and conclusions

Throughout the pages of this thesis, I have discussed how the regulations of GM foods in Mexico have been influenced by both domestic and international actors. Moreover, I have explained that, in order to more systematically identify, analyze, and assess the participation of these actors, a public diplomacy model has been proposed and applied. Public diplomacy is a useful frame within which to analyze actors, strategies, and instruments employed by a government to influence the political environment of a host country. Using this frame, I have been able to demonstrate how the US government, along with MNCs and NGOs, has influenced Mexican stakeholders in order to shape the political environment and thus eventually ease Mexican regulations of GM foods. In this new century, state actors and non-state actors play increasingly prominent roles in public diplomacy activities. These actors will keep a stake in biotechnology issues because this topic is part of the future agenda of governments, including international organizations such as the United Nations. Moreover, non-state actors play an important role in public diplomacy because they can influence politicians, lobby policy-makers, and interact with top decision-makers. Non-state actors will continue to play a legitimate role in politics because they may have alternative solutions to the problems faced by governments and societies.

In the following paragraphs, I will summarize the chapters discussed in this thesis and present political implications and speculations. I will propose some policy recommendations that emerge from the analysis conducted through this research, discuss the limitations encountered as well as the further research that can be conducted by researchers in the field, and finalize with the conclusions of this thesis.

9.1 Summary of chapters

Chapter 1 was an introduction to this thesis and a brief outline of the chapters that comprise this thesis. Chapter 2 presented a conceptual discussion and a literature review of the GM food debate and public diplomacy, including the concepts that guided this research. I explained the terms biotechnology, GMOs, and GM foods to provide a context to analyze the importance of GM foods in the political arena. I also presented the current situation of GM foods around the world and the two main advocacy and regulatory systems that demarcate the GM food debate. On the one hand, proponents emphasize the benefits of GM foods such as a possible solution to problems for farmers, enhanced nutritional features, and a contribution to the world's food security. These pro-GM foods like-minded governments support and promote GMO products, oppose mandatory labeling, have refused to ratify the Cartagena Protocol, and have adopted a permissive regulatory system. On the other hand, the anti-GM food governments and civil society organizations point to the disadvantages of GM foods, emphasize the implied problems for farmers and the loss of food sovereignty, favor GM food labeling, and have adopted a precautionary

approach in the GMO regulations. These differences have been paralleled by two international organizations, the World Trade Organization on the one hand, and the Convention on Biological Diversity on the other. Thus, an analysis of the regulatory systems of the United States, which adopts the former stance, and Mexico, which has tended to the former stance, as well as the trajectory of controversies that these countries have had, was offered in this chapter.

Additionally, Chapter 2 introduced a public diplomacy conceptual framework as applicable to biotechnology policies. I described the actors involved in public diplomacy and their roles in public diplomacy activities. I proposed a model of US public diplomacy to promote GM foods in Mexico which contemplates state and non-state actors, including the American government, biotechnology companies, and environmental NGOs. This model included reactive, proactive, and long-term relationship building strategic communications and the instruments related to promoting GM foods, as well as the targeted stakeholders in Mexico along with the hypothesized outcomes. This proposed model of public diplomacy guided this research and analysis.

Chapter 3 presented the research design of this project, the key research questions, and the hypothesis. The main hypothesis was explored through three case studies in the context of public diplomacy: The US government has implemented different public diplomacy instruments to promote changes in the GM food policy of Mexico, including public-private partnerships with biotechnology companies and network building. In contrast, US environmental groups opposing GM foods have been less effective in constructing networks and influencing the Mexican government. In addition to this hypothesis, the methodology and techniques used in this research were detailed.

In Chapter 4, I analyzed the US state actors involved in the design and implementation of public diplomacy strategies toward Mexico. I identified the Department of State as the main actor conducting public diplomacy activities involving biotechnology, specifically through the Office of Agriculture, Biotechnology, and Textile and Trade Affairs. Its officials assert that they do not promote biotechnology and GM foods, rather seek cooperation from other governments to promote a science-based regulatory system. However, I found that US government agencies that are intended to operate domestically are also working overseas to facilitate American businesses access to other markets and to seek economic growth as established by the foreign policy goals of the Department of State. For example, agencies such as USDA and FDA have offices in the American Embassy in Mexico City. It implies a more international outreach of these agencies' activities and thus they have an influence in stakeholders in Mexico.

This chapter showed that the US government agencies that have promoted cooperation for biotechnology in Mexico along with the Department of State are the USDA and the FAS-Mexico City. These agencies promote any American business abroad in order to achieve economic progress. In an attempt to boost American agricultural businesses and encourage their presence overseas, these agencies indirectly promote biotechnology companies that are big suppliers of GM seeds and the agrochemicals required for their cultivation. Therefore, by promoting agricultural business, they are promoting GMOs and encouraging the US economic growth. This chapter also clarified that US officials and diplomats pay particular attention to Mexican officials who occupy key positions at Mexican

government agencies because they have the knowledge, expertise, personal contact, credentials, and capabilities to influence other officials. American officials prefer direct contact with these Mexican officials to start a dialogue, and to try to influence their acceptance of biotechnology. The US agencies involved in public diplomacy in support of US GM food exports have interacted mainly with key Mexico's official decision-makers rather than other influential Mexican actors such as scientific institutions, or NGOs.

I also argued in Chapter 4 that the Department of State and the USDA are using diverse effective diplomatic instruments and strategies as a perspicacious and delicate way to change the political environment in Mexico regarding GM foods. The USDA has been a proactive agency in promoting American agricultural products which accommodate GM foods. Through the FAS, the USDA has implemented programs to facilitate knowledge about GM foods and to promote cooperation in biotechnology between the United States and Mexico, including the NABI initiative, farmer-to-farmer dialogues, talks with experts on biotechnology, and exchange programs. The FAS-Mexico City has established contact and maintained significant communication with the Coordination of Science, Technology, and Innovation of the Presidency, SEMARNAT, CIBIOGEM, and SAGARPA. All these Mexican agencies are involved with GM food regulation. Communication among these agencies is constant in order to harmonize regulatory systems and facilitate trade and investment. Personal contact and scientific courses are the most popular and effective instruments used by US officials among Mexican government officials. My research indicates that these communications and interactions of the American agencies are effective in the promotion of biotechnology and GM foods. An analysis of these American executive agencies influencing the Mexican government in regards to GM foods has not been addressed in such detail before as my public diplomacy model application has assessed.

In Chapter 5, I presented an analysis of the MNCs participation in public diplomacy activities. This chapter has shown that the biotechnology sector is concentrated, powerful, and influential, and its participation enhances US public diplomacy activities for three main reasons: MNCs set the aims of research and investment; MNCs have several resources to influence policy-makers, and MNCs pursue some goals similar to those of the government. I also identified the main biotechnology companies that prevail today after systematic processes of mergers and acquisitions in the past decade, frequently referred as the big six, which include Monsanto, Dow AgroSciences, DuPont Pioneer, Bayer CropScience, Syngenta, and BASF. These companies have strong participation in the seeds and agrochemical sectors, and usually sell a complete technological kit of GM products. In addition to promoting GM foods individually, biotechnology companies are associates in industry groups in pursuit of a broader promotion of their products and influence on governments. For instance, the industry groups BIO and CropLife have a strong presence in Latin America, particularly in Mexico.

I also pointed out that biotechnology companies perform public diplomacy activities by implementing reactive, proactive, and long-term strategic communications. The instruments used by biotechnology companies vary from developing media relations and press releases, to the production of audio-visual material, and involvement in lobbying, conferences, awards, research centers, exhibits, and scientific training. Biotechnology companies utilize lobbying as an effective instrument to influence policy-makers, and have direct communication with farmers through seminars and expos, as well as directly through

their commercial agents. Instruments such as awards and internal research centers are a persuasive way to convince Mexican officials of the benefits of GM foods and the advantages of the presence of these companies in the country. The most preferred instruments employed by biotechnology companies are those related to building relationships which in the long-term generate prestige, trust, and direct interaction with farmers.

The messages delivered by biotechnology companies were also analyzed in Chapter 5. These messages are used in different venues and media, targeted to either domestic agencies and international organizations or different audiences around the globe. Biotechnology companies do not use different themes from each other; but rather communicate the same messages to appeal a broader audience. For example, food security, productivity, and improvement of the quality of life, are themes often listened when proponents of GM foods argue in different communication channels, and such themes are aligned with the FAO's Development Agenda. By referring to FAO's forecasts, biotechnology companies, and industry groups appeal to anyone who wants to help alleviate hunger and save the world, an appeal few would oppose. I argued that using these reasons to promote GM foods sounds like corporate social responsibility because MNCs may be contributing to the solution of a problem that concerns everyone, rather than just pursuing more profits and sales in different markets.

I also identified the Mexican stakeholders that are targeted by biotechnology companies. Government agencies such as SEMARNAT, CONABIO, and SAGARPA are important targets for biotechnology companies in their promotion of GM foods. These companies have representatives who have interacted with top policy-makers in Mexico, and such interaction has been successful in shaping the GM food policy change in Mexico. The most effective way to exchange information with the Mexican government is through AgroBIO, the industry group that represents them in Mexico, which has successfully employed instruments such as visual productions and awards. Documentation and analysis of how Mexican policy-makers have been influenced by biotechnology companies such as Monsanto have not been presented before in the literature; thus my public diplomacy model contributes with illuminating these interactions.

In Chapter 6, I discussed the NGO participation in public diplomacy. Although global NGOs are able to demand transparency and affect the environmental agenda, some ENGOs are still local, they are not engaged in international outreach, but they have the potential to make an important contribution to public diplomacy. Consequently, NGOs participation into public diplomacy is significant by giving credibility and reputation to the host country, helping to gain legitimacy when cooperating with stakeholders, and requesting transparency and accountability from governments and MNCs.

I also analyzed the ways in which NGOs have interacted and influenced the Mexican government. Despite the fact that there is a plethora of ENGOs in the United States, only some ENGOs have organized international campaigns to halt GM foods consumption, and a few ENGOs have operations in different parts of the world looking for the same objectives. These organizations have some similar campaigns and consistent messages but localized in terms of language, tone, and appearance. Moreover, ENGOs draw funding from different global sources, appeal first to local citizens, and then to global stakeholders environmentally concerned. However, some ENGOs promote fear to settle morals

and food regimes rather than focus on human health. The ENGOs participating in the prevention of GM foods in Mexico may be considered as independent, so they feel free to criticize governments and demand for actual results. I identified two global ENGOs promoting the elimination of GM foods in Mexico: Greenpeace and ETC Group.

I also acknowledged that ENGOs employ reactive, proactive, and long-term relationship-building strategic communications in order to pursue their goals. My thesis has evidenced the different public diplomacy instruments that ENGOs have employed to refrain the introduction of GM foods in Mexico. ENGOs spend a considerable amount of resources in printed publications, design materials for different audiences, and disseminate this material as much as possible. Another instrument widely used, more specifically by Greenpeace, is public protests. This ENGO has participated with *Sin maíz no hay país*, a conglomerate of NGOs, which seeks to halt GM maize cultivation in Mexico. Additionally, ENGOs use lobbying as a public diplomacy instrument that has been effective among some policy-makers. ENGOs also have used innovative public diplomacy instruments such as celebrity endorsement to associate their campaigns with well-known and liked persons. Dissemination of information is another effective instrument employed to communicate with stakeholders, usually making publications in the main national newspapers of Mexico. ENGOs design materials for audiences with different levels of knowledge, familiarity, and experience with GM foods. This research work performed by NGOs is impressive. However, it is also dispersed and not well coordinated, and sometimes it seems these organizations compete with each other. Because of the use of different diplomatic instruments, ENGOs in Mexico have raised awareness about the GM foods disadvantages among general audiences. ENGOs have also denounced the concentration of power that biotechnology companies possess with their GM food developments.

The messages promoted by ENGOs were also discussed in Chapter 6. The main themes pushed forward by ENGOs in Mexico are the defense of corn, food sovereignty, and loss of biodiversity. Even though that global and local ENGOs are preoccupied with preventing GM foods cultivation, this common goal is not enough to add forces and generate more pressure on the government because ENGOs have different ideologies, working styles, and government relations. Furthermore, ENGOs in Mexico have forces divided into two main sets; on the one hand, *Sin Maíz No Hay País*, on the other, *Red en Defensa del Maíz*, and sometimes it seems they are competing to gain awareness, as well as domestic and international support. Nevertheless, domestic NGOs from *Sin Maíz No Hay País* along with Greenpeace have been influential with the judiciary branch. Hitherto, NGOs have succeeded in preventing GM maize commercialization and cultivation at a national level using a class action lawsuit. Additionally, their class action lawsuit against Monsanto's GM soybeans plantations in the south of the country has reached the Supreme Court of Mexico which suspended Monsanto's permission to cultivate GM soybeans on November 2015.[817] In the literature, only a few studies address the work environmental NGOs conduct worldwide to prevent the adoption, consumption, and commercialization of GM foods. My analysis of the ENGOs conducting activities against GM foods through the public diplomacy lens contributes to the

[817] For more information see Martínez Pantoja, Yadira I. "Indigenous honey producers empowered against GMOs: Mexico's Supreme Court decision to protect indigenous rights." *The Pacific Outlier: A Politics and International Relations Blog.* November 27, 2015, http://pacificoutlier.org/

scarce literature of NGOs indicating which NGOs and what programs they are conducting in Mexico, as well as the way in which they are organized and have influenced the Mexican government.

In Chapter 7, an analysis of how the Mexican government has incorporated proponents' and opponents' arguments and made decisions was presented. I also detailed an explanation of the evolution of GM food legislations in Mexico. I noted that a version of the American GM food regulatory system was adapted into the Mexican regulatory system in order to have harmonized systems and facilitate trade between the two countries. Although these systems are similar, there are still some differences that make Mexico's legislation more complicated than the American counterpart.

I also pointed out a weakness of the Mexican political system regarding GM foods: the lack of a biosecurity and biotechnology national policy with objectives, roles, attributions, and priorities. Furthermore, communications among the agencies involved in GM foods is not effective. In the case of SEMARNAT, this secretariat is interested in preserving Mexico's biodiversity. The same concern is shared by CONABIO whose research highlights the importance of the different varieties of maize in Mexico, and has found out that there are more corn varieties than previously were thought, and thus native maize should be protected. The government officials from these agencies differ from the way in which the LBGMOs of 2005 was elaborated. Moreover, for SEMARNAT, CONABIO, and some SAGARPA officials, consider GM maize may not be a viable and sustainable option to improve the countryside. My research describes how some Mexican government officials are aware that Mexico needs a national biosecurity policy of GMOs, and this research line is not discussed in the current English literature of GM foods.

Additionally, I analyzed the challenges that the Mexican government faces due to all the complexities, forces, and perspectives, including social protests proliferation, lack of support to Mexican research institutions, and the need for drafting a national biosecurity policy of GMOs. Mexicans are concerned about the commercialization of GM maize and can gather and protest, and eventually, polarize society. Research institutions in Mexico need a higher budget in order to continue developing suitable technologies and products specific for the Mexican cornfield reality.

In Chapter 8, I developed an assessment of the proposed public diplomacy model. In this chapter, I analyzed the actors participating in public diplomacy activities, including government agencies, MNCs, and NGOs. The reactive, proactive, and long-term relationship-building strategic communications, along with the linked diplomatic instruments, were reviewed. I explained which instruments were employed by each actor, and indicated the additional or deleted elements of the proposed public diplomacy model presented in Chapter 2. Although some diplomatic instruments are solely used by state actors because these are formalities only conferred from government to government, MNCs and NGOs participation in public diplomacy is relevant to change the political environment of a host country. Thus, the proposed model has been effective to evaluate how different international and domestic actors have interacted to shape the LBGMOs of 2005 in Mexico. Moreover, I offered five lessons learned from the application of the proposed public diplomacy model.

9.2 Political implications and speculations

This thesis has several implications. The analysis of GM foods promotion through the lens of public diplomacy shows that the roles of state and non-state actors are relevant in changing the political environment in Mexico. Thus, public diplomacy activities imply that American actors are intervening in some way in the Mexican policy-making processes, and this generates more distrust toward Mexican officials among general audiences. Furthermore, the preexistent distrust and anti-Americanism of some policy-makers, media, NGOs, and the public is reinforced as a result of these public diplomacy activities. Consequently, unavoidably distrust and anti-Americanism are side effects of this process.

Hitherto, the GM maize commercialization has not been allowed in Mexico because of a class-action lawsuit demanded by NGOs and ordered by a federal judge. However, with President Peña Nieto administration finalizing in 2018, and with a new administration in functions, this ban may be reversed. Furthermore, with an alternative political party in the presidency, the political environment may turn drastically and thus the permits for GM maize production may be allowed. Therefore, a change of administration may also imply a modification of the regulations and the way in which the Mexican officials relate to American officials. Public diplomacy instruments may still be used, but perhaps they can be updated or modified to target the new government officials.

Additionally, President Peña Nieto has recently made critical changes to the staff of the Cabinet at the beginning of 2016. The secretary of agriculture, the secretary of environment, the coordinator of science technology and innovation, and the CIBIOGEM's secretary executive have been changed. Apparently, these new staff has followed their predecessors' line of work, and no new regulations have been adopted. However, considering some political commitments these new government officials may have, their positions toward GM foods may change either favoring GM food promotion or becoming stricter in regulations of GM foods.

This research suggests several speculations. Biotechnology companies have opened research centers in Mexico in order to develop more profitable products, generate employment, and give prestige to the host country. However, through these research centers, biotechnology companies have co-opted Mexican natural resources to develop biotechnology products that later on will be patented, commercialized, and make profits for these companies. Furthermore, research centers can be used by biotechnology companies to initiate and maintain scientific networks with Mexican research centers such as CINVESTAV which has developed specific GM foods for some Mexican regions. This interest in networking or partnering with Mexican public scientific institutions is to hire the Mexican scientists who have worked in public scientific institutions, developed localized products, and may bring the knowledge to the private research center. So, these centers of research may be seen as initiators of networks and as a niche where knowledge can be shared or grabbed.

With the objective of keeping the presence of biotechnology companies in the country, the Mexican government will continue to have contact with MNCs and will facilitate public-private partnerships. As a result, the government may also include GM seeds in the social programs that assist Mexican farmers as a form to cooperate with biotechnology companies.

9.3 Policy recommendations

A number of policy recommendations for the US Department of State, MNCs, NGOs, and the Mexican government can be drawn from the information and assessments set out in this thesis. I propose the US Department of State to adopt a formal, explicit, and institutionalized food diplomacy program which includes the commercial and cultural promotion of conventional, biotechnological, and organic products. Biotechnology, along with conventional and organic farming, may be portrayed as another tool to solve farmers' problems of productivity, hunger and food security in the world, and as a means to achieve broader foreign policy goals as has been explained in Chapter 4. The Department of State has already recognized that the advancement of US businesses means progress for the country. Thus, a program of this type may help the Department of State advance more in this objective and change the negative perceptions of biotechnology.

Consequently, this thesis recommends the Department of State to formulate a food diplomacy program that promotes conventional crops, GM foods, and organic products in Mexico and the rest of the world. In the case of GM foods, it is suggested to promote this technology with one of the following terms to make it easily accepted: "agricultural solutions," "applied biotechnology," or "food biotechnology," as also suggested by IFIC to the USDA. Furthermore, a food diplomacy program may also be implemented in other developing countries which are expanding possibilities in agriculture, such as Kenya in Africa, or China in Asia, and can be complemented with a food security program that may enhance the social responsibility of the US in those regions of the world. This public diplomacy program may incorporate public-private partnerships including the participation of diverse MNCs or NGOs to provide technological and scientific support to the program and make it more effective.

I propose MNCs continue operating through industry groups. These associations have worked well to project a favorable image for biotechnology companies. This thesis also suggests MNCs to show more transparency on how biotechnology has been managed and be supportive of new technology and research through public-private partnerships as well as through research centers. However, such research should be more focused on local needs. Mexico's agricultural activities are different from the American ones. Therefore, I sugggest specific development and local applications of GM foods be encouraged.

NGOs would achieve their aims better by working more on cross-border activities coordination. Some global NGOs such as Greenpeace have different campaigns run by their Mexican and US branches. Therefore, I suggest international and domestic NGOs to be encouraged in organizing conjoint campaigns and implement coordinated activities in order to exert more influence on policy-makers. Hitherto, the actor with more economic resources is the one that gets access to regulators, legislators, and decision-makers. Thus, more NGOs coordinated activities would generate more political pressure and attract more media attention than dispersed acts of protest or marches against just one biotechnology company.

This thesis recommends the Mexican government to formulate a national biosecurity policy and disseminate it among the different agencies related to GM foods. It should be a clear policy outlining

what GM foods and cases of biotechnology are acceptable and applicable, with the reasons why it is so, as well as a section with cases where GM foods are not acceptable or suitable, stating reasons and criteria. One example of a national policy including cultural factors is New Zealand's policy which incorporates the Maori perspective. Therefore, I suggest the policy be an inclusive one where the Mexican government considers MNC and NGO positions and arguments when formulating policies because these regulations will have effects on the population, both in the short and long-term. More empowerment of indigenous people is necessary in Mexico where little attention has been paid to indigenous culture, traditions, and languages when authorizing projects related to GM foods.

The Mexican government should be precautionary in deciding whether GM maize can be cultivated and commercialized in the country. I recommend GM foods approval to continue on a case-by-case basis taking into account not only environmental effects but also economic, social, and cultural factors that are linked to indigenous people, peasants, and farmers in Mexico. I believe that new technology in non-strategic sectors should not be denied to farmers eager to improve their productivity and way of life. The cultivation of other GM crops in the country may give big-scale farmers the opportunity to compete with their American counterparts and help improve productivity. However, a modification of some agricultural practices, efficient irrigation, correct food distribution, and technical assistance are helpful tools to improve the Mexican countryside and GMOs are not the only solution. Consequently, introducing agricultural biotechnology in the countryside should be undertaken only with caution in order not to weaken the Mexican society that has already been disrupted by the introduction of international economic disciplines and new incentives via the NAFTA process. Furthermore, an organic farming approach perhaps would turn the Mexican countryside into a more profitable sector, targeting to European consumers who can pay higher prices for organic foods.

This thesis proposes the government of Mexico to see the whole picture, use different tools, and offer different inducements to farmers throughout the country. The fact that farmers of the north, on the border with the US, are smuggling in GM corn seeds to cultivate them, indicates a desire to adopt this new technology. The government should prevent this illicit cultivation. As the deputy secretary of agriculture of Mexico pointed out to me, Mexico does not want to be like Brazil where promotion and commercialization of GMOs were done through other countries and by smugglers, not through the Brazilian government.

Because most of the biotechnology research is undertaken in the US, new biotechnological developments apply to the American agricultural-industrial needs, but not necessarily to the Mexican countryside. Therefore, Mexican research institutions which have developed a few localized GM foods, such as CINVESTAV, need to be encouraged to do more research on GM crops that are suitable for the Mexican agricultural systems. Consequently, the Mexican government will have to inject higher budgets to public research institutions in order to secure the localized developments that will help solve the local problems for the Mexican countryside.

9.4 Limitations

The public diplomacy model as proposed and applied in this thesis displays several limitations. The model does not assess the participation of supranational organizations, such as the FAO, and the ways in which such organizations have influenced the GM food policy in Mexico. These organizations may have some effect in the Mexican stakeholders.

This model does not focus on some domestic actors in Mexico, such as political parties, domestic industry groups, labor unions, and other governmental agencies, and the ways in which they may have influenced the Mexican government to change the regulations of GM foods and the elaboration of LBGMOs of 2005.

My model does not analyze the effects of public diplomacy activities in the Congress and the Supreme Court in Mexico. This model is limited to the analysis of US executive agencies conducting public diplomacy on Mexican executive agencies, not on other government branches' agencies. At an early stage, I ascertained that the influence of the other branches was peripheral to the final decision of the executive branch, and my subsequent research has confirmed this assumption.

This thesis has focused on agricultural biotechnology but has not assessed how Mexico's government has legislated other biotechnology advances such as cloned animals, GM embryos, or biopharming. The focus on GM foods is because of the debate about permissions for GM maize cultivation in Mexico.

Furthermore, the proposed public diplomacy model focuses on the use of diplomatic communication instruments but does not dwell on the economic aspects of the adaptation, cultivation, and commercialization of GM foods in Mexico.

Lastly, this model has been applied solely to the US-Mexico bilateral relations and has left other bilateral relations for another time. An analysis of a US public diplomacy model toward other countries in Latin America to shape the political environment regarding GM foods has also been left aside in order to narrow down this research.

I believe these limitations have arisen from strategic decisions I made at the outset of my research and are acceptable within the framework set by the public diplomacy model. Nevertheless, I am aware of the potential for further research to deepen and broaden the information and insights in the present thesis, and discuss these below. They constitute a research agenda that will guide my future work as an academic specialist on the international politics of food.

9.5 Further research

Further research that would logically follow this thesis on the GM food promotion with an application of a public diplomacy model is explained below.

An analysis of other supranational organizations, including WTO, UN, FAO, and OECD, is suggested to enhance the understanding of how the United States through representatives in such organizations influences the Mexican stakeholders. This research line would illuminate in the way in which Mexico responds to supranational organizations and external forces.

Another line of research is the study of other domestic actors not included in this research, such as political parties, domestic industry groups, labor unions, and other government agencies. This research may enhance the understanding of LBGMOs 2005 policy change in Mexico. These domestic actors may be influential in the design and formulation of regulations and laws of GM foods.

An analysis of the effects of public diplomacy programs in both the legislative and the judicial branches of Mexico may be worth researching, specifically the influence of non-state actors. The Congress has changed regulations of GM foods, and the interactions that legislators have had with domestic and international actors has not been addressed in depth. Complimentary research may illuminate the way in which these two branches are sensible to listen to non-state actors of public diplomacy.

Research and analysis of the Mexican policies of other biotechnology developments such as cloned animals, GM embryos, or biopharming are other areas that need to be addressed. The study and regulation of biosecurity in Mexico has been focused on GM foods. However, a deeper understanding of other biotechnology products and their implications needs to be undertaken in order for Mexico's government to be prepared for future biotechnological developments.

Additionally, the economic aspects of the adaptation, cultivation, and commercialization of GM foods in Mexico are worthy of study. The application of a public diplomacy model has focused on assessing diplomatic instruments used by the US government, but it has not contemplated all the economic aspects that affect the US-Mexico relations in regards to GM foods.

Another line of further research is the application of the proposed public diplomacy model to other countries. Considering that the US performs public diplomacy activities in other developing countries which need new technology to improve agriculture, an application of a US public diplomacy model to comprehend how state and non-state actors may affect the political environment in other countries is valuable of study. My public diplomacy model may also be applied to the study the rest of Latin America because Mexico is often seen as an example to follow in the region.

These further research lines may contribute to the public diplomacy and international relations fields. Moreover, the relations between the United States and Mexico are a sui generis case of diplomacy, trade, and cooperation that I would like to continue studying in the future.

9.6 Conclusions

My proposed public diplomacy model has been found to be effective in analyzing the policy changes in Mexico taking into account international and domestic actors. Altogether, state and non-state actors have shaped the political environment in Mexico and have influenced policy-makers and the regulations

generated from these interactions. These assumptions on the participation and importance of MNCs and NGOs in public diplomacy have been theoretically discussed by researchers in the international relations and politics fields. However, an application of a public diplomacy model to determine the actual international and domestic actors, forces, and influences in shaping a policy had not been addressed before.

Although this thesis focuses on the interactions between American and Mexican governments and other stakeholders, it contributes to understanding the dynamics of public diplomacy and illuminates on the importance of GM foods to politics. These insights are important for scholars in the field and practitioners around the world who would like to deepen their knowledge about the roles of state and non-state actors as influencers in policy-making processes. Therefore, my thesis contributes to the field of public diplomacy by applying a model to a problem in the field, in this case, the GM food debate.

For the first time, with this thesis I am spotlighting some Mexican government officials and domestic NGOs that previously did not have the opportunity to express to wider audiences their arguments and perceptions about GM foods and the US participation in their processes. Consequently, drawn from the application and assessment of my proposed public diplomacy model, I present the following conclusions:

- The US Department of State, the USDA, and the FAS conduct public diplomacy activities in Mexico in order to build long-term relationships, influence the political environment, harmonize regulations, and enhance cooperation necessary for a healthy bilateral relation between the two governments.
- MNCs' participation in public diplomacy activities is relevant because it allows biotechnology companies to interact directly with government officials and influence their policies. It also helps biotechnology companies to build long-term relationships with their stakeholders in Mexico and such relationships are important in a globalized world that obliges MNCs to be competitive, smart, and consumer oriented.
- NGOs' public diplomacy activities are relevant to influence policy-makers and build relationships with supporters and alert audiences on the existence of GM foods, though sometimes NGOs use the power of fear to promote their causes. Domestic NGOs have served as a counterbalance to MNCs for halting GM maize cultivation in Mexico.
- The GM food debate is not only about biotechnology implications for the environment or human health, but also each proponent has profitability motives and goals, rather than just philanthropic, humanistic, or societal concerns. It has deep economic roots related to who gains more supporters, consumers, profits, influence, and power.

Finally, it is relevant to emphasize that Mexico is a unique case, with different complexities and realities. As a neighbor and a strategic partner of the United States, Mexico will continue cooperating, harmonizing regulatory systems, and communicating with the US government in order to maintain a fluid trade. Moreover, the US government will continue shaping the environment in which the Mexican government designs its own policies.

The conduction of traditional diplomacy from state to state will continue, but in this new century where new media and changing audiences are becoming a constant in international relations, public diplomacy becomes important to shape the political environment in a subtle and fine way. Public diplomacy will be a critical part of the government's diplomatic toolbox. Public diplomacy will remain as a more effective means to win the hearts and minds of the people. With the aid of MNCs and NGOs able to influence not only the government but also the publics of a nation, public diplomacy will be more skillful than the application of economic sanctions or military actions to convey a political action directed by a state.

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