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Lessons from Mexico and the United States

Carmen G. Gonzalez*

Introduction

The current crisis in global financial markets comes on the heels of a global food crisis that is affecting billions of people in both developed and developing countries. From 2006 through 2008, skyrocketing food prices plunged at least 75 million people into the ranks of the malnourished, and provoked food riots across the globe.¹ The causes of the food crisis included poor weather, high oil prices, rising world-wide meat consumption, use of grains to manufacture biofuels, and financial speculation in commodity markets.² The causes of the financial crisis included predatory lending practices on the part of U.S. banks and inadequate regulation of financial markets.³

In response to the twin challenges of the financial and food crises, China has placed rural development at the top of its political agenda.⁴ In October 2008, the Central

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¹ See United Nations Food and Agriculture Organization (FAO), *Hunger On the Rise: Soaring Prices Add 75 Million People to Global Hunger Rolls*, Sept. 18, 2008, <http://www.fao.org/newsroom/en/news/2008/1000923>; FAO, *UN Warns on Food Shortage Riots*, Apr. 10, 2008, http://www.fao.org/world/Regional/rne/UNNews/news146_en.htm.

² See Eric Holt-Gimenez, *The World Food Crisis* (Food First Policy Brief No. 16), Oct. 2008, at 3, 11-12.

³ See Joseph Stiglitz, *House of Cards*, THE GUARDIAN, Oct. 9, 2007; *World Economy: What Went Wrong*, The Economist, March 6, 2009, http://www.economist.com/finance/displayStory.cfm?story_id=13251429&source=features_box_main.

⁴ See Fu Jing, *Bridging the Gap: The Central Government Has a Road Map to Close China's Rural-Urban Divide*, CHINA BUSINESS WEEKLY, Nov. 10-16, 2008, at 3.

Committee of the Chinese Communist Party announced that China would adjust its export-oriented development model and would henceforth place greater emphasis on tapping the vast potential of its rural areas.⁵ The government plans to increase rural incomes, protect arable lands, encourage agricultural production, maintain self-sufficiency in grain supplies, and promote grassroots democratization.⁶

The challenges ahead are formidable. China's per capita endowment of arable land is low by world standards, and nearly 40 percent of that land is badly eroded.⁷ Urbanization and industrialization are accelerating the pace of land loss,⁸ and industrial pollution is contaminating crops and sparking rural unrest.⁹ Water shortages devastate certain regions of the country, and desertification continues to be a serious problem.¹⁰ At least 30 million farmers have been deprived of their lands in favor of urban development,¹¹ and factory closures have left more than 10 million rural migrants jobless.¹²

China's struggle to overcome these challenges is occurring in the context of international trade negotiations premised on the idea that agricultural trade liberalization will benefit farmers in the global South.¹³ Agricultural trade reform was a key element of

⁵ See id.

⁶ See id.

⁷ Yingling Liu, *Shrinking Arable Lands Jeopardize China's Food Security*, WorldWatch Institute, Apr. 16, 2006, <http://www.worldwatch.org/node/3912>; Shi Jiangtao, *Soil Erosion Affects 40 Percent of Mainland, Three-Year Survey Finds*, South China Morning Post, Jan. 30, 2009.

⁸ See Fu Jing, *supra* note 4, at 3.

⁹ See Elizabeth C. Economy, *The Great Leap Backward*, FOREIGN AFFAIRS, Sept/Oct. 2007; Swati Lodh Kundu, *Rural China: Too Little, Too Late*, CHINA BUSINESS, July 19, 2006, http://atimes.com.atimes/China_Business/HG19Cb01.html.

¹⁰ See Economy, *supra*, note 9; Fu Jing, Si Tingting & Zhang Qi, *Grim Times for Rural Earnings*, CHINA DAILY, March 4, 2009, at 13.

¹¹ See Fu Jing, *supra* note 4, at 3.

¹² See Fu Jing et al, *supra* note 10, at 13.

¹³ See Timothy A. Wise, *The Limited Promise of Agricultural Trade Liberalization*, Working Group on Environment and Development in the Americas, Discussion Paper No. 19 (July 2008) at 2.

the North American Free Trade Agreement (NAFTA),¹⁴ and U.S. trade officials often use NAFTA as a template for bilateral and regional trade agreements.¹⁵ It is therefore useful to take a close look at the actual impact of NAFTA-related agricultural trade reforms in Mexico and in the United States in order draw lessons that might be useful to China in future bilateral and multilateral trade negotiations.

I. The Promise of NAFTA

Beginning in 1994, NAFTA gave Mexico preferential access to the U.S. market at the beginning of the longest economic boom in U.S. history.¹⁶ Within ten years, Mexico experienced a dramatic increase in the value of its fruit and vegetable exports to the United States, but the developmental impact within Mexico was problematic.¹⁷ Agricultural wages fell, inequality deepened, and migration to the United States increased.¹⁸ Using the Mexican corn sector as a case study, this article examines the social and environmental impacts of NAFTA in the United States and in Mexico and discusses the implications for policy-makers in China and other developing countries.

A. The Significance of Corn Production in Mexico and in the United States

Mexico is the center of origin for corn, and Mexican farmers have contributed to the resilience of the world's food supply by cultivating over 40 distinct corn varieties

¹⁴ North American Free Trade Agreement, U.S.-Can.-Mex., Dec. 17, 1992, 32 I.L.M. 289 (1993).

¹⁵ See R. Dennis Olson, *Lessons from NAFTA: Food and Agriculture*, Institute for Agriculture and Trade Policy, Dec. 2, 2008, <http://www.iatp.org/iatp/commentaries.cfm?refID=104574>.

¹⁶ See Mamerto Perez, Sergio Schlesinger & Timothy A. Wise, *The Promise and Perils of Agricultural Trade Liberalization: Lessons from Latin America*, Working Group on Environment and Development in the Americas (June 2008) at 7.

¹⁷ See *id.*

¹⁸ See *id.* at 8.

(landraces).¹⁹ Corn production employs 40 percent of Mexico's agricultural labor force, uses 60 percent of Mexico's arable land, and has a significant impact on soil conservation, water utilization, and pesticide and fertilizer use.²⁰ While the modern, industrial corn farms of northern Mexico account for a small portion of Mexico's corn production, most of Mexico's corn is produced by small farmers in southeastern Mexico using traditional corn varieties and traditional cultivation techniques.²¹ These farmers plant seeds that have been adapted over generations to thrive under challenging environmental conditions (including drought, frost, heavy rainfall, and variable soil quality) and that are better suited to the local environment than genetically uniform, commercially marketed, high-yield seed varieties.²² By planting different varieties of corn with different characteristics, Mexican farmers protect themselves against widespread crop failure.²³ This *in situ* conservation of genetic diversity also provides the world's plant breeders with the valuable raw material (germplasm) needed to develop new varieties of corn that will meet the world's food needs at a time of potentially catastrophic climate change.²⁴

¹⁹ See ALEJANDRO NADAL, THE ENVIRONMENTAL AND SOCIAL IMPACTS OF ECONOMIC LIBERALIZATION ON CORN PRODUCTION IN MEXICO 4 (2000), available at http://www.oxfam.org.uk/what_we_do/issues/livelihoods/corn_mexico.htm.

²⁰ See *id.* at 4, 11, 43.

²¹ See, ALEJANDRO NADAL & TIMOTHY A. WISE, THE ENVIRONMENTAL COSTS OF AGRICULTURAL TRADE LIBERALIZATION: MEXICO-U.S. MAIZE TRADE UNDER NAFTA 4-5, 16, Working Group on Development and Environment in the Americas, Discussion Paper. No. 4 (June 2004), available at <http://ase.tufts.edu/gdae/WorkingGroup.htm>.

²² See, Alejandro Nadal, *Zea Mays: Effects of Trade Liberalization of Mexico's Corn Sector*, in GREENING THE AMERICAS: NAFTA's LESSONS FOR HEMISPHERIC TRADE 143-144 (Carolyn L. Deere & Daniel C. Esty, eds. 2002).

²³ See *id.* at 144.

²⁴ NADAL, *supra* note 19, at 4.

Eighty percent of Mexico's corn is produced in mountainous, rain-fed regions using low-input, environmentally friendly production techniques.²⁵ The southeastern states of Mexico where traditional corn cultivation methods prevail are also the country's poorest and most culturally diverse areas, with a high concentration of indigenous communities.²⁶ Corn has been cultivated in these regions for thousands of years, supplies food and employment to local communities, and forms an integral part of cultural identity.²⁷

Mexican corn production thus possesses certain positive social and environmental externalities. It provides employment, social stability, and community cohesion. It preserves the cultural integrity of Mexico's rural and indigenous communities. It protects the environment by reducing the need for irrigation and minimizing the use of toxic chemical inputs. It also conserves the genetic diversity of Mexican corn – a resource of vital importance to the world's food supply.

Regrettably, traditional corn farmers are not compensated for conserving Mexico's genetic diversity, for contributing to social stability and community cohesion, or for using low-input cultivation techniques that are more environmentally friendly than corn production in the United States or in the large, mechanized farms of northern Mexico.²⁸ The market price of Mexican corn does not reflect the positive social and environmental externalities associated with its production.

In the United States, by contrast, corn is a major export commodity. The United States is the world's top producer and exporter of corn, and corn constitutes

²⁵ See Gisele Henriques & Raj Patel, *NAFTA, Corn, and Mexico's Agricultural Trade Liberalization*, BORDER LINES, Feb. 13, 2004, at 25.

²⁶ See *id.* at 26, NADAL, *supra* note 19, at 4.

²⁷ See Elisabeth Malkin, *Science and Culture in Mexico's Corn Staple*, N.Y. Times, March 3, 2005.

²⁸ See NADAL & WISE, *supra* note 21, at 21-22.

approximately 9 percent of the value of all U.S. agricultural output.²⁹ Corn is produced more cheaply in the United States than in Mexico, and U.S. yields are significantly higher than Mexican yields.³⁰ There are several reasons for these yield and price disparities. First, U.S. corn producers are highly subsidized.³¹ Indeed, as a consequence of these subsidies, U.S. agribusiness is able to export corn at 20-33 percent below the U.S. cost of production.³² Second, the United States produces more corn per hectare than Mexico due to mechanized cultivation methods and economies of scale in the vast, flat, irrigated farm lands of the U.S. mid-west.³³ Finally, U.S. corn is produced using large amounts of toxic agrochemicals and aquifer-depleting irrigation systems.³⁴

U.S. corn production possesses certain negative environmental and social externalities. The negative environmental externalities include pollution of lakes and rivers from pesticide and fertilizer runoff, depletion of aquifers through unsustainable irrigation practices, and farm worker exposure to toxic agrochemicals.³⁵ The heavily subsidized production of corn in the United States may also have negative social externalities to the extent that cheap corn prices contribute to rising consumption of corn-based sweeteners.³⁶ Rising consumption of corn-based sweeteners in snacks and

²⁹ See NADAL, *supra* note 19, at 4.

³⁰ See *id.* at 5.

³¹ See *id.* at 9-10, 13-14.

³² See *id.* at 3.

³³ See Gisele Henriques & Raj Patel, *Agricultural Trade Liberalization and Mexico* 25, Institute for Food and Development Policy, Policy Brief No. 7 (2003).

³⁴ NADAL & WISE, *supra* note 21, at 7-12.

³⁵ See *id.* at 6-11.

³⁶ See Alicia Harvie & Timothy A. Wise, *Sweetening the Pot: Implicit Subsidies to Corn Sweeteners and the U.S. Obesity Epidemic*, Global Development and Environment Institute, Tufts University, Policy Brief No. 09-01 (Feb. 2009), available at www.ase.tufts.edu/gdae/Pubs/rp/PB09-01SweeteningPotFeb09.pdf.

beverages has been linked to increases in chronic diet-related diseases, such as heart disease, stroke, Type 2 diabetes, and cancer.³⁷

Regrettably, the market price of U.S. corn fails to take into account the negative environmental and social externalities of U.S. corn production. Because the price of U.S. corn does not reflect the negative environmental impacts associated with chemical-intensive cultivation techniques or the social costs of subsidizing the production of corn sweeteners, U.S. corn is under-priced in relation to its true cost of production.³⁸

B. Mexico's Pre-NAFTA Economic Reforms

In order to evaluate the impact of NAFTA on the Mexican corn sector, it is important to place this agreement in historical context. From the 1930s until the 1980s, Mexico established its industrial base by encouraging the domestic production of previously imported manufactured goods through tariffs, subsidies and import restrictions.³⁹ The Mexican chemical, automobile and metalworking industries were the main beneficiaries of this policy, and they eventually began to export 10-15 percent of their production.⁴⁰ While promoting the industrial sector, the Mexican government alleviated rural poverty and kept food prices low by providing domestic farmers with price supports, subsidized agricultural inputs, credit and insurance.⁴¹

³⁷ *See id.*

³⁸ *See NADAL, supra* note 19, at 26.

³⁹ *See* Henriques & Patel, *supra* note 33, at 16.

⁴⁰ ALICE H. AMSDEN, THE RISE OF 'THE REST': CHALLENGES TO THE WEST FROM LATE INDUSTRIALIZING ECONOMIES 171 (2001).

⁴¹ *See* Henriques & Patel, *supra* note 33, at 16.

The debt crisis of the 1980s marked a shift in Mexican economic policy in favor of free market reforms.⁴² In order to secure the assistance of the World Bank and the International Monetary Fund (IMF) with the restructuring of its debt, Mexico adopted an export-oriented economic strategy.⁴³ In the agricultural sector, Mexico targeted subsidies to large agro-exporters and reduced support to small farmers producing for the domestic market.⁴⁴ In the industrial sector, Mexico's manufactured exports came to be dominated by the low-wage assembly plants known as *maquiladoras* that imported raw materials from the United States, assembled them in Mexico, and then exported the assembled products back to the United States.⁴⁵ Mexico also reduced tariffs and quantitative restrictions, privatized certain state-owned enterprises, curtailed government spending, and reduced social welfare programs.⁴⁶

Unfortunately, these free market reforms did not produce the expected benefits. During the 1980s and 1990s, Mexico experienced low economic growth, wage stagnation, high unemployment and growing poverty.⁴⁷ In order to jump start the economy, Mexico sought increased integration into global markets by becoming a party to the General Agreement on Tariffs and Trade (GATT) in 1986, to NAFTA in the 1990s, and to numerous additional bilateral and multilateral trade agreements.⁴⁸

C. NAFTA and the Mexican Corn Sector

⁴² See *id.*

⁴³ See *id.*

⁴⁴ See *id.*

⁴⁵ Raul Delgado Wise, *Migration and Imperialism: The Mexican Workforce in the Context of NAFTA*, 33 LATIN AMERICAN PERSPECTIVES 33, 34-35 (2006).

⁴⁶ See *id.*

⁴⁷ See UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP), HUMAN DEVELOPMENT REPORT 2005, at 121-122 (2005) [hereinafter, UNDP, HUMAN DEVELOPMENT REPORT 2005].

⁴⁸ See Henriques & Patel, *supra* note 33, at 16-17.

One of NAFTA's major objectives was to promote the free flow of goods and services by eliminating trade-distorting tariffs and subsidies.⁴⁹ Curiously, NAFTA's agricultural chapter treats subsidies and tariffs quite differently. NAFTA *encourages* countries to reduce domestic agricultural subsidies, but only *requires* that they adhere to their GATT/WTO subsidy reduction commitments.⁵⁰ By contrast, NAFTA required the elimination of most agricultural tariffs by 2004.⁵¹ In light of the importance of corn in the Mexican economy, Mexico negotiated a 15-year transition period for corn.⁵² During this transition period, a specific amount of U.S. corn would enter the Mexican market each year tariff-free, while the remainder would be charged the applicable tariff, which would be reduced from 206 percent in 1994 to zero by 2008.⁵³

In practice, the Mexican government permitted U.S. corn to enter the Mexican market virtually tariff-free beginning in 1996.⁵⁴ Mexican government officials justified this decision as an effort to control inflation by keeping corn prices low and as a means of encouraging corn farmers to leave corn production in favor of agricultural and non-agricultural sectors in which Mexico was believed to enjoy a greater comparative advantage.⁵⁵

The abrupt introduction of tariff-free U.S. corn into the Mexican market produced significant economic dislocations in Mexico. U.S. corn exports to Mexico sky-

⁴⁹ See *id.* at 18; NAFTA, *supra* note 14, Part One, Art. 102.

⁵⁰ See NAFTA, *supra* note 14, Part Two, Art. 704.

⁵¹ See Henriques & Patel, *supra* note 33, at 18.

⁵² See *id.*

⁵³ See *id.*

⁵⁴ See *id.* at 32; NADAL & WISE, *supra* note 21, at 5. Nadal, *Zea Mays*, *supra* note 22, at 149.

⁵⁵ See Nadal, *Zea Mays*, *supra* note 22, at 145-146; NADAL, *supra* note 19, at 26-27.

rocketed.⁵⁶ By the year 2000, Mexico had become the second largest importer of U.S. corn after Japan.⁵⁷ Because U.S. corn prices are artificially depressed by generous government subsidies, the elimination of tariffs on U.S. corn caused real corn prices in Mexico to plummet by more than 70 percent from their pre-NAFTA levels by 2001.⁵⁸ This precipitous drop in corn prices occurred at the very moment that the Mexican government announced the almost complete abolition of subsidies and price supports for the agricultural sector.⁵⁹ The Mexican government terminated its program of subsidized credit, eliminated the government agency responsible for providing price supports, and re-directed its assistance programs to favor large, export-oriented agricultural enterprises rather than small farmers.⁶⁰

II. The Impact of NAFTA in Mexico and in the United States

Despite the drastic drop in corn prices, corn production in Mexico remained steady and even increased as farmers expanded production in order to offset declining prices.⁶¹ Large, export-oriented farmers stepped up corn production through greater use of pesticides, fertilizers and irrigation water (often at unsustainable levels).⁶² The environmental consequences of increased corn production included depletion of aquifers,

⁵⁶ See Henriques & Patel, *supra* note 33, at 32; NADAL & WISE, *supra* note 21, at 5. Nadal, *Zea Mays*, *supra* note 22, at 149.

⁵⁷ See NADAL & WISE, *supra* note 21, at 6.

⁵⁸ See Oxfam, *Dumping Without Borders: How US Agricultural Policies Are Destroying the Livelihoods of Mexican Corn Farmers* 17 (Oxfam Briefing Paper No. 50, August 2003).

⁵⁹ See NADAL, *supra* note 19, at 28-30; James C. McKinley, Jr., *Where Poverty Drove Zapatistas, the Living is No Easier*, N.Y. TIMES, Sept. 11, 2005, at A14.

⁶⁰ See NADAL & WISE, *supra* note 21, at 17-18.

⁶¹ See Henriques & Patel, *supra* note 33, at 27.

⁶² See NADAL & WISE, *supra* note 21, at 16. Even though these farmers had the financial and technical resources to switch to other crops, they failed to do so because the price of other crops was often lower than the price of corn. See NADAL, *supra* note 19, at 6-7.

salinization and chemical contamination of soils, pollution of lakes and rivers, and greater human exposure to toxic pesticides.⁶³

Small farmers likewise increased production in order to obtain the cash income necessary to purchase basic necessities such as medical care, school supplies, and goods not produced on the farm.⁶⁴ Lacking the resources to boost corn production through greater agrochemical use, small farmers expanded corn production by bringing marginal lands under cultivation.⁶⁵ The environmental consequences included deforestation, soil erosion, and encroachment on ecological reserves and other protected areas.⁶⁶

Some farmers replaced corn with a highly lucrative alternative: marijuana.⁶⁷ According to the U.S. Customs and Border Protection Office, the amount of marijuana seized each year on the U.S.-Mexican border has doubled since NAFTA took effect.⁶⁸

In the end, however, the economic devastation produced by the collapse of Mexican corn prices caused many subsistence farmers to migrate to northern Mexico or to the United States.⁶⁹ The highest levels migration occurred in the corn-growing regions with the highest levels of genetic diversity.⁷⁰ The migrants were usually able-bodied males who left women and children behind to work the land and to seek off-farm employment in order to supplement the family's income.⁷¹

⁶³ See NADAL & WISE, *supra* note 21, at 16; NADAL, *supra* note 19, at 7.

⁶⁴ See Nadal, *Zea Mays*, *supra* note 22, at 156.

⁶⁵ See NADAL, *supra* note 19, at 8.

⁶⁶ See Nadal, *Zea Mays*, *supra* note 22, at 157.

⁶⁷ See Bill Lambrecht, *Low Prices Force Mexicans from Fields*, ST. LOUIS POST-DISPATCH, Oct. 30, 2005.

⁶⁸ Nadal, *Zea Mays*, *supra* note 22, at 157.

⁶⁹ See *id.*; McKinley, *supra* note 59, at A14; NADAL & WISE, *supra* note 21, at 25; Henriques & Patel, *supra* note 33, at 36-37.

⁷⁰ See NADAL & WISE, *supra* note 21, at 25 (Table 3).

⁷¹ See Oxfam, *supra* note 58 at 7-8; Lambrecht, *supra* note 67.

Sadly, Mexico was unable to create sufficient manufacturing jobs to employ the growing rural exodus.⁷² Under pressure from the IMF and the World Bank, Mexico had embraced an export-oriented development strategy that capitalized on its comparative advantage in the assembly and re-export of imported products by low-wage, low-skill workers in *maquiladoras* with limited or no linkages to the rest of the economy.⁷³ This has rendered Mexico vulnerable to low-wage competitors, and has resulted in the loss of 180,000 jobs since 2001 alone.⁷⁴

As a consequence of these economic dislocations, at least 500,000 Mexicans immigrate to the United States every year, many of them from Mexico's economically distressed but biodiversity-rich rural areas.⁷⁵ Acknowledging the link between U.S. agricultural trade policy and Mexican migration, a New York Times editorial advised U.S. policy-makers as follows: "If Washington wants to reduce Mexico's immigration to the United States, ending subsidies for agribusiness would be far more effective than beefing up the border patrol."⁷⁶

The migration of Mexican corn farmers has enormous environmental implications. Because Mexico's small, subsistence farmers are the custodians of

⁷² See John Audley, Demetrios G. Papademetriou, Sandra Polaski, and Scott Vaughan, *NAFTA's Promise and Reality: Lessons From Mexico for the Hemisphere* 39 (Carnegie Endowment Report, Nov. 2003) 16-17, 20 (2003); Kevin P. Gallagher & Lyuba Zarsky, *Sustainable Industrial Development? The Performance of Mexico's FDI-Led Integration Strategy* 44-47 (Global Development and Environment Institute Working Paper, Feb. 2004), available at <http://www.ase.tufts.edu.gdae>.

⁷³ See UNDP, HUMAN DEVELOPMENT REPORT 2005, *supra* note 47, at 118-122; Audley, et al., *supra* note 72, at 16-17.

⁷⁴ See UNDP, HUMAN DEVELOPMENT REPORT 2005, *supra* note 47, at 122.; Audley, et al., *supra* note 72, at 17.

⁷⁵ See Jeffrey S. Passel, *The Size and Characteristics of the Unauthorized Migrant Population in the U.S.*, at 4 (Pew Hispanic Center Research Report, March 7, 2006), available at <http://pewhispanic.org/files/reports/61.pdf>; Julia Preston, *Rules Collide with Reality in the Immigration Debate*, N.Y. TIMES, May 29, 2006. See also Audley, et al., *supra* note 72, at 51 (discussing the post-NAFTA acceleration of rural migration and explaining that an increasing proportion of rural migrants made their way to the United States).

⁷⁶ Tina Rosenberg, *Why Mexico's Small Corn Farmers Go Hungry*, N.Y. TIMES, Mar. 3, 2003, at A22.

Mexico's genetically diverse varieties of corn, the migration of these farmers threatens to disrupt the transfer of traditional agricultural knowledge to future generations and to accelerate the replacement of Mexico's diverse corn varieties with other crops or with commercially marketed, genetically uniform, high-yield corn varieties.⁷⁷ In short, the migration of Mexican farmers poses great risks to the genetic diversity in Mexico and to the raw material needed by plant breeders all over the world to protect the integrity of the world's food supply.

Finally, the economic devastation wrought by Mexico's rapid elimination of corn tariffs and government subsidies and price supports has produced enormous social instability in Mexico, including protests, hunger strikes, and civil disobedience.⁷⁸ In January 2008, for example, tens of thousands of farmers filled the streets of Mexico City to demand that the Mexican government re-negotiate the agricultural chapter of NAFTA on terms more favorable to Mexican farmers.⁷⁹ Prior protests had included demands for emergency assistance to those harmed by trade liberalization, implementation of long-term agricultural development programs, investment in rural infrastructure and communities, and recognition of the rights of indigenous peoples.⁸⁰ Indeed, during the 2006 presidential election, opposition candidate Andres Manuel Lopez Obrador vowed to violate Mexico's NAFTA commitment to eliminate tariffs on all agricultural products by

⁷⁷ See NADAL & WISE, *supra* note 21, at 20-21, 25.

⁷⁸ See Henriques & Patel, *supra* note 33, at 38.

⁷⁹ See James C. McKinley Jr., *Mexican Farmers Protest End of Corn-Imported Taxes*, N.Y. Times, Feb. 1, 2008.

⁸⁰ See Henriques & Patel, *supra* note 33, at 38; Oxfam, *supra* note 58, at 23; Timothy A. Wise, *Fields of Free Trade*, DOLLARS & SENSE, Nov. 1, 2003.

2008 and demanded a new agreement more conducive to Mexico's economic development.⁸¹

In the United States, corn production expanded as a consequence of growing Mexican demand, and produced a wide range of negative environmental consequences.⁸² Because U.S. corn production is more chemical-intensive than the production of crops such as wheat and soybeans, the expansion of corn production exacerbated the contamination of surface water and groundwater supplies by agricultural runoff.⁸³ Agricultural runoff is the most significant source of water pollution in the United States.⁸⁴ The contamination of surface waters by nitrogen-containing fertilizers promotes algae blooms that reduce dissolved oxygen in the water, thereby killing fish and other wildlife.⁸⁵ Indeed, the great quantities of nitrogen carried from the nation's agricultural heartland by the Mississippi River have already produced a "dead zone" in the Gulf of Mexico, where marine life cannot survive.⁸⁶

The expansion of chemical-intensive corn production also poses serious threats to human health. For example, atrazine, an herbicide commonly used on corn, disrupts the endocrine system and is known to cause cancer in rats.⁸⁷ Exposure to atrazine poses grave risks to farm workers (many of whom are Mexican immigrants), consumers of corn products, and people who use groundwater downstream from fields where corn is

⁸¹ See Tim Padgett, *Bush in Mexico: Whatever Happened to NAFTA?*, TIME, Mar. 30, 2006; Associated Press, *Mexico's Leftist Presidential Candidate Takes Hard Line Against NAFTA*, BostonHerald.com, June 18, 2006, available at <http://news.bostonherald.com/international/view.bg?articleid=144311&format=text>.

⁸² See NADAL & WISE, *supra* note 21, at 9-11. The explosive growth of the ethanol industry subsequently created additional demand for corn. See World Resources Institute, *Thirst for Corn*, WRI Policy Note No. 2 (June 2007) at 2, available at http://pdf.wri.org/policynote_thirstforcorn.pdf.

⁸³ See NADAL & WISE, *supra* note 21, at 6-8.

⁸⁴ See Scott Lucas, *Halting the Downward Spiral of Monoculturalization and Genetic Vulnerability*, 17 J. ENVTL. L. & LITIG. 161, 174-75 (2002).

⁸⁵ See NADAL & WISE, *supra* note 21, at 8.

⁸⁶ See *id.*

⁸⁷ See *id.*

cultivated.⁸⁸ Chlorpyrifos, the most common insecticide used in corn production, is a neurotoxin that is particularly dangerous to children who are exposed to it at high levels.⁸⁹ Finally, the expansion of corn cultivation into Nebraska, Kansas, Texas, and Colorado to meet growing Mexican demand has necessitated the pumping of additional groundwater for irrigation, resulting in unsustainable rates of withdrawal from the Ogallala Aquifer and conflicts over water rights.⁹⁰ Intensive cultivation of corn also produces soil erosion and loss of soil nutrients.⁹¹

III. Lessons for China from the NAFTA Case Study

A. Double Standards in International Agricultural Trade

The grim saga of the Mexican corn sector illustrates why industrialized country agricultural subsidies have become one of the most contentious issues in the Doha Round of WTO negotiations. Poor farmers in developing countries cannot compete with highly subsidized agricultural producers in the United States and the European Union.⁹² The economic dislocations in the Mexican countryside have been replicated all over the world, as developing countries reduce agricultural tariffs and eliminate subsidies pursuant to IMF and World Bank-mandated structural adjustment programs or pursuant to bilateral

⁸⁸ See id.

⁸⁹ See id.

⁹⁰ See id. at 11.

⁹¹ See World Resources Institute, *Thirst for Corn*, *supra* note 82, at 2.

⁹² See generally Carmen G. Gonzalez, *Markets, Monocultures and Malnutrition: Agricultural Trade Policy through an Environmental Justice Lens*, 14 Mich. St. J. Int'l L. 345 (2006), available at: <http://ssrn.com/abstract=986852>.

and multilateral free trade agreements while the United States and the European Union maintain high subsidy levels.⁹³

Eliminating this double standard in international trade is an essential first step toward mitigating structural inequities that exacerbate poverty and accelerate rural-to-urban migration in developing countries. The WTO negotiations have repeatedly come to a standstill over the issue of agricultural trade.⁹⁴ Developing countries have also brought and won WTO cases challenging these agricultural subsidies (most notably, the cotton and sugar subsidies cases), and will likely continue to do so until the subsidies are eliminated.⁹⁵

Developing countries must continue to insist on the phase-out of U.S. and European Union agricultural subsidies. However, a successful phase-out of these subsidies will not be sufficient to alleviate poverty and protect rural ecosystems in the absence of additional measure to coordinate trade and environmental policy. The following sections discuss several lessons that policy-makers might draw from the NAFTA case study to ensure that trade policy is consistent with environmental protection and with the protection of rural livelihoods.

B. Environmental and Social Externalities: The Problem of Market Failure

⁹³ See FAO, FAO SYMPOSIUM ON AGRICULTURE, TRADE AND FOOD SECURITY, Paper No. 3: Experience with the Implementation of the Uruguay Round Agreement on Agriculture: Developing Country Experiences, at para. 18 (Sept. 1999), <http://www.fao.org/DOCREP/meeting/x3065E.htm>; John Madeley, *Trade and Hunger: An Overview of Case Studies on the Impact of Trade Liberalization on Food Security*, at 8, 15, 34-35, 72 (Oct. 2000), http://www.forumsyd.se/conferences/w_bok_op/T&Hunger.pdf. (explaining that agricultural trade liberalization has generally increased rural poverty and inequality and accelerated migration from rural areas).

⁹⁴ See, e.g., Elizabeth Becker, *Poorer Countries Pull Out of Talks Over World Trade*, N.Y. TIMES, Sept. 15, 2003, at A1 (describing the collapse of the Cancun WTO Ministerial over the question of agricultural subsidies).

⁹⁵ See World Resources Institute, *Agricultural Subsidies, Poverty and the Environment: Supporting a Domestic Reform Agenda in Developing Countries*, WRI Policy Note No. 1 (Jan. 2007) at 2, available at http://pdf.wri.org/aspe_domestic_reform.pdf.

One of the lessons of the NAFTA case study is that market deregulation may make trading partners worse off to the extent that market prices fail to incorporate environmental and social externalities. The market price for U.S. corn understates the true cost of production because it neglects to internalize significant human health and environmental costs, including contamination and depletion of water resources, exposure of workers and consumers to toxic pesticides, soil degradation, and the harmful impact on public health of cheap corn-sweetened foods and beverages. Similarly, the market price for Mexican corn fails to take into account the social and environmental benefits of traditional corn cultivation, including social stability, cultural integrity, the protection of rural livelihoods, and the importance of Mexico's genetic diversity for the integrity of the world's food supply.

As a consequence of trade liberalization, market failures in the United States interface with market failures in Mexico to misidentify the United States as the most efficient corn producer, thereby increasing harm to human health and the environment in the United States, undermining sustainable livelihoods of poor farming communities in Mexico, and jeopardizing Mexico's genetic diversity. Economist James Boyce has referred to this phenomenon as the "globalization of market failure."⁹⁶ One of the implications of the NAFTA case study is that it is important for policy-makers to fully assess the social and environmental impacts of trade agreements rather than assuming that free market reforms will necessarily be beneficial.

One legal reform that would facilitate early identification of social and environmental externalities is legislation requiring environmental and social impact

⁹⁶ See JAMES K. BOYCE, THE POLITICAL ECONOMY OF THE ENVIRONMENT 88-103 (2002).

assessments of proposed trade agreements as early as possible in the negotiation process. In the United States, for example, Executive Order 13141 (1999) requires the environmental review of trade agreements.⁹⁷ However, the Executive Order is deficient in at least three respects. First, while review of environmental impacts in the United States is mandatory, review of impacts in other countries is discretionary. Second, the Executive Order does not provide for the review of socioeconomic impacts. Third, the Executive Order does not provide for the periodic review of trade agreements already in place.

Notwithstanding the flaws in the U.S. Executive Order, environmental and social impact assessment of proposed trade agreements is an important tool to promote environmentally sustainable and socially equitable economic development. As the NAFTA case study illustrates, market deregulation needs to be approached cautiously so as to advance rather than subvert national development objectives. Environmental and social impact assessments can help policy-makers evaluate the potential effect of trade agreements on the environment and on rural communities in order to maximize benefits and minimize harm.

C. Economic Development: The Role of the State

Another lesson of the NAFTA case study is the importance of strategic state intervention in the economy in order to create jobs, protect rural livelihoods, and avoid the uncontrolled migration of desperate workers from impoverished rural areas. In an increasingly competitive world environment, countries that rely on their comparative

⁹⁷ See Exec. Order No 13,141, 1999 WL 1039673 (Pres. Exec. Order), 64 FR 63169.

advantage in low-wage, low-skill assembly plants (like the Mexican *maquiladoras*) will inevitably lose out to even lower wage competitors.⁹⁸

Contrary to the free market ideology espoused by international trade and financial institutions, nearly all industrialized countries (including Germany, France, the United Kingdom, Japan, and the United States) achieved economic prosperity through economic protectionism, including subsidies, tariffs, and state funding of industry.⁹⁹ Beginning in the 1950s and 1960s, state intervention in the market played a critical role in the rapid industrialization of several East Asian countries, including Taiwan and South Korea.¹⁰⁰ What these countries have in common is their successful use of industrial policy – the identification and aggressive promotion of those economic sectors likely to increase overall economic growth.¹⁰¹

These lessons are familiar to China. Like the United States in the 19th century and Japan and South Korea in the twentieth century, China's economic success is due in large part to its strategic engagement with the global economy rather than unconditional market opening.¹⁰² China established its industrial infrastructure through high tariffs; carefully regulated foreign investment; refused to open its financial markets to foreigners until very recently; and adopted policy and institutional innovations suitable to local conditions that differed from Western norms.¹⁰³

⁹⁸ See UNDP, HUMAN DEVELOPMENT REPORT 2005, *supra* note 47, at 119-123.

⁹⁹ See HA-JOON CHANG, KICKING AWAY THE LADDER: DEVELOPMENT STRATEGY IN HISTORICAL PERSPECTIVE 19-51, 59-66 (2002).

¹⁰⁰ See Ha-Joon Chang, *The East Asian Development Experience*, in RETHINKING DEVELOPMENT ECONOMICS 111-117 (Ha-Joon Chang, ed. 2003).

¹⁰¹ See ROBIN HAHNEL, THE ABCs OF POLITICAL ECONOMY: A MODERN APPROACH 268-270 (2002).

¹⁰² See HA-JOON CHANG, BAD SAMARITANS: THE MYTH OF FREE TRADE AND THE SECRET HISTORY OF CAPITALISM 29-30 (2008).

¹⁰³ See *id.*; DANI RODRIK, ONE ECONOMICS, MANY RECIPES: GLOBALIZATION, INSTITUTIONS AND ECONOMIC GROWTH 22-25, 238-239 (2007).

In contrast to the neoliberal economic model known as the “Washington Consensus,” (with its double standards for developed and developing countries), China’s alternative path to economic development has been hailed as the “Beijing Consensus.”¹⁰⁴ Unlike the Washington Consensus, the Beijing Consensus is not a one-size-fits-all recipe.¹⁰⁵ On the contrary, the Beijing Consensus emphasizes national self-determination, acknowledges the importance of innovation and experimentation, and recognizes sustainability and equality as measures of progress along with GDP.¹⁰⁶

As the NAFTA case study illustrates, the rules governing international trade must give developing countries the “policy space” to promote infant industries, to shield vulnerable populations (such as small farmers) from unfair competition, to protect the environment, to promote rural livelihoods, and to foster job growth in dynamic economic sectors.

In the context of the WTO negotiations, the principle of special and differential treatment has emerged as an important vehicle to support the imposition of asymmetrical obligations on developed and developing countries in order to provide this badly needed “policy space” for development. Indeed, in recognition of the dissatisfaction of many developing countries with the current WTO framework, the ministerial declaration that launched the Doha Round of WTO negotiations explicitly called for the strengthening of all special and differential treatment provisions in order to make them “more precise, effective, and operational.”¹⁰⁷

¹⁰⁴ See generally JOSHUA COOPER RAMO, THE BEIJING CONSENSUS (2004); RANDALL PEERENBOOM, CHINA MODERNIZES 5-7, 73-77, 80-81 (2007).

¹⁰⁵ Ching Cheong, *Rise of the Beijing Consensus?* CHINA DAILY, Oct. 28, 2008, at 9.

¹⁰⁶ See id.

¹⁰⁷ See World Trade Organization, Ministerial Declaration of 14 November 2001. Para. 44, WT/MIN(01)/DEC/1, 41 I.L.M. 746 (2002).

China, India, Brazil, South Africa, Egypt, Indonesia, Thailand and Pakistan have taken a leadership role in the G20 group of developing countries that came together during the 2003 Cancun WTO Ministerial meeting to demand renewed special and differential treatment for developing countries and to insist that developed countries phase out agricultural subsidies.¹⁰⁸ The G20 represents 57 percent of the world's total population, 70 percent of the world's farmers, and 26 percent of the world's total agricultural exports.¹⁰⁹

As the world-wide financial crisis discredits the Washington Consensus and underscores the importance of market regulation, China should deploy its considerable economic clout to ensure that international trade and financial institutions recognize the important role of the state in economic development and give developing countries the “policy space” to promote ecologically sustainable and socially just economic policies through tariffs, subsidies and other measures.

D. The Importance of Biological Diversity for Food Security

The final lesson of the NAFTA case study is the importance of biodiversity to the integrity of the world's food supply. Cultivating diverse plant varieties protects against devastating crop failure in the event of pests, disease or adverse weather conditions.¹¹⁰ This genetic diversity is also essential to the world's plant breeders as they seek to

¹⁰⁸ See Sheila Page, *The Evolution of Special and Differential Treatment in the Multilateral Trading System*, available at <http://www.ictsd.org/dlogue/2004-12-06/Evolution%20of%20SDT%20in%20the%20MTS.pdf>; Prabhash Ranjan, *How Long Can the G20 Hold Itself Together?* Available at http://www.centad.org/cwp_03.asp.

¹⁰⁹ See Ranjan, *supra* note 108.

¹¹⁰ See LORI ANN THRUPP, *LINKING BIODIVERSITY AND AGRICULTURE: CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE FOOD SECURITY* 5-20 (1997).

develop new varieties to address contemporary food security challenges, including the challenges posed by climate change.

Biodiversity protection is particularly important in regions of high genetic diversity where important food crops originated. Known as Vavilov centers in honor of the Russian geneticist who made the first systematic attempts to collect seeds from these regions, these areas of high plant genetic diversity account for a significant percentage of the world's food crops.¹¹¹ China, like Mexico, is one of the world's nine major Vavilov centers.¹¹²

One of the great risks to the resilience of the world's food supply is the pressure faced by farmers all over the world to abandon traditional, biodiverse cultivation techniques in favor of uniform seeds, chemical fertilizers, and synthetic pesticides.¹¹³ Although thousands of food crops have been cultivated since the beginning of agriculture, the world's food supply currently depends on approximately 100 crop species.¹¹⁴ The displacement of biodiverse agroecosystems by monocultures increases vulnerability to pest and disease infestation, depletes the soil of vital nutrients, necessitates the use of toxic agrochemicals, and increases the likelihood of catastrophic food supply disruptions in the event of drought, blight or other environmental disturbances.¹¹⁵

¹¹¹ See June Starr & Kenneth C. Hardy, *Not By Seeds Alone: The Biodiversity Treaty and the Role for Native Agriculture*, 12 STAN. ENVTL. L.J. 85, 87-90 (1993).

¹¹² See *id.*

¹¹³ See CARY FOWLER & PAT MOONEY, SHATTERING: FOOD, POLITICS AND THE LOSS OF GENETIC DIVERSITY 56-81 (1996).

¹¹⁴ See LORI ANN THRUPP, CULTIVATING DIVERSITY: AGROBIODIVERSITY AND FOOD SECURITY 1-2 (1998).

¹¹⁵ See *id.* at 5; THRUPP, LINKING BIODIVERSITY AND AGRICULTURE, *supra* note 110, at 26-32; FOWLER & MOONEY, *supra* note 113, at 82-83.

The NAFTA case study underscores the importance of implementing the commitment to *in situ* conservation contained in the Convention on Biological Diversity – specifically the obligation in articles 10 and 8(j) to respect the traditional practices of indigenous and local communities that are compatible with the conservation and sustainable use of biological diversity.¹¹⁶ These communities have frequently developed distinct approaches to natural resource use that are uniquely compatible with local conditions, are generally more sustainable than “modern” methods, and are also capable of increasing food production.¹¹⁷

While the United States signed but did not ratify the Convention on Biological Diversity (CBD), China is one of the 191 parties to the treaty.¹¹⁸ In order to ensure that commitments in trade agreements do not override CBD obligations to protect biodiversity, China and other developing countries should insist on a hierarchy of norms provision in bilateral and multilateral trade agreements. Such a provision would state explicitly that CBD obligations shall prevail in the event of conflict with trade norms. Ironically, NAFTA established a precedent for such hierarchy of norms provisions by giving priority to certain enumerated environmental treaties in the event of conflict with NAFTA provisions.¹¹⁹ A conflict of norms provision would enable China and other developing countries to protect the livelihoods of rural dwellers through subsidies, tariffs

¹¹⁶ See Convention on Biological Diversity, 31 I.L.M. 818 (1992), arts.10 and 8(j).

¹¹⁷ THRUPP, LINKING BIODIVERSITY AND AGRICULTURE, *supra* note 110, at 18-19. Studies have shown that low-input agricultural production methods have improved food production in Africa, Asia and Latin America using low cost, locally available and environmentally friendly practices and technologies. Jules N. Pretty, *Reducing Food Poverty by Increasing Sustainability in Developing Countries*, 95 AGRICULTURE, ECOSYSTEMS AND ENVIRONMENT 217-234 (2003); Jules Pretty & Rachel Hine, *The Promising Spread of Sustainable Agriculture in Asia*, 24 NATURAL RESOURCES FORUM 107-121 (2000); Jules Pretty, *Can Sustainable Agriculture Feed Africa? New Evidence on Progress, Processes and Impacts*, 1 ENVIRONMENT, DEVELOPMENT AND SUSTAINABILITY 253-274 (1999).

¹¹⁸ See Convention on Biological Diversity, List of Parties, available at <http://www.cbd.int/convention/parties/list/>.

¹¹⁹ See NAFTA, *supra* note 14, Par One, art. 104.

and other measures that might otherwise run afoul of bilateral and multilateral trade agreements.

The specific domestic measures adopted to promote *in situ* conservation of agrobiodiversity will vary from country to country in accordance with local conditions. Regardless of the strategy adopted by China, the transnational agrochemical industry is likely to make aggressive efforts to penetrate the Chinese market by promoting the uniform seeds and chemical-intensive production techniques that have wreaked havoc in the United States and have made the world's food supply dangerously vulnerable to environmental disturbances.¹²⁰ This industry must be managed carefully for two distinct reasons. First, a few transnational corporations currently control significant segments of global seed, chemical and grain markets, and are able to exercise quasi-monopoly power over the price of inputs (seeds) and outputs (grain) to the detriment of both farmers and consumers.¹²¹ Second, as the NAFTA case study illustrates, the environmental consequences of adopting this chemical-intensive agricultural model include soil degradation, erosion of crop diversity, depletion and contamination of water supplies, and increased exposure of workers and consumers to toxic agrochemicals.

Conclusion

The NAFTA case study sheds light on the complex ways that trade policy affects domestic efforts to protect the environment and to promote rural development. As China grapples with the twin challenges of financial and food crises, it is useful to learn from the experiences of others so as to lay the groundwork for innovation and to avoid

¹²⁰ See *Can Foreign Ag Firms Help Feed China?*, BusinessWeek, Apr. 3, 2007, available at http://www.businessweek.com/print/globalbiz/content/apr2007/gb20070403_149239.htm.

¹²¹ See Holt-Gimenez, *supra* note 2, at 6, 10-12.

repeating past mistakes. China and Latin America are strengthening bilateral ties and establishing trade and investment relationships. By avoiding indiscriminate liberalization and strategically and selectively managing international trade (especially in agriculture), Chinese and Latin American trading partners may be able to overcome market failures and to achieve mutually beneficial results. Finally, with a new administration in power in Washington, DC, the United States may be more reflective, more open to innovation, and more willing to embrace economic policies that genuinely promote economic development, poverty alleviation, and environmental protection.