

Markets, Monocultures, and Malnutrition: Agricultural Trade Policy through an Environmental Justice Lens

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Introduction & Executive Summary

On January 1, 1994, hundreds of indigenous Mexican peasants took part in the Zapatista uprising in Chiapas, Mexico, to protest Mexico's participation in the North American Free Trade Agreement (NAFTA) as well as the Mexican government's repeal of a constitutional provision safeguarding the right to land reform.¹ In the eyes of the Zapatista rebels, NAFTA was the codification of economic policies that marginalized and impoverished Mexico's indigenous peasantry by depriving them of cultivable land in order to promote large-scale agro-export production.² The rebels feared that cheap food imports from the United States and the elimination of government-guaranteed agricultural prices would threaten the livelihoods of Mexico's small corn producers, undermine food security, and increase migration to the United States.³ Subsequent studies documenting the adverse impact of trade liberalization on food security, on the environment, and on the livelihoods of Mexican corn farmers have confirmed the validity of these concerns.⁴

Trade liberalization under NAFTA has accelerated the trend toward large-scale, export-oriented, chemical-intensive agricultural production at the expense of small-scale subsistence farms.⁵ Mexican farmers have experienced a 70-percent decline in real corn prices since 1994 as a consequence of the influx of cheap, subsidized corn from the United States.⁶ This catastrophic drop in corn prices has coincided with the virtual disappearance of Mexican government agricultural subsidies and price supports.⁷ Finding that the cost of corn production exceeds the revenue produced by selling the corn, many Mexican farmers have hired themselves out as laborers or have migrated to northern Mexico or to the United States

in order to earn the cash necessary to support their families.⁸ Ironically, the drop in corn prices has not been passed on to Mexican consumers. On the contrary, the price of tortillas (a staple of the Mexican diet) increased three-fold in real terms between 1994 and 1999.⁹ The decline in corn prices depressed rural incomes, increased poverty and unemployment, reduced food security, and produced higher levels of migration from rural areas.¹⁰ Trade liberalization in the corn sector also accelerated environmental degradation, as wealthy farmers increased the use of pesticides and fertilizers while poor farmers responded to depressed corn prices by extending cultivation to more marginal lands.¹¹ Finally, the NAFTA-induced decline in corn prices jeopardized the genetic diversity of the Mexican corn sector by undermining the rural institutions upon which traditional maize-growing is based.¹²

The Zapatista uprising in Chiapas, Mexico, is an example of fierce resistance by local and indigenous farming communities to development strategies that threaten their lands, their livelihoods, and the health of local ecosystems. Similar struggles have been waged in many other countries, including Indonesia, Malaysia, Brazil, Madagascar, Argentina, and India.¹³ In Sarawak, Malaysia, for example, hunters and farmers organized blockades and demonstrations to preserve their forests from commercial logging, which had already contaminated rivers, exposed soils to erosion, and destroyed plants and animals used as

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sources of food.¹⁴ Similarly, in the Brazilian Amazon, rubber tappers joined forces with indigenous communities to preserve millions of acres of forest from conversion to pastureland.¹⁵

These grassroots struggles in developing countries over the ecological necessities of life (land, water and food) have been referred to as “the environmentalism of the poor,”¹⁶ or simply “environmental justice,”¹⁷ and have been studied extensively by scholars working in the interdisciplinary field of political ecology.¹⁸ Like the environmental justice movement in the United States, these social movements in developing countries draw their activist base primarily from those who are directly affected by environmental abuse and who view the environmental conflict as part of a larger struggle against political and economic marginalization.¹⁹ What these ecological movements in the developing world have in common is the emphasis on the survival needs of the poor, defined in terms of adequate and equitable access to food, water, and living space.²⁰

Much of the literature on environmental justice struggles in the United States and in developing countries has highlighted the disproportionate concentration of environmental hazards in poor and marginalized communities.²¹ However, it is equally important to evaluate how human societies distribute access to environmental necessities.²² Food is a quintessential environmental necessity that is critical to human survival.²³ Indeed, the right to food is recognized as a basic human right in the Universal Declaration of Human Rights²⁴ Universal Declaration of Human Rights and in the International Covenant on Economic, Social and Cultural Rights.²⁵ The obligation of states to provide adequate food is also contained in the United Nations Convention on the Rights of the Child.²⁶ Food production, however, poses significant human health and environmental risks, including exposure to toxic agricultural

chemicals, excessive freshwater utilization, soil degradation, deforestation, and pollution of water supplies by agricultural runoff.²⁷ According to the United Nations’ 2005 Millennium Ecosystem Assessment Synthesis Report, natural resource degradation is occurring most rapidly in the world’s poorest regions and is likely to impede efforts to combat poverty, disease and hunger in the developing world.²⁸

Proponents of liberalized trade in agricultural products claim that removing agricultural trade barriers will alleviate poverty and hunger in the developing world by increasing global agricultural output and by promoting economic growth and

environmental protection in developing countries.²⁹ Agricultural trade liberalization promises to open up markets in industrialized countries to developing-country farmers,³⁰ to remove subsidies that result in the over-exploitation of land and the excessive use of pesticides and fertilizers,³¹ and to reduce industrialized country surplus production that enters world markets at low prices and undercuts developing-country farmers.³² According to a recent World Bank report, if all regions of the world eliminated agricultural subsidies and import barriers, the projected global income gain for 2015 is estimated to be \$265 billion, with nearly half of that gain accruing to developing countries.³³

Critics of trade liberalization emphasize that the real cause of hunger is poverty.³⁴ Indeed, even the World Bank has recognized that global food production has outpaced population growth for the past several decades, but that the poor simply lacked the resources to purchase what was produced.³⁵ Consequently, the critics contend, measures that purport to alleviate world hunger must be evaluated based on their effect on poverty and inequality.³⁶ In addition, the environmental impact of these measures must be assessed in order to ensure that they do not

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degrade the natural resource base necessary for food production.³⁷

The environmental justice movement has long emphasized that environmental justice is inextricably linked to social and economic justice,³⁸ and environmental justice scholars have attempted to make these connections explicit in their writings.³⁹ This paper continues that tradition by exploring the economic, social and environmental consequences of agricultural trade liberalization in poor communities in developing countries.

The paper begins with a description of the extent of undernourishment in the developing world and an explanation of its underlying causes and the relationship between hunger and environmental degradation. The paper then brings agricultural trade policy into the analysis. Most food-insecure developing countries tend to rely on agricultural exports as a major source of foreign exchange earnings, and the paper explores the causes and consequences of this pattern of trade and production. In particular, it explains that this economic specialization promotes food insecurity and environmental degradation by diverting prime agricultural lands to export production, concentrating land ownership in the hands of a few wealthy landholders, relegating the majority of farmers to less productive and often ecologically fragile lands, and encouraging chemical-intensive, monocultural farming techniques that produce serious ecological harm. In addition, economic specialization in agricultural exports deprives many developing countries of the income needed for productive investment by subjecting export revenues to the vicissitudes of world market prices for agricultural commodities and to the declining terms of trade for agricultural products in relation to manufactured goods.

The paper next examines the impact of the free market economic reforms imposed on developing countries by the International Monetary Fund (IMF), the World Bank, and the World Trade Organization (WTO) during the last 25 years on the patterns of agricultural trade and production prevalent in food-insecure developing countries. These economic

reforms institutionalized a double standard in the rules governing agricultural trade that permits protectionism in the industrialized world while requiring developing countries to open their markets to foreign competition. This double standard allows the United States and the European Union to dump highly subsidized agricultural commodities on developing country markets while depriving developing countries of the tools needed to protect resource-poor farmers from unfair competition. The influx of cheap, subsidized food discourages domestic food production in developing countries and undermines the livelihoods of small farmers, who comprise the vast majority of the developing world's malnourished people. In addition, the export-oriented policies promoted by the IMF and the World Bank to guarantee debt repayment accelerate the utilization in many developing countries of chemical-intensive, monocultural agricultural production techniques—to the detriment of human health and the environment.

The existence of this double standard raises the question whether “leveling the playing field”—i.e., imposing the same free market reforms on both developed and developing countries—will alleviate poverty, promote food security, and enhance environmental stewardship in the developing world. This paper explains that, although such reforms would produce short-term benefits, they would ultimately reinforce the patterns of trade and production that produce food insecurity and environmental degradation in the developing world. The paper concludes with a discussion of alternative strategies that developing countries might adopt in order to protect the environment, promote economic development, and enhance food security.

1. Poverty, Hunger and Environmental Degradation: Root Causes and Critical Linkages

According to the most recent survey by the United Nations Food and Agriculture Organization (FAO), there are approximately 852 million chronically undernourished people in the world, of whom 815 million reside in developing countries.⁴⁰ Food insecurity in the developing world

kills more than five million children every year, produces enormous human suffering, costs developing countries billions of dollars in foregone economic activity, and contributes to outbreaks of violent conflict.⁴¹ Despite the pledge by member countries of the United Nations to cut world hunger in half by 2015 (using 1990-1992 as a baseline), progress in hunger reduction has stalled in recent years, and the number of malnourished people is growing in most of the developing world.⁴²

Hunger in the developing world is often exacerbated by unsustainable farming practices that degrade the natural resources necessary for food production.⁴³ Chemical-intensive, monocultural farming practices have triggered a wide range of environmental problems in both developed and developing countries, including diminution of agricultural productivity, soil degradation, contamination and depletion of freshwater reserves, and loss of biodiversity.⁴⁴ Environmental degradation in developing countries has also increased poverty, provoked mass migrations, intensified racial and ethnic tensions, and incited violent conflict over dwindling access to vital natural resources.⁴⁵

In order to understand the underlying causes of undernourishment and environmental degradation in the developing world, it is necessary to begin with four key propositions.

First, contrary to popular misconception, hunger is not a function of food scarcity. Based upon economist Amartya Sen's pioneering study of famine⁴⁶ and on the World Bank's influential 1986 report on world hunger,⁴⁷ it is now widely accepted that lack of

access to food rather than inadequate supply is the primary cause of hunger.⁴⁸ Indeed, food production world-wide has kept far ahead of population growth for the last several decades,⁴⁹ and many of the developing countries experiencing chronic undernourishment are net food exporters.⁵⁰ People go hungry because they are poor – because they lack the resources with which to grow or purchase food.⁵¹ Consequently, efforts to solve the problem of hunger in the developing world must target poverty and inequality.

Second, poverty and undernourishment in developing countries are concentrated in rural areas.⁵² Approximately 75 percent of the poor in the

developing world are rural dwellers.⁵³ Most are small farmers whose livelihoods depend on selling their agriculture output.⁵⁴ Thus, policies and programs that provide food to developing countries free of charge or at subsidized prices may exacerbate hunger by depressing agricultural

commodity prices and depriving poor farmers of the income needed to pay taxes and to buy vital consumer goods not produced on the farm.⁵⁵

Third, economic diversification and industrialization are essential to poverty alleviation and to the promotion of food security.⁵⁶ A food-secure country is one that can grow, import, or obtain as aid the food necessary to meet the needs of its population.⁵⁷ The most food-insecure developing countries are those that rely on a small number of primary agricultural commodities to finance the importation of food products and manufactured goods.⁵⁸ Poor harvests, fluctuations in world market

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prices for agricultural products, and the declining terms of trade for agricultural commodities vis-à-vis manufactured goods can interfere with the ability of these countries to purchase food and other essential items in international markets and can deprive these countries of export earnings needed for productive investment.⁵⁹ According to the U.N. Food and Agriculture Organization, as many as 43 developing countries in sub-Saharan Africa, Latin America and the Caribbean depend on agricultural exports for over half of export revenues and depend on a *single* agricultural commodity to generate over 20 percent of total foreign exchange earnings.⁶⁰

Fourth, biological diversity is necessary for ecosystem health and for the integrity of the world's food supply.⁶¹ The cultivation of uniform crop varieties (in lieu of planting diverse crops and diverse genetic strains of a particular crop) increases vulnerability to pest and disease infestation, depletes the soil of vital nutrients, promotes dependence on harmful agrochemicals, increases the risk of catastrophic crop failure in the event of a blight, and adversely affects human nutrition by reducing the variety of foods consumed.⁶² Thus, economic policies that directly or indirectly promote monocultural production techniques jeopardize the biological diversity necessary to protect the health and resilience of the world's agroecosystems.⁶³

In order to understand the relevance of these points to contemporary trade and agricultural policy, it is important to examine the historic roots of hunger and ecologically unsustainable farming practices in the developing world.

II. The Colonial Legacy: Agricultural Trade and Production in Historical Context

The patterns of trade and production that produce undernourishment and environmental degradation in the developing world have their origins in colonialism.⁶⁴ Colonialism relegated the colonized “periphery” to production of raw materials for the benefit of the colonizing “core.”⁶⁵ By the late 19th century, places as diverse as India (cotton

producer), Cuba (sugar producer), Egypt (cotton producer), Argentina (beef and wheat producer), and Ghana (cocoa producer) had come to specialize in the production of primary agricultural commodities for export.⁶⁶ After political independence, many developing countries continued to specialize in agro-export production and to import manufactured goods.⁶⁷ This economic specialization diverted prime crop land in developing countries from food production to cash crop production and encouraged reliance on food imports to satisfy domestic nutritional requirements.⁶⁸ Economic specialization in agro-export production also degraded the environment by replacing biodiverse agroecosystems with monocultures that required large amounts of chemical pesticides and fertilizers.⁶⁹ This economic specialization deprived developing countries of the stable and steady revenue stream needed for productive investment by subjecting their export earnings to the vagaries of the weather, the fluctuations in world markets for agricultural commodities, and the declining terms of trade for agricultural commodities in relation to manufactured goods.⁷⁰ Finally, in the developing countries that practiced plantation agriculture, colonialism concentrated land ownership in the hands of the rural elite (and subsequently foreign and domestic agro-export enterprises), and relegated small farmers to marginal, ecologically fragile lands.⁷¹

In the aftermath of the Second World War, the Green Revolution extended monocultural production techniques in developing countries from cash crops to food crops.⁷² As a consequence of the Green Revolution, the world's food supply came to rely on an increasingly smaller number of crops and on a narrower genetic base.⁷³ Farmers throughout the developing world abandoned traditional biodiverse cultivation techniques in favor of uniform seeds, chemical fertilizers, and synthetic pesticides manufactured by transnational corporations headquartered in the industrialized world.⁷⁴ In developing countries, the environmental and food security consequences of the Green Revolution included agrochemical contamination of surface waters and groundwater, increased pesticide-related death and illness, soil degradation, loss of ecosystem

biodiversity, loss of traditional food crops, and increased vulnerability of the food supply to pests and disease.⁷⁵

The Green Revolution was an immense success from the standpoint of food production,⁷⁶ but it exacerbated hunger in the developing world by aggravating poverty and inequality.⁷⁷ First, the Green Revolution was inherently biased against poor farmers in developing countries because the new seeds only produced high yields in response to the application of expensive inputs unaffordable to many farmers, including synthetic fertilizers, chemical pesticides, and irrigation systems.⁷⁸ Second, the increase in food production resulting from the Green Revolution depressed agricultural prices, and thus deprived small farmers in developing countries of the cash income necessary to purchase agricultural inputs, pay taxes, and purchase goods not produced on the farm.⁷⁹ Many small farmers abandoned the land, and rural poverty and hunger increased.⁸⁰ Indeed, one review of over 300 published reports on the Green Revolution concluded that 80 percent of these reports found that the Green Revolution aggravated rural poverty and inequality in developing countries.⁸¹ Third, the Green Revolution's emphasis on increasing food production was often promoted as an alternative to land reform and other redistributive measures⁸² – the very reforms that have been credited in subsequent studies with poverty alleviation, rural development, and enhanced food security in the developing world.⁸³

The pauperization of small farmers in the developing world was exacerbated by United States Public Law 480 (the so-called “Food for Peace Program”),⁸⁴ which depressed agricultural prices in developing countries by making U.S. surplus agricultural production available to developing countries at reduced prices or free of charge as food aid.⁸⁵ Furthermore, farmers in the developing world were harmed by the lavish agricultural subsidies maintained by the United States and other industrialized countries (which placed additional downward pressure on world agricultural commodity prices) and by the tariff and non-tariff import barriers that impeded developing country farmers from obtaining access to developed country markets.⁸⁶ In

sum, the Green Revolution, Public Law 480, and the subsidies and import barriers maintained by the United States and other industrialized countries increased hunger in the developing world by depressing food prices, rendering small farmers destitute, and depriving developing countries of badly needed export earnings.⁸⁷

The following section examines the impact on undernourishment and environmental degradation of the free market economic reforms adopted by developing countries in the 1980s and 1990s under the auspices of the IMF, the World Bank, and the WTO. While these economic reforms did not create the patterns of agricultural trade and production that promote hunger and environmental degradation in the developing world, the reforms nevertheless reinforced these harmful trade and production patterns.

III. The IMF, the World Bank and the WTO: Institutionalizing a Double Standard in Agricultural Trade

In the decades following World War II, the United States and other industrialized countries generously subsidized domestic agricultural production, and utilized a wide array of tariff and non-tariff import barriers to protect domestic farmers from foreign competition.⁸⁸ By contrast, the majority of developing countries lacked the resources to subsidize agriculture and generally taxed farmers in order to finance industrialization.⁸⁹ The 1947 General Agreement on Tariffs and Trade (1947 GATT) contained a variety of exceptions and omissions that compromised its ability to curb industrialized countries' agricultural subsidies and import restrictions.⁹⁰ Thus, free market reforms in the agricultural sector did not commence until the imposition of structural adjustment programs on developing countries by the IMF and the World Bank in response to the debt crisis of the 1980s and until the entry into force of the WTO Agreement on Agriculture in the mid-1990s.⁹¹

The debt crisis of the 1980s had its origins in the 1973 quadrupling of petroleum prices by the Organization of Petroleum Exporting Countries

(OPEC).⁹² In response to OPEC price increases, many non-oil-producing developing countries borrowed money from the major commercial banks in order to finance the importation of petroleum-based agricultural inputs as well as the petroleum needed for industrialization.⁹³ Eager to earn interest on the oil revenues deposited in their coffers by OPEC nations, the commercial banks actively encouraged developing country borrowing.⁹⁴ Regrettably, many of the loans were contracted at variable interest rates, and the loan proceeds were often misappropriated by developing country elites or squandered on ill-conceived industrialization projects and weapons purchases.⁹⁵ When the second OPEC oil price increase in 1979-80 caused interest rates to skyrocket, many developing countries borrowed money simply to repay the debt on old loans.⁹⁶ Agro-exporting countries were particularly affected by rising oil prices, soaring interest rates, and mounting debt because the 1979-80 oil price shock coincided with a sharp decline in world market prices for agricultural commodities.⁹⁷ As foreign exchange earnings dropped, many developing countries were unable to repay their debts.⁹⁸ By the mid-1980s, nearly three quarters of Latin American countries and two thirds of African countries were operating under structural adjustment programs overseen by the World Bank and the IMF in order to guarantee loan repayment.⁹⁹

The structural adjustment programs mandated by the IMF and the World Bank exacerbated the problem of agro-export specialization in the developing world by requiring developing countries to increase agricultural exports in order to boost the foreign exchange earnings available to service the foreign debt.¹⁰⁰ In addition, the IMF and the World Bank required developing countries to slash subsidies, to lower tariffs, and to eliminate non-tariff import

barriers.¹⁰¹ As a consequence of structural adjustment, agricultural policy in many developing countries came to be characterized by a high level of market openness¹⁰²—in sharp contrast to the protectionist policies of industrialized countries.¹⁰³ Because structural adjustment was not imposed on industrialized countries, these free market reforms in

the developing world instituted a double standard that plagues the agricultural sector to this day: protectionism in wealthy developed countries; trade liberalization in poor developing countries.¹⁰⁴

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Structural adjustment had a negative impact on food security and the environment in developing countries. First, the withdrawal of agricultural subsidies, the reduction of extension services, and the elimination of subsidized credit slashed the income of poor farmers and made agricultural inputs increasingly unaffordable.¹⁰⁵ Second, the reduction or elimination of import barriers undermined the livelihoods of small farmers by subjecting them to unfair competition from highly subsidized U.S. and EU agricultural producers.¹⁰⁶ Third, structural adjustment reduced food security at the national level by glutting world markets with competing developing country exports, thereby depressing the foreign exchange earnings required by developing countries for the purchase of food and other essential items not produced domestically.¹⁰⁷ At the same time, the one-sided nature of structural adjustment permitted industrialized countries to continue to exclude developing country farmers from developed country markets and to use subsidies to undermine the competitiveness of developing country exports in world agricultural markets.¹⁰⁸ Finally, the emphasis on agro-export production harmed the environment in developing countries by promoting the expansion of chemical-intensive, monocultural production technique.¹⁰⁹

The express objective of the WTO Agreement on Agriculture was to “establish a fair and market-oriented agricultural trading system” by requiring the reduction over time of subsidies and tariffs.¹¹⁰ However, the Agreement perpetuated the double standard discussed above by permitting developed countries to continue to utilize certain trade-distorting agricultural subsidies (subject to reduction over a specified period) while prohibiting developing countries that did not historically employ these subsidies from doing so in the future.¹¹¹ Indeed, the Agreement was riddled with ambiguities that enabled developed countries to evade the Agreement’s subsidy and tariff reduction requirements and to maintain high levels of agricultural protectionism.¹¹² Total subsidies for agriculture in industrialized countries *increased* after the Agreement on Agriculture came into effect—from \$304 billion in 1986-88 to \$324 billion in 2001-2003.¹¹³ In addition, tariff barriers in developed countries for imported agricultural products remained high.¹¹⁴ Tariffs in developed countries were particularly high on processed food products, thereby depriving developing countries of the opportunity to diversify their economies by moving into higher value-added processed agricultural commodities.¹¹⁵ By contrast, many developing countries had already eliminated non-tariff barriers and significantly reduced tariffs on imported agricultural products pursuant to IMF and World Bank-mandated structural adjustment policies.¹¹⁶ In effect, the WTO Agreement on Agriculture institutionalized the pre-existing double standard in world agricultural trade: protectionism in developed countries; trade liberalization in developing countries.¹¹⁷

As a consequence of this double standard, the United States and the European Union are currently wreaking havoc on the livelihoods of poor farmers in the developing world by dumping agricultural products on world markets at below the price of production.¹¹⁸ For example, the United States is exporting wheat at prices 28 percent below the cost of production; soybeans at prices 10 percent below the cost of production; corn at prices 10 percent below the cost of production; cotton at prices 47 percent below the cost of production; and rice at

prices 26 percent below the cost of production.¹¹⁹ Industrialized country subsidies and protectionism cost developing countries approximately \$24 billion per year in foregone agricultural and agro-industrial income.¹²⁰ Notwithstanding its historic advocacy of agriculture-led development strategies, even the World Bank has acknowledged in a recent publication that “a development strategy based on agricultural commodity exports is likely to be impoverishing in the current agricultural policy environment”¹²¹

IV. Will Eliminating the Double Standard Solve the Problem?

Many proponents of agricultural trade liberalization would agree with much of the above analysis, but would argue that the solution is to “level the playing field” by requiring the United States, the European Union, and other industrialized countries to curtail and eventually eliminate agricultural subsidies and to reduce tariffs on imported agricultural products.¹²² In other words, the claim is that free market reforms, if implemented in an even-handed manner in both developed and developing countries, would address the market distortions and inequities identified in Part III.¹²³

Reducing industrialized country agricultural subsidies and import barriers would benefit developing country farmers in the short run, but would ultimately reinforce the patterns of trade and production that contribute to hunger and environmental degradation in the developing world. The short-term benefits of agricultural trade liberalization include higher prices and higher revenues for farmers, enhanced incentives for domestic food production, increased export earnings, and diversification into food processing (if industrialized country tariffs that escalate according to the degree of processing are eliminated).¹²⁴ However, formal equality among vastly unequal trading partners is likely to sharpen rather than reduce existing inequities.¹²⁵ Trade liberalization, even if applied in an even-handed manner to both developed and developing countries, is likely to perpetuate hunger and environmental degradation in developing countries in the long run for three reasons.

First, the trade-liberalization requirements imposed under the auspices of the WTO Agreement on Agriculture and pursuant to IMF and World Bank-sponsored structural adjustment programs are designed to address market distortions caused by government intervention, but fail to address the market distortions caused by the domination of agricultural trade by a small number of transnational corporations. For example, five agrochemical companies control over 65 percent of the global pesticide market.¹²⁶ Five grain-trading corporations control over 75 percent of the world's cereals trade.¹²⁷ Similar market concentrations exist for other commodities.¹²⁸ The market power of these corporations allows them to extract monopolistic prices for key agricultural inputs and to dictate prices for agricultural outputs – to the detriment of small farmers who are essentially price-takers caught in the vise of two groups of powerful transnational enterprises.¹²⁹ Even if industrialized-country agricultural subsidies and import barriers are lifted, developing country farmers cannot compete effectively with transnational agribusiness.¹³⁰ Structural adjustment and the WTO Agreement on Agriculture constrain the ability of developing countries to use subsidies to nurture domestic agro-export or food processing industries or to use import barriers to protect domestic farmers from foreign competition.¹³¹ By ignoring the distortions caused by market concentration in the agricultural sector and by depriving developing countries of important tools to mitigate this problem, agricultural trade liberalization reinforces the economic dominance of transnational agribusiness at the expense of the poor in the developing world.

Second, developing countries will be required to make significant economic concessions in order to persuade industrialized countries to reduce agricultural subsidies and import barriers. Many of these concessions, such as further reductions in industrial tariffs and greater market access for manufactured goods, threaten to erode the already limited ability of developing countries to intervene in the economy in order to promote those industries most likely to contribute to economic development.¹³² Contrary to the free market prescriptions of the IMF,

the World Bank, and the WTO, nearly all industrialized countries (including the United States, Germany, France, Japan, and the United Kingdom) achieved their economic might through the use of a broad array of state interventionist measures, such as subsidies, tariffs, state financing of important industries, and even state-sponsored acquisition of intellectual property through industrial espionage.¹³³ Most recently, the Newly Industrializing Countries of South Korea and Taiwan successfully industrialized their economies through the use of tariffs, subsidies, technology transfer requirements, and regulation of foreign investment.¹³⁴ Under the guise of “leveling the playing field,” the free market reforms advocated by international trade and financial institutions (even if applied prospectively in an even-handed manner to both developed and developing countries) will reinforce the economic subordination of the developing world by depriving developing countries of the protectionist tools used by developed countries to diversify and industrialize their economies. These tools include the deliberate promotion of those industries most likely to enhance long-term national economic welfare based on *contemporary* market conditions (as opposed to historically imposed patterns of raw material production) and based on each country's unique endowment of natural and human resources.¹³⁵ Thus, the economic concessions that developing countries must make in order to secure agricultural trade liberalization are likely to perpetuate the patterns of agro-export specialization rooted in the colonial past that contribute to poverty and hunger.¹³⁶

Third, the reduction or elimination of agricultural subsidies and tariff barriers is anticipated to make farming less remunerative in the United States and the European Union and to produce a shift of large-scale agro-export production to lower cost producers in the developing world.¹³⁷ The expanded cultivation of export monocultures in developing countries would likely produce serious ecosystem harm by eroding crop diversity, accelerating deforestation, and encouraging the over-utilization of pesticides, fertilizers, and irrigation water.¹³⁸ Increased agro-export production in developing countries is also likely to benefit large-scale, highly capitalized

commercial growers at the expense of small farmers, thereby increasing poverty and hunger.¹³⁹ Because market prices for agricultural commodities do not reflect these “externalities,” it would be a mistake to regard the shift of agro-export specialization to the developing world as “efficient.” Indeed, such an approach would disregard the ways in which agro-export specialization impoverishes developing countries, destroys the livelihoods of small farmers, and degrades the natural resource base necessary for food production.

Neoclassical trade theory is largely based on David Ricardo’s theory of comparative advantage, which advocates specialization by each country in those commodities best suited to it by virtue of natural or historical circumstances and trade among countries for the commodities not produced domestically.¹⁴⁰ Thus, from a neoclassical trade theory perspective, countries with abundant natural resources and little capital should capitalize on their “comparative advantage” by specializing in the production of primary agricultural commodities and purchasing manufactured goods from industrialized countries.¹⁴¹

Unfortunately, the agro-export specialization promoted by neoclassical trade theory is fundamentally at odds with the economic diversification required for food security and with the biological diversity necessary for ecosystem health. Neoclassical trade theory neglects to recognize that extending the principle of specialization from the factory to the field jeopardizes long-term agricultural production by degrading the soil, depleting freshwater resources, increasing the vulnerability of the food supply to pests and disease, and encroaching upon forests and wetlands that provide valuable ecosystem services.¹⁴² Similarly, rigid adherence by the IMF and the World Bank to neoclassical notions of “comparative advantage” in agro-export production have condemned many developing countries to poverty and hunger by precluding the implementation of forward-looking development strategies designed to achieve economic diversification and industrialization.¹⁴³ Thus, even if the playing field were “leveled” by removing agricultural subsidies and import barriers in developed countries, the economic specialization promoted by neoclassical trade theory

would nevertheless produce poverty, hunger, and environmental degradation in the developing world.

V. Alternative Approaches to Promote Environmental Justice

Reform of international trade policy must begin by re-conceptualizing trade as a means to important social ends (such as food security and ecological sustainability) rather than an end in itself. The right to food is enshrined as a basic human right in the Universal Declaration of Human Rights¹⁴⁴ and in the Covenant on Economic, Social and Cultural Rights¹⁴⁵. Likewise, the Convention on Biological Diversity recognizes the intrinsic value of biodiversity, its important role in providing for the food, health and other needs of human beings, and the paramount obligation of each state to protect the practices, knowledge and innovation of indigenous and local communities relevant for the conservation and sustainable use of biodiversity.¹⁴⁶ International trade law must be harmonized with the right to food and with the related goal of protecting biodiversity. For the reasons explained in the preceding section, international trade law cannot be reconciled with food security or ecological sustainability as long as its single-minded objective is the elimination of government intervention in order to maximize agro-export specialization.

Second, the promotion of food security in developing countries requires economic diversification and industrialization. Eliminating the double standards that systematically benefit transnational agribusiness at the expense of small farmers in the developing world is an important first step in a larger reform agenda, but it will not achieve food security in developing countries in the absence of measures to facilitate economic diversification and industrialization. Rather than restricting the ability of developing countries to engage in strategic intervention in order to foster long-term economic development, the rules governing international trade should be changed to permit developing countries to utilize the very protectionist instruments historically used by developed countries to achieve their economic might. Developing countries must secure

the flexibility to utilize a wide array of protectionist instruments to nurture infant domestic industries, promote food security, protect the environment, preserve the livelihoods and ways of life of small farmers and indigenous communities, and forge dynamic links between foreign investment and the local economy.

Third, the rules governing international trade should address the distortions in global agricultural markets caused by transnational corporations. International agricultural trade is conducted by a handful of large corporations – not by farmers or countries. In order to ensure that international trade benefits farmers, consumers and developing countries, international trade rules should be modified to target the concentrations of corporate power that can lead to monopolistic abuse.

One way to implement the proposals outlined above is for developing countries to work collectively in the current round of WTO negotiations to modify the rules governing international trade. Indeed, developing countries walked out of the WTO negotiations in Cancun, Mexico, in September 2003, to protest the intransigence of the United States and the EU on the question of agricultural subsidies.¹⁴⁷ The negotiations did not resume until the United States and the EU made concessions on this point.¹⁴⁸ Developing countries have also pressed for an exception to the WTO rules that would permit developing countries to use protectionist measures designed to promote food security and rural development.¹⁴⁹ Notwithstanding the small victory in Cancun, it is immensely difficult to hold together a coalition of highly heterogeneous developing countries with conflicting interests and priorities in the face of intense pressure from the United States and the EU for further economic concessions. Furthermore, the closed door, secretive nature of WTO negotiations and the aggressive bullying and arm-twisting of developing countries by industrialized

countries make it difficult for the concerns of developing countries to be adequately addressed.¹⁵⁰

A second approach is for developing countries in the Western Hemisphere to band together into a regional trade pact as a counterweight to the economic power of the United States and the

European Union. Some commentators have pointed to the key role of Brazil in the collapse of the WTO negotiations in Cancun, Mexico, and in the ongoing negotiation of the Free Trade Area of the Americas (FTAA), and have suggested that Brazilian president Inacio Lula da Silva is actively

promoting a vision of regional integration in Latin America as an alternative to the FTAA.¹⁵¹

Regrettably, the Lula administration has been mired in a corruption scandal, and the prospects of bold initiatives on the part of the Brazilian president have therefore dimmed.¹⁵²

A third approach is for individual developing countries to defy free market orthodoxy. Cuba, for example, achieved an unprecedented degree of food security in the last fifteen years by rejecting agro-export specialization as a development strategy, promoting economic diversification, prioritizing food production for the domestic market, and endorsing and supporting organic and semi-organic farming techniques.¹⁵³ However, Cuba's unique national experiment with sustainable agriculture was a response to the economic crisis occasioned by the collapse of the socialist trading bloc and the tightening of the U.S. economic embargo, and was facilitated by Cuba's economic isolation, including its exclusion from major trade and financial institutions (such as the IMF, the World Bank, and regional trade agreements).¹⁵⁴ It is unclear whether this experiment will survive once the U.S. embargo is lifted and Cuba is reintegrated into the world trading system.¹⁵⁵ Most recently, Argentina's extraordinary recovery from its December 2001 economic collapse was attributed, at least in part, to the decision by the Peronist-led

Reform of international trade policy must begin by re-conceptualizing trade as a means to important social ends (such as food security and ecological sustainability) rather than an end in itself.

government to disregard some of the policy prescriptions of the IMF.¹⁵⁶

Finally, even if developing countries are able to obtain some measure of policy flexibility to protect the environment, promote food security, and diversify and industrialize their economies, there is no guarantee that national elites in developing countries will in fact adopt measures that serve the common good rather than their own narrow self-interest. It is therefore important to vindicate the right to food and the emerging right to a healthy environment in both domestic and international tribunals¹⁵⁷ – and in the popular discourse. Human rights law and human rights discourse can serve as valuable tools to empower civil society to demand reforms at the national and international level to protect the basic right of all human beings to sufficient, safe, and nutritious food and to preserve the health of the ecosystem upon which human survival depends.

Conclusion

Using agricultural trade as an example, this paper has conducted an environmental justice analysis of the impact in developing countries of the neoliberal policy prescriptions of the IMF, the World Bank, and the WTO. The paper has examined the complex ways in which the rules

governing international trade in agricultural products and the structural adjustment programs of the IMF and the World Bank have reinforced pre-existing patterns of trade and production that have had a significant adverse impact on the lives and livelihoods of farmers in the developing world and on local ecosystems. These rules and programs have also frustrated the right to food and the international obligation to preserve biodiversity.

These insights, however, are not confined to the agricultural sector. Rather, the environmental justice principles and the analytical methodology deployed in the paper can be utilized to assess the ecological and socioeconomic impact of trade agreements affecting other economic sectors as well as international lending and development assistance. Indeed, the systematic assessment through the lens of environmental justice of trade agreements, development assistance programs, and the economic policies imposed by multilateral financial institutions could facilitate the early identification of negative ecological and socioeconomic consequences as well as inconsistencies with international legal instruments designed to protect human rights and the environment. Such assessments could also serve as a valuable tool to promote transparency and public participation.

Notes

1. See Tim Golden, *Mexican Troops Battling Rebels; Toll at Least 57*, N.Y. TIMES, Jan. 3, 1994, at A1; Tim Golden, *Tinder in Mexico—A Special Report; In a Remote Mexican Village, Roots of Rebellion Are Bared*, N.Y. TIMES, Jan. 17, 1994, at A1; GEORGE A. COLLIER & ELIZABETH LOWERY QUARATIELLO, *BASTA: LAND AND THE ZAPATISTA REBELLION* 44-46, 87-88 (1999).
2. See Andy Gutierrez, *Codifying the Past, Erasing the Future: NAFTA and the Zapatista Uprising of 1994*, 4 HASTINGS W.-NW. J. ENV'T. 143, 145-149 (1996-1998); see also, Leonard Cavise, *NAFTA Rebellion: How the Small Village of Chiapas is Fighting for Its Life*, 21 HUM. RTS. 36 (1994).
3. See Gutierrez, *supra* note 2, at 153-155; see also Henry W. McGee, Jr., *Mexican Perspectives on Economic, Political and Cultural Implications of Free Trade*, 12 CHICANO-LATINO L. REV. 6-8 (1992) (discussing the potential impact of trade liberalization on Mexican corn farmers).

4. See John Audley, Demetrios G. Papademetriou, Sandra Polaski, & Scott Vaughan, *NAFTA'S PROMISE AND REALITY: LESSONS FROM MEXICO FOR THE HEMISPHERE* 61-87 (2003), available at <http://www.carnegiendowment.org/publications/index.cfm?fa=view&id=1390&prog=zgp&proj=zted>; OXFAM, *DUMPING WITHOUT BORDERS: HOW US AGRICULTURAL POLICIES ARE DESTROYING THE LIVELIHOODS OF MEXICAN CORN FARMERS* (Oxfam Briefing Paper No. 50, August 2003), available at http://www.oxfam.org.uk/what_we_do/issues/trade/bp50_corn.htm; ALEJANDRO NADAL, *THE ENVIRONMENTAL AND SOCIAL IMPACTS OF ECONOMIC LIBERALIZATION ON CORN PRODUCTION IN MEXICO* (2000), available at http://www.oxfam.org.uk/what_we_do/issues/livelihoods/corn_mexico.htm.
5. See Audley et al., *supra* note 4, at 76-77. Indeed, the Mexican agricultural sector has been characterized by a growing economic divide between large-scale, vertically integrated export-oriented farms (the beneficiaries of NAFTA) and small-scale subsistence

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After graduating from Harvard Law School and completing a federal judicial clerkship, Professor Gonzalez began her legal career in the San Francisco office of Pillsbury, Madison and Sutro, where she specialized in environmental litigation. She later served as an attorney at Pacific Gas and Electric Company, and as Assistant Regional Counsel in the San Francisco office of the U.S. Environmental Protection Agency (EPA). At EPA, Professor Gonzalez worked on hazardous waste issues and on a variety of environmental matters involving the U.S.-Mexican border. She has also worked on environmental law projects in Mexico, Chile, Argentina, Ukraine and Moldova.

In 1998, Professor Gonzalez was awarded a Fulbright to teach international environmental law at the Universidad del Salvador in Buenos Aires, Argentina. In 2004-2005, she served as one of four U.S. Supreme Court Fellows selected by a panel of distinguished lawyers and judges appointed by the Chief Justice. In Fall 2006, she was a Visiting Fellow at Cambridge University in the United Kingdom.

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Professor Gonzalez writes and lectures on international environmental justice issues and on the relationship among trade liberalization, environmental protection, and economic development. She joined the faculty of Seattle University School of Law in 1999.

farms (the victims of NAFTA). *Id.* at 77. The tendency of Mexican subsidy payments to favor wealthy large-scale farms rather than poor subsistence farms has exacerbated this development. *Id.* at 78.

6. See OXFAM, DUMPING WITHOUT BORDERS, *supra* note 4, at 17.

7. See James C. McKinley, Jr., *Where Poverty Drove Zapatistas, the Living is No Easter*, N.Y. TIMES, Sept. 11, 2005, at A14.

8. *Id.*

9. See OXFAM, DUMPING WITHOUT BORDERS, *supra* note 4, at 17.

10. See *id.* at 6, 17; NADAL, *supra* note 4, at 3, 7-8.

11. See OXFAM, DUMPING WITHOUT BORDERS, *supra* note 4, at 9; NADAL, *supra* note 4, at 3, 8, 81-86. Large, export-oriented farms are largely responsible for the increased use of pesticides and fertilizers and greater consumption of scarce freshwater resources in the wake of NAFTA. For small farmers, the post-NAFTA decline in the price of staples, such as corn, increased poverty, and left farmers with little choice but to clear forests in order to stabilize their incomes by expanding the land under cultivation. *Id.* at 63-64.

12. See NADAL, *supra* note 4, at 90; Audley et al., *supra* note 4, at 71-72. Another important threat to Mexico's enormously diverse varieties of corn is the possibility that genetically modified corn crops might cross-pollinate with indigenous varieties. Despite Mexico's 1998 ban on the import of genetically modified corn seeds, genetically modified corn has been found in Mexican fields, sparking scientific concern and public debate about genetic contamination. *Id.* at 71.

13. See, e.g., Genevieve Michon et al., *The Damar Agroforests of Krui, Indonesia: Justice for Forest Farmers*, in PEOPLE, PLANTS & JUSTICE: THE POLITICS OF NATURE CONSERVATION 159-203 (Charles Zerner, ed. 2000) (describing the resistance of Indonesian farmers to the conversion of their forests to specialized oil palm or acacia plantations); Aidan Rankin, "The Land of our Ancestor's Bones": *Wichi People's Struggle in the Argentine Chaco*, in GREEN GUERRILLAS: ENVIRONMENTAL CONFLICTS AND INITIATIVES IN LATIN AMERICA AND THE CARIBBEAN 40-46 (Helen Collinson, ed., 1997) (describing the struggle of the Wichi Indians of northern Argentina to claim the land cultivated by their ancestors for thousands of years); Lucy Jarosz, *Defining Deforestation in Madagascar*, in LIBERATION ECOLOGIES: ENVIRONMENT, DEVELOPMENT AND

- SOCIAL MOVEMENTS 148-164 (Richard Peets and Michael Watts, eds. 1996) (explaining how peasants in Madagascar resisted government efforts to deprive them of their livelihoods by blame shifting cultivators for the country's massive deforestation while failing to address the devastating impact on Madagascar's forests of coffee cash-cropping); MADHAV GADGIL AND RAMACHANDRA GUHA, *ECOLOGY AND EQUITY: THE USE AND ABUSE OF NATURE IN CONTEMPORARY INDIA* (1995) (describing social conflicts in India over access to and control of natural resources); RAMACHANDRA GUHA, *ENVIRONMENTALISM: A GLOBAL HISTORY* 99-100, 117 (2000) (describing the efforts of Malaysian hunters and farmers to halt commercial logging of their forests and analyzing the struggles of the Brazilian rubber tappers to preserve the Amazon rain forest).
14. See GUHA, *supra* note 13, at 99-100.
15. See *id.* at 117.
16. See RAMACHANDRA GUHA AND JOAN MARTINEZ-ALIER, *VARIETIES OF ENVIRONMENTALISM: ESSAYS NORTH AND SOUTH* xxi (1997).
17. See Charles Zerner, *Toward a Broader Vision of Justice and Nature Conservation*, in PEOPLE, PLANTS & JUSTICE, *supra* note 13, at 14-15.
18. See, e.g., LIBERATION ECOLOGIES, *supra* note 13, at 3-9; PAUL ROBBINS, *POLITICAL ECOLOGY: A CRITICAL INTRODUCTION* (2004).
19. See GUHA, *supra* note 13, at 105-106 (describing the key features of the environmentalism of the poor in the developing world); LUKE W. COLE & SHEILA R. FOSTER, *FROM THE GROUND UP: ENVIRONMENTAL RACISM AND THE RISE OF THE ENVIRONMENTAL JUSTICE MOVEMENT* 17-18; 32-33 (describing the characteristics and goals of environmental justice activists in the United States).
20. See Zerner, *supra* note 18, at 15; see also Joan Martinez-Alier & Lori Ann Thrupp, *The Political Ecology of the South*, 19 *LATIN AMERICAN PERSPECTIVES* 148 (1992).
21. See Alf Hornborg, *Towards an Ecological Theory of Unequal Exchange: Articulating World System Theory and Ecological Economics*, 25 *ECOL. ECON.* 128 (1998); COLE & FOSTER, *supra* note 19, at 54-58, 167-183; Vicki Been, *Coming to the Nuisance or Going to the Barrios? A Longitudinal Analysis of Environmental Justice Claims*, 24 *ECOLOGY L. Q.* 1 (1997); UNEQUAL PROTECTION: ENVIRONMENTAL JUSTICE AND COMMUNITIES OF COLOR (Robert D. Bullard, ed. 1994); Paul Mohai & Bunyan Bryant, *Environmental Injustice: Weighing Race and Class as Factors in the Distribution of Environmental Hazards*, 63 *U. COLO. L. REV.* 921 (1992).
22. See Hornborg, *supra* note 21, at 128. A relatively small portion of the environmental justice literature in the United States has focused on access to environmental necessities, such as food and water, or access to environmental amenities, such as open space in urban areas. See, e.g., Catherine O'Neill, *Variable Justice: Environmental Standards, Contaminated Fish, and "Acceptable" Risk to Native Peoples*, 19 *STAN. ENVTL. L.J.* 3 (2000); Samara Swanston, *Environmental Justice and Environmental Quality Benefits: The Oldest, Most Pernicious Struggle and Hope for Burdened Communities*, 23 *VT. L. REV.* 545 (1999).
23. See CARY FOWLER & PAT MOONEY, *SHATTERING: FOOD, POLITICS AND THE LOSS OF GENETIC DIVERSITY* 3-18 (1996) (describing the importance of the environment as a source of food and discussing the transition from hunting and gathering to agriculture). Food security is an important issue in the United States as well as in developing countries. The U.S. Department of Agriculture estimates that approximately 9.7 percent of the U.S. population is food insecure. Mark Nord et al., USDA, *Food Assistance and Nutrition Research Report No. 2, Prevalence of Food Insecurity and Hunger* 1996-1998, at 2 (1999), available at <http://www.ers.usda.gov/publications/fanrr2/fanrr2.pdf>. In South Central Los Angeles, for example, a 1992 survey to assess priority community problems and needs revealed that local residents viewed food access, food quality, and food price as their most immediate and widespread concern. ROBERT GOTTLIEB, *ENVIRONMENTALISM UNBOUND: EXPLORING NEW PATHWAYS FOR CHANGE* 182 (2001). For a thoughtful analysis of the underlying causes of food insecurity in the United States, including the disproportionately high rate of food insecurity in communities of color, see Guadalupe T. Luna, *The New Deal and Food Insecurity in the "Midst of Plenty"*, 9 *DRAKE J. AGRIC. L.* 213 (2004).
24. Universal Declaration of Human Rights, G.A. Res. 217, U.N. GAOR, section III, art. 25 (1948).
25. International Covenant on Economic Social and Cultural Rights, Dec. 16, 1966, art. 11, 993 U.N.T.S. 3.
26. United Nations Convention on the Rights of the Child, Nov. 20, 1989, arts. 24 & 27, 1577 U.N.T.S. 3.
27. See, e.g., PHILLIPS FOSTER & HOWARD D. LEATHERS, *THE WORLD FOOD PROBLEM: TACKLING THE CAUSES OF UNDERNUTRITION IN THE THIRD WORLD* 211-220 (1999).
28. The United Nations' Millennium Ecosystem Assessment is an effort by over 1300 ecologists and other researchers from 95 countries to assess the capacity of the world's ecosystems to perform vital functions like water filtration, flood control, soil formation, crop pollination and food provision. Millennium Ecosystem Assessment Synthesis Report 9-12 (2005), available at <http://www.millenniumassessment.org>. The report concluded that over 60 percent of these functions have been impaired by human activity and that the most rapid deterioration is taking place in the world poorest regions. *Id.* at 16-17, 90-99.
29. See Frederick M. Abbott, *GATT Law on Agricultural Trade in Light of the United Nations Conference on Environment and Development*, in *GATT AND TRADE LIBERALIZATION IN AGRICULTURE* 102 (Masayoshi Honma et al. eds., 1993); Thomas J. Schoenbaum, *Agricultural Trade Wars: A Threat to the GATT and Global Free Trade*, in *GATT AND TRADE LIBERALIZATION IN AGRICULTURE* 89 (Masayoshi Honma et al. eds., 1993); Walden Bello, Editorial, *Perspective: The WTO Debate II: Does Global Trade Need the WTO?*, *BusinessWorld* (Philippines), Dec. 7, 2000, 2000 WL 28767914 (quoting Philippe Legrain, special advisor to WTO director-general Mike Moore, regarding his belief that by lowering trade barriers, the WTO promotes economic growth, which helps the environment).
30. See Thomas J. Schoenbaum, *Agricultural Trade Wars: A Threat to the GATT and Global Free Trade*, in *GATT AND TRADE*

LIBERALIZATION IN AGRICULTURE 88-89 (Masayoshi Honma et al. eds., 1993).

31. See Michael R. Redclift et al., *International Trade, Environment and the CAP: Complex Relationships*, in AGRICULTURE AND WORLD TRADE LIBERALISATION: SOCIO-ENVIRONMENTAL PERSPECTIVES ON THE COMMON AGRICULTURAL POLICY 2-3 (Michael R. Redclift et al. eds., 1999); Frederick M. Abbott, *supra* note 29, at 101.

32. See Schoenbaum, *supra* note 30, at 88-89.

33. See Dominique van der Mensbrugge & John C. Beghin, *Global Agricultural Reform: What is at Stake?*, in GLOBAL AGRICULTURAL TRADE AND DEVELOPING COUNTRIES 115-116 (M. Ataman Aksoy & John C. Beghin, eds. 2004).

34. See JOHN MADELEY, FOOD FOR ALL: THE NEED FOR A NEW AGRICULTURE 32-34; FRANCES MOORE LAPPE ET AL., WORLD HUNGER: TWELVE MYTHS 8-14 (1998).

35. See WORLD BANK: POVERTY AND HUNGER: ISSUES AND OPTIONS FOR FOOD SECURITY IN DEVELOPING COUNTRIES 1 (1986). *Accord*, LAPPE, *supra* note 34 at 9, 16-17.

36. See LAPPE, *supra* note 34, at 40.

37. See *id.* at 41.

38. See, e.g., Principles of Environmental Justice, Proceedings, The First National People of Color Environmental Leadership Summit xiii (October 24-27, 1992), *reprinted in* ENVIRONMENTAL JUSTICE: LAW, POLICY AND REGULATION 22-24 (Clifford Rechtschaffen & Eileen Gauna, eds. 2002); Michel Gelobter, et al., *The Soul of Environmentalism: Rediscovering Transformational Politics in the 21st Century* 22-29 (2005), available at <http://www.rprogress.org>.

39. See, e.g. COLE & FOSTER, *supra* note 19, at 11-13; Robert R. Kuehn, *A Taxonomy of Environmental Justice*, 30 ENVTL. L. REP. 10681, 10698 (2000).

40. U.N. FOOD & AGRIC. ORG., THE STATE OF FOOD INSECURITY IN THE WORLD 2004 at 6 (2004), available at <http://www.fao.org> [hereinafter FAO, STATE OF FOOD INSECURITY 2004].

41. *Id.* at 8-13; U.N. FOOD & AGRIC. ORG., THE STATE OF FOOD INSECURITY IN THE WORLD 2002, *Toward the Summit Commitments* 5-7 (2002), available at <http://www.fao.org> [hereinafter FAO, STATE OF FOOD INSECURITY 2002].

42. U.N. FOOD & AGRIC. ORG., THE STATE OF FOOD INSECURITY IN THE WORLD 2003 at 4 (2003), available at <http://www.fao.org> [hereinafter FAO, STATE OF FOOD INSECURITY 2003].

43. See MADELEY, FOOD FOR ALL, *supra* note 34, at 26-30.

44. See, e.g., THE FATAL HARVEST READER: THE TRAGEDY OF INDUSTRIAL AGRICULTURE 121-147; 167-221 (Andrew Kimbrell, ed. 2002); Brian Halweil, *Farming in the Public Interest*, in THE WORLDWATCH INST., STATE OF THE WORLD 2002, 51, 53-56 (2002); David A. Adelman & John H. Barton, *Environmental Regulation for Agriculture: Towards a Framework to Promote Sustainable Intensive Agriculture*, 21 STAN. ENVTL. L.J. 3, 4 (2002); Jules N. Pretty et al., *Policy Challenges and Priorities for Internalizing the Externalities of Modern Agriculture*, 44(2) J. ENVTL. PLAN. & MGMT. 263, 264 (2001); LORI ANN THRUPP,

WORLD RES. INST., LINKING BIODIVERSITY AND AGRICULTURE: CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE FOOD SECURITY 4-10 (1997).

45. See THOMAS F. HOMER-DIXON, ENVIRONMENT, SCARCITY AND VIOLENCE 73-103; 133-168 (1999); LEIF OHLSSON, SWEDISH INTERNATIONAL DEVELOPMENT AGENCY, LIVELIHOOD CONFLICTS: LINKING POVERTY AND ENVIRONMENT AS CAUSES OF CONFLICT (2002), available at <http://www.padrigu.gu.se/ohlsson/files/Livelihoods.pdf>.

46. AMARTYA SEN, POVERTY AND FAMINES: AN ESSAY ON ENTITLEMENT AND DEPRIVATION (1981).

47. WORLD BANK, POVERTY AND HUNGER, *supra* note 36, at 1.

48. See JENNY EDKINS, WHOSE HUNGER? CONCEPTS OF FAMINE, PRACTICES OF AID 43-49 (2000); JOHAN POTTIER, ANTHROPOLOGY OF FOOD: THE SOCIAL DYNAMICS OF FOOD SECURITY 142-143 (1999); GORDON CONWAY, THE DOUBLY GREEN REVOLUTION: FOOD FOR ALL IN THE 21ST CENTURY 4-5, 286-87 (1997); E.M. YOUNG, WORLD HUNGER 2-7 (1997); STEPHEN DEVEREUX, THEORIES OF FAMINE 57-82 (1993); FRANK ELLIS, AGRICULTURAL POLICIES IN DEVELOPING COUNTRIES 302-311 (1992).

49. See WORLD BANK, POVERTY AND HUNGER, *supra* note 36, at 1; LAPPE, *supra* note 34, at 8.

50. See LAPPE, *supra* note 34, at 9.

51. See, GEORGE KENT, FREEDOM FROM WANT: THE RIGHT TO ADEQUATE FOOD 11-12 (2005); WORLD BANK, POVERTY AND HUNGER, *supra* note 36, at 1; MADELEY, FOOD FOR ALL, *supra* note 34, at 32-34; CONWAY, *supra* note 48, at 4-5.

52. FAO, State of Food Insecurity 2004, *supra* note 40, at 25; FAO, State of Food Insecurity 2003, *supra* note 42, at 4. Furthermore, the undernourished urban dwellers in the developing world are frequently migrants from rural areas who have not yet succeeded in finding a means of earning a living in cities ill-equipped to handle the influx of newcomers. See MARCEL MAZOYER, PROTECTING SMALL FARMERS AND THE RURAL POOR IN THE CONTEXT OF GLOBALIZATION ch. 2.2 (2001), available at http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/007/Y1743E/Y1743E00.HTM.

53. See *id.* at 16; INT'L FUND FOR AGRIC. DEV. (IFAD), RURAL POVERTY REPORT 2001: THE CHALLENGE OF ENDING RURAL POVERTY 16 (2001), available at <http://www.ifad.org/poverty/index.htm>.

54. See Kevin Watkins & Joachim von Braun, *Time to Stop Dumping on the World's Poor*, in INT'L FOOD POLICY RESEARCH INST. (IFPRI), TRADE POLICIES AND FOOD SECURITY 2 (2002-2003), available at <http://www.ifpri.org/pubs/books/ar2002/ar02e1.pdf>; MADELEY, FOOD FOR ALL, *supra* note 34, at 20.

55. See, e.g., JAMES WESSEL, TRADING THE FUTURE: FARM EXPORTS AND THE CONCENTRATION OF ECONOMIC POWER IN OUR FOOD SYSTEM 168 (1983) (discussing how food aid to developing countries undercuts the

prices received by poor farmers in low-income countries and exacerbates poverty); *Harvesting Poverty: The Unkept Promise*, N.Y. TIMES, Dec. 30, 2003 (explaining that the dumping of cheap, subsidized food on world markets by the United States has undermined the livelihoods of poor farmers in the developing world).

56. See JEAN DREZE & AMARTYA SEN, HUNGER AND PUBLIC ACTION, reprinted in THE AMARTYA SEN AND JEAN DREZE OMNIBUS 76-77, 168-170 (1999); Eric S. Reinert, *Increasing Poverty in a Globalized World: Marshall Plans and Morgenthau Plans as Mechanisms of Polarization of World Incomes*, in RETHINKING DEVELOPMENT ECONOMICS 470 (Ha-Joon Chang, ed. 2003).

57. See CHRISTOPHER STEVENS ET AL., THE WTO AGREEMENT ON AGRICULTURE AND FOOD SECURITY 18 (2000).

58. See *id.* at 14; U.N. ECON. COMM'N ON LATIN AM. AND THE CARIBBEAN (ECLAC), THE SOCIAL PANORAMA OF LATIN AMERICA 12-13 (2003).

59. See PETER ROBBINS, STOLEN FRUIT: THE TROPICAL COMMODITIES DISASTER 2-3; 7-15 (2003); JAMES M. CYPHER & JAMES L. DIETZ, THE PROCESS OF ECONOMIC DEVELOPMENT 86 (1997); FAO, STATE OF FOOD INSECURITY 2004, *supra* note 40, at 12-13; YOUNG, *supra* note 48, at 41-42. The deterioration in the terms of trade for agricultural commodities vis-à-vis manufactured goods was first identified approximately 50 years ago by economists Raul Prebisch and Hans Singer, and has been confirmed by subsequent empirical data. See FAO, STATE OF FOOD INSECURITY 2004, at 10, 12-13; CYPHER & DIETZ at 87 (Box 3.5), 177-180. As a result of this phenomenon, countries that rely on agricultural exports to generate foreign exchange earnings have experienced severe economic losses and mounting debt. See FAO, STATE OF FOOD INSECURITY 2004, at 12, 20-21.

60. See FAO, STATE OF FOOD INSECURITY 2003, *supra* note 42, at 17.

61. See THRUPP, LINKING BIODIVERSITY AND AGRICULTURE, *supra* note 44, at 5-20.

62. See *id.* at 26-32; FOWLER & MOONEY, *supra* note 23, at 82-83.

63. See THRUPP, LINKING BIODIVERSITY AND AGRICULTURE, *supra* note 44, at 1-2; Fred Gale, *Economic Specialization Versus Ecological Diversification: The Trade Policy Implications of Taking the Ecosystem Approach Seriously*, 34 ECOLOGICAL ECON. 285, 289-90 (2000).

64. See YOUNG, *supra* note 48, at 41-42.

65. See ERIC R. WOLF, EUROPE AND THE PEOPLE WITHOUT HISTORY 140-141, 310-315 (1997); MADELEY, FOOD FOR ALL, *supra* note 34, at 13; FOWLER & MOONEY, *supra* note 23, at 40-41; VANDANA SHIVA, MONOCULTURES OF THE MIND: PERSPECTIVES OF BIODIVERSITY AND BIOTECHNOLOGY 78-79 (1993). As John Stuart Mill candidly observed, "Our West Indian colonies, for example, cannot be regarded as countries . . . The West Indies . . . are the places where England finds it convenient to carry on the production of sugar, coffee, and a few other tropical commodities." John Stuart Mill,

Principles of Political Economy, with Some of their Applications to Social Philosophy, in 2 COLLECTED WORKS OF JOHN STUART MILL 693 (J.M. Robson, ed. 1965).

66. See YOUNG, *supra* note 48, at 41; WOLF, *supra* note 65, at 310-341 (describing the worldwide specialization in agro-export production); Carmen G. Gonzalez, *Seasons of Resistance: Sustainable Agriculture and Food Security in Cuba*, 16 TUL. ENVTL. L.J. 685, 689-692 (2003) (describing Cuba's specialization in sugar production).

67. See YOUNG, *supra* note 48, at 41.

68. See WESSEL, *supra* note 55, at 166-167.

69. See SHIVA, *supra* note 65, at 78 (discussing how colonization resulted in the displacement of biodiversity in the colonized regions of the world with monocultures of raw materials for the benefit of European industry); FOWLER & MOONEY, *supra* note 23, at 180-181 (describing the plunder by the colonial powers of natural resources from one colony in order to establish plantations in another and explaining how the vulnerability of genetically uniform crops required the use of costly and ecological harmful agrochemicals).

70. See ROBBINS, *supra* note 59, at 2-3; 7-15; CYPHER & DIETZ, *supra* note 59, at 86; FAO, STATE OF FOOD INSECURITY 2004, *supra* note 40, at 12-13; YOUNG, *supra* note 48, at 41-42.

71. See FOWLER & MOONEY, *supra* note 23, at 95-96; YOUNG, *supra* note 48, at 66.

72. See FOWLER & MOONEY, *supra* note 23, at 56-60 (describing the Green Revolution's promotion of uniform high-yielding seeds in order to increase food production)

73. See *id.* at 63-81 (examining the world-wide loss of crop diversity in the aftermath of the Green Revolution)

74. See *id.* at 75-76, 130-131; THRUPP, LINKING BIODIVERSITY AND AGRICULTURE, *supra* note 44, at 35.

75. See CONWAY, *supra* note 48, at 86-104; FOWLER & MOONEY, *supra* note 23, at 76; THRUPP, LINKING BIODIVERSITY AND AGRICULTURE, *supra* note 44, at 32-33.

76. See CONWAY, *supra* note 48, at 44-45; KEITH GRIFFIN, ALTERNATIVE STRATEGIES FOR ECONOMIC DEVELOPMENT 148 (1990).

77. See KEITH GRIFFIN, THE POLITICAL ECONOMY OF AGRARIAN CHANGE: AN ESSAY ON THE GREEN REVOLUTION 51-52 (1974); CONWAY, *supra* note 48, at 69-72; YOUNG, *supra* note 48, at 72; LAPPE ET AL., *supra* note 34, at 60; FOWLER & MOONEY, *supra* note 23, at 58-59.

78. See FOWLER & MOONEY, *supra* note 23, at 58-59; LAPPE ET AL., *supra* note 34, at 60; FRANCINE R. FRANKEL, INDIA'S GREEN REVOLUTION 193-194 (1971); ANDREW PEARSE, SEEDS OF PLENTY, SEEDS OF WANT 161-163 (1980); VANDANA SHIVA, THE VIOLENCE OF THE GREEN REVOLUTION: THIRD WORLD AGRICULTURE, ECOLOGY AND POLITICS 45 (1991).

79. See MAZOYER, *supra* note 52, at 14; LAPPE ET AL., *supra* note 34, at 62.

80. See FRANCES MOORE LAPPE & JOSEPH COLLINS, *FOOD FIRST: BEYOND THE MYTH OF SCARCITY* 135-148 (1978); GRIFFIN, *ALTERNATIVE STRATEGIES FOR ECONOMIC DEVELOPMENT*, *supra* note 76, at 158; SHIVA, *THE VIOLENCE OF THE GREEN REVOLUTION*, *supra* note 78, at 176-177; Frederick H. Buttel & Laura T. Reynolds, *Population Growth, Agrarian Structure, Food Production and Distribution*, in *FOOD AND NATURAL RESOURCES* 325, 344 (David Pimentel & Carl W. Hall, eds. 1989).
81. See Donald K. Freebairn, *Did the Green Revolution Concentrate Incomes?: A Quantitative Study of Research Reports*, 23 *WORLD DEV.* 265, 265-279 (1995). As the Freebairn analysis acknowledges, a minority of studies concluded that the Green Revolution's overall social impact was positive. See, e.g., RITA SHARMA & THOMAS T. POLEMAN, *THE NEW ECONOMICS OF INDIA'S GREEN REVOLUTION: INCOME AND EMPLOYMENT DIFFUSION IN UTTAR PRADESH* 16-18, 239, 241-244 (1993); YUJIRO HAYAMI & MASAO KIKUCHI, *A RICE VILAGE SAGA: THREE DECADES OF GREEN REVOLUTION IN THE PHILIPPINES* 121-124, 227-238 (2000); MURRAY J. LEAF, *SONG OF HOPE: THE GREEN REVOLUTION IN A PUNJAB VILLAGE* 46-58, 64, 94-95, 104-105, 131-133, 140-141 (1984); PETER B. R. HAZELL & C. RAMASAMY, *THE GREEN REVOLUTION RECONSIDERED* 239-244 (1991); Robert W. Herdt, *A Retrospective View of Technological and Other Changes in Philippine Rice Farming 1965-1982*, 35 *ECON. DEV. AND SOC. CHANGE* 329, 347-448 (1989).
82. See GRIFFIN, *ALTERNATIVE STRATEGIES FOR ECONOMIC DEVELOPMENT*, *supra* note 76, at 147; SHIVA, *THE VIOLENCE OF THE GREEN REVOLUTION*, *supra* note 78, at 47; FOWLER & MOONEY, *supra* note 23, at 61; LAPPE ET AL., *supra* note 34, at 64-65; ELLEN MESSER ET AL., *INT'L FOOD POLICY RESEARCH INST., FOOD FROM PEACE; BREAKING THE LINKS BETWEEN HUNGER AND CONFLICT* 12, available at <http://www.ifpri.org/2020/dp/dp24.pdf>.
83. See FAO, *STATE OF FOOD INSECURITY 2002*, *supra* note 41, *Toward the Summit commitments*, at 26. Indeed, even World Bank analysts have recognized the important role of land reform in reducing poverty and promoting economic development. KLAUS DEININGER ET AL., *HOW LAND REFORM CAN CONTRIBUTE TO ECONOMIC GROWTH AND POVERTY REDUCTION: EMPIRICAL EVIDENCE FROM INTERNATIONAL AND ZIMBABWEAN EXPERIENCE* (2002), available at <http://Inweb18.worldbank.org/ESSD/ardext.nsf/24ByDocName/TopicsLandReform>; see also IFAD, *RURAL POVERTY REPORT 2001*, *supra* note 53, at 76; DANIEL MAXWELL & KEITH WIEBE, *LAND TENURE CTR., LAND TENURE AND FOOD SECURITY: A REVIEW OF CONCEPTS, EVIDENCE AND METHODS* 4-6, available at <http://agecon.lib.umn.edu>; TIMOTHY BESLEY & ROBIN BURGESS, *LAND REFORM, POVERTY REDUCTION AND GROWTH: EVIDENCE FROM INDIA* 20-21 (1998), available at <http://sticerd.lse.ac.uk/dps/de/dedps13.pdf>; PETER M. ROSSET, *THE MULTIPLE FUNCTIONS AND BENEFITS OF SMALL FARM AGRICULTURE IN THE CONTEXT OF GLOBAL TRADE NEGOTIATIONS* 11-14 (1999), available at <http://www.foodfirst.org/pubs/policybs/pb4.pdf>.
84. Agricultural Trade Development and Assistance Act of 1954, ch. 469, 68 Stat. 454 (1954) (codified at 7 U.S.C. §§ 1691-1736e (1982)); Food for Peace Act of 1966, Pub. L. No. 89-808, § 3(c), 80 Stat. 1526 (codified at 7 U.S.C. §§ 1427, 1431, 1431b, 1446a-7, 1691-1736e (1982)).
85. See WESSEL, *supra* note 55, at 152-155; 168
86. See Carmen G. Gonzalez, *Institutionalizing Inequality: The WTO Agreement on Agriculture, Food Security, and Developing Countries*, 27 *COLUMBIA J. ENVTL. L.* 433, 447-449 (2002).
87. An analysis of the ecological and socioeconomic consequences of agricultural trade policy would be incomplete without some discussion of the rapidly expanding commercial cultivation of genetically modified crops. Because a full assessment of the unique risks and benefits of biotechnology is beyond the scope of this paper, biotechnology will be discussed only to the extent that it raises environmental and food security issues directly relevant to issues raised by conventional agricultural trade and production. For example, the cultivation of a small number of genetically modified crops threatens to reproduce and accelerate the monocultural production techniques introduced by colonialism and favored by the Green Revolution, thereby reducing the genetic base of the world's food supply and increasing dependence on inputs (including seeds, fertilizers and pesticides) produced by transnational agribusiness. See generally, LIZ ORTON, *GM CROPS – GOING AGAINST THE GRAIN* (May 2003), available at http://www.actionaid.org.uk/792/gm_crops.html (discussing the ecological and socioeconomic implications of biotechnology in the developing world). Biotechnology also introduces new environmental risks, such as gene transfer from genetically modified crops to wild relatives and the acceleration of resistance to pesticides and herbicides (as a consequence of the cultivation of crops genetically modified to produce herbicide tolerance and insect resistance). See generally Jules Pretty, *The Rapid Emergence of Genetic Modification in World Agriculture: Contested Risks and Benefits*, 28(3) *ENVTL. CONSERVATION* 248 (2001).
88. See THE GATT URUGUAY ROUND: A NEGOTIATING HISTORY (1986-1992) 125, 141, 155-156 (Terence P. Stewart, ed., 1993); M. Ataman Aksoy, *Global Agricultural Trade Policies, in GLOBAL AGRICULTURAL TRADE AND DEVELOPING COUNTRIES*, *supra* note 33, at 37.
89. See THE GATT URUGUAY ROUND, *supra* note 88, at 154-157; Aksoy, *supra* note 88, at 37.
90. See Gonzalez, *Institutionalizing Inequality*, *supra* note 86, at 440-446 (explaining why the measures adopted by industrialized countries to protect the agricultural sector were largely permitted under the 1947 GATT); Jonathan Carlson, *Hunger, Agricultural Trade Liberalization, and Soft International Law: Addressing the Legal Dimensions of a Political Problem*, 70 *Iowa L. Rev.* 1187, 1222-1257 (1985) (analyzing the 1947 GATT's failure to curb agricultural protectionism).
91. See Carmen G. Gonzalez, *Trade Liberalization, Food Security and the Environment: the Neoliberal Threat to Sustainable Rural Development*, 14 *J. Transnat'l L. and Contemp. Problems* 419, 457-460 (2004) (explaining that free market reforms in the agricultural sector were imposed on the developing world initially pursuant structural adjustment programs and subsequently pursuant to the WTO Agreement on Agriculture).
92. See RICHARD PEET ET AL., *UNHOLY TRINITY: THE IMF, WORLD BANK AND WTO* 71 (2003).

93. See *id.*; SUSAN GEORGE, A FATE WORSE THAN DEBT: THE WORLD FINANCIAL CRISIS AND THE POOR 28-29 (1990).
94. See PEET ET AL., *supra* note 92, at 71-72.; GEORGE, *supra* note 93, at 29. Because low-income developing countries were generally regarded as more risky, they tended to borrow from multilateral lenders (such as the World Bank and the IMF) rather than from commercial banks. DAVID M. ROODMAN, STILL WAITING FOR THE JUBILEE: PRAGMATIC SOLUTIONS FOR THE THIRD WORLD DEBT CRISIS 155 WORLD WATCH PAPER 8 (2001).
95. See PEET ET AL., *supra* note 92, at 71; BELINDA COOTE, THE TRADE TRAP 33-34 (1992).
96. See GEORGE, *supra* note 93, at 14-24. 27-28; ROODMAN, *supra* note 94, at 8.
97. See GEORGE, *supra* note 93, at 28; PEET ET AL., *supra* note 92, at 72.
98. See PEET ET AL., *supra* note 92, at 72, 74-75.
99. See *id.* at 75.
100. See GEORGE, *supra* note 93, at 59-60; MADELEY, FOOD FOR ALL, *supra* note 34, at 117.
101. See MICHEL CHOSSUDOVSKY, THE GLOBALISATION OF POVERTY: IMPACTS OF IMF AND WORLD BANK REFORMS 62-63' (1997); GEORGE, *supra* note 93, at 52
102. See U.N. FOOD & AGRIC. ORG., STATE OF FOOD AND AGRICULTURE 2000, *Half a Century of Food and Agriculture, The 1980s* at 26, available at <http://www.fao.org>.
103. See David Reed, *An Instrument of Global Economic Policy, in STRUCTURAL ADJUSTMENT, THE ENVIRONMENT, AND SUSTAINABLE DEVELOPMENT* 3, 13 (1995) (quoting a study on trade liberalization performed by the Organization for Economic Cooperation and Development).
104. See Gonzalez, *Trade Liberalization, Food Security and the Environment*, *supra* note 91, at 458.
105. See MADELEY, HUNGRY FOR TRADE: HOW THE POOR PAY FOR FREE TRADE 77 (2000); STRUCTURAL ADJUSTMENT PARTICIPATORY REVIEW INT'L NETWORK (SAPRIN), THE POLICY ROOTS OF ECONOMIC CRISIS AND POVERTY: A MULTI-COUNTRY PARTICIPATORY ASSESSMENT OF STRUCTURAL ADJUSTMENT 116-118 (2002), available at http://www.saprin.org/SAPRI_Findings.pdf. The SAPRIN study was a multi-country analysis of structural adjustment sponsored by the World Bank and by a network of civil society groups. Based on a on a four-year process of consultation and research in nine countries located in four continents, the study analyzed the economic and social consequences of structural adjustment in seven distinct areas: manufacturing, finance, employment, agriculture, mining, state enterprise privatization, and education and health care. *Id.* at i-ii. One of the chief criticisms voiced in the chapter on agricultural trade was the failure of policy-makers (the IMF, the World Bank, and the relevant national ministries) to consult with the communities most directly affected by the structural adjustment policies. *Id.* at 113.
106. See MADELEY, FOOD FOR ALL, *supra* note 34, at 119-120 (explaining that the ability of developing countries to utilize exemptions in the WTO Agreement on Agriculture to protect small farmers from highly subsidized U.S. and EU agribusiness was constrained by IMF-imposed structural adjustment policies and discussing the devastating impact on small farmers of the influx into the developing world of cheap imported food); MICHAEL E. CONROY ET AL., A CAUTIONARY TALE: FAILED U.S. DEVELOPMENT POLICY IN CENTRAL AMERICA 14 (1996); MADELEY, HUNGRY FOR TRADE, *supra* note, 105, at 76-77.
107. See ROBBINS, *supra* note 59, at 29-30; MADELEY, FOOD FOR ALL, *supra* note 34, at 154-155; GEORGE at 60-61; COOTE, *supra* note 95, at 34-35.
108. See THE GATT URUGUAY ROUND, *supra* note 88, at 155-156. Indeed a study published in 1990 concluded that developing countries incurred losses of approximately \$35 billion per year as a consequence of industrialized country protectionism. See *World Trade Talks Near Collapse over Farm Subsidies Rom*, FIN. TIMES, Oct. 19, 1990, at 1.
109. SAPRIN, *supra* note 105, at 124-126. In response to the glut of certain traditional agricultural export products on world markets, many developing countries diversified their agricultural exports and began to cultivate non-traditional agricultural commodities, such as fruits, vegetables, oils, and nuts. While this strategy may have eased the decline in export earnings, the farms themselves were planted in monocultures and thus required high levels of ecologically harmful agrochemical inputs. See CONROY ET AL., *supra* note 106, at 13-14, 18-19, 138-139; Reed, *supra* note 103, at 17; LORI ANN THRUPP, BITTERSWEET HARVESTS FOR GLOBAL SUPERMARKETS: CHALLENGES IN LATIN AMERICA'S AGRICULTURAL EXPORT BOOM 17-18, 94-95 (1995).
110. Agreement on Agriculture, April 15, 1994, Preamble para. 2, at <http://www.wto.org> [hereinafter Agreement on Agriculture]; see Gonzalez, *Institutionalizing Inequality*, *supra* note 86, at 452-458 (discussing the main provisions of the Agreement on Agriculture).
111. See Gonzalez, *Institutionalizing Inequality*, *supra* note 86, at 463-468.
112. See *id.* at 459-468 (explaining why the Agreement on Agriculture enabled industrialized countries to maintain high levels of protectionism).
113. ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD), OECD AGRICULTURAL POLICIES: AT A GLANCE 2004 at 17 (2004).
114. See Gonzalez, *Institutionalizing Inequality*, *supra* note 86, at 460-463 (discussing why the market access requirements of the Agreement on Agriculture produced little change in tariff barriers in industrialized countries).
115. See *id.* at 461-462; Aksoy, *supra* note 88, at 52.
116. U.N. FOOD & AGRIC. ORG. (FAO), FAO SYMPOSIUM ON AGRICULTURAL TRADE AND FOOD SECURITY, Paper No. 3: Experience with the Implementation of the Uruguay Round Agreement on Agriculture: Developing Country Experiences, at para. 5 (Sept. 1999), available at <http://www.fao.org/DOCREP/meeting/x3065E.htm>

117. See Gonzalez, *Trade Liberalization, Food Security and the Environment*, *supra* note 91, at 471.
118. See SOPHIA MURPHY ET AL., INST. FOR AGRIC. AND TRADE POLICY, WTO AGREEMENT ON AGRICULTURE: A DECADE OF DUMPING 1 (2005), available at <http://www.tradeobservatory.org/library.cfm?RefID=48532>.
119. See *id.* at 2. While Brazil recently mounted a successful WTO challenge to the United States' cotton subsidies, few developing countries can afford the expense of protracted litigation. See *United States – Subsidies on Upland Cotton*, Report of the Appellate Body, WT/DS267/20, 24 March 2005; Elizabeth Becker, *U.S. Loses Final Ruling on Subsidies for Cotton*, N.Y. TIMES, March 5, 2005. Furthermore, the remedy for WTO violations – the right to impose hefty tariffs on the offending imports—is often infeasible for developing countries unwilling to jeopardize valuable trade and diplomatic relationships with the United States and other major industrialized countries. See MURPHY, WTO AGREEMENT ON AGRICULTURE: A DECADE OF DUMPING, *supra* note 118, at 7.
120. See INT'L FOOD POLICY RESEARCH INST., HOW MUCH DOES IT HURT?: THE IMPACT OF AGRICULTURAL TRADE POLICIES ON DEVELOPING COUNTRIES 2 (2003), available at <http://www.agradepolicy.org/output/resource/IFPRI.pdf>. In addition to the harm caused by the double standard in the rules governing international agricultural trade, two other WTO agreements threaten to advance the interests of U.S. agribusiness at the expense of small farmers and the environment in the developing world. The WTO Agreement on the Application of Sanitary and Phytosanitary Measures forbids government restrictions on the importation of genetically modified seeds in the absence of “sufficient scientific evidence.” See Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), art. 2.2, April 15, 1994, available at <http://www.wto.org>. The SPS Agreement is arguably inconsistent with the Cartagena Protocol on Biosafety, which recognizes the precautionary principle and allows such restrictions even in the absence of strict scientific proof of harm. Cartagena Protocol on Biosafety to the Convention on Biological Diversity, art. 10.6, Jan. 29, 2000, available at <http://www.biodiv.org/doc/legal/cartagena-protocol-en.pdf>. In May 2003, the United States, Canada and Argentina initiated challenges before the WTO to the EU's de facto moratorium on the importation of genetically modified organisms. See John W. Boscaroli & Orlando E. Silva, *Genetically Modified Organisms at the Centre of Major WTO Dispute*, LAW. WKLY., Mar. 26, 2004. In September 2006, the WTO dispute settlement panel issued its long-awaited final decision. The panel concluded that the EU had applied a *de facto* moratorium on the approval of biotech products between June 1999 and August 2003, and that this moratorium resulted in “undue delay” in the EU's GMO pre-marketing approval procedures in violation of the WTO SPS Agreement. The panel's ruling was based on narrow procedural grounds and did not address the relationship between SPS Agreement and the Cartagena Biosafety Protocol. See Panel Report, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products*, WT/DS/291, WT/DS/292 and WT/DS/293 (Sept. 29, 2006). Another WTO agreement, the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), requires developing countries to give genetically modified seeds patent-like intellectual property protection, thus protecting the profits of transnational corporations at the expense of the traditional rights of farmers to save, sell, and breed seeds. See Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 27.3(b), Apr. 14, 1994, available at <http://www.wto.org>. See generally, Ruchi Tripathi, *Food Patenting – A Threat to Food Security* 3-4 (July 2001), available at <http://www.actionaid.org/resources/pdfs/patenting.doc> (explaining why many developing countries have resisted U.S. pressure to provide strong intellectual property protection to the products of the seed industry).
121. See A. Ataman Aksoy & John C. Beghin, *Introduction and Overview*, in GLOBAL AGRICULTURAL TRADE AND DEVELOPING COUNTRIES, *supra* note 33, at 3.
122. Indeed, the *New York Times* published a series of editorials in 2003 and 2004 decrying the damaging impact in the developing world of industrialized country agricultural protectionism. The editorials advocated free market reforms in the United States and other developed nations in order to establish “a fairer playing field.” The editorials are available at <http://www.nytimes.com/harvestingpoverty>. See also van der Mensbrugge & Beghin, *supra* note 33, at 118-136 (quantifying the benefits of agricultural trade liberalization in both developed and developing countries).
123. See, e.g., Carlson, *supra* note 90, at 1209-1220.
124. See Gonzalez, *Trade Liberalization, Food Security and the Environment*, *supra* note 91, at 488.
125. See *id.* at 489-490.
126. See Halweil, *supra* note 44, at 68 (Table 3-2).
127. See *id.*
128. See *id.*
129. See SOPHIA MURPHY, INST. FOR AGRIC. AND TRADE POLICY, MANAGING THE INVISIBLE HAND: MARKETS, FARMERS AND INTERNATIONAL TRADE 21-29, 32 (2002), available at http://www.tradeobservatory.org/library/uploadedfiles/Managing_the_Invisible_Hand_2.pdf. Vertically integrated corporations dominate almost every aspect of the production and distribution of agricultural products, from the sale of inputs (seeds, fertilizers, pesticides and equipment) to the processing, shipping and marketing of agricultural output. MADELEY, *FOOD FOR ALL*, *supra* note 34, at 121-123.
130. See Gonzalez, *Trade Liberalization, Food Security and the Environment*, *supra* note 91, at 492.
131. See Gonzalez, *Institutionalizing Inequality*, *supra* note 86, at 464-466; 479-480.
132. In the WTO negotiations on Non-Agricultural Market Access (NAMA), industrialized countries are pressing developing countries to substantially reduce tariffs on manufactured goods. Such concessions by developing countries may result in the loss of badly needed tariff revenues, and may expose developing countries to de-industrialization and loss of jobs if local industries find themselves unable to compete with exports. See Oxfam International, *Oxfam International Contribution Regarding NAMA Negotiations*, Apr. 25-29, 2005 (WTO, Geneva), available at http://www.oxfam.org.uk/what_we_do/issues/trade/downloads/sub_nama.pdf; Friends of the Earth International, *What You Need to Know About NAMA*, October 2004, available at <http://www.foei.org/publications/pdfs/NAMAenvironmentalFINAL.pdf>. Other concessions, such as enforcing industrialized country intellectual property rights, may deprive the poor in the developing world of access to essential

- medicines or deprive farmers of the traditional right to save, breed, and replant seeds. See Mark Weisbrot, David Rosnick, and Dean Baker, *Poor Numbers: The Impact of Trade Liberalization on World Poverty* (Center for Economic and Policy Analysis, 2004), available at http://www.cepr.net/publications/poor_numbers.htm; HA-JOON CHANG, GLOBALISATION, ECONOMIC DEVELOPMENT, AND THE ROLE OF THE STATE 297-298 (2003).
133. See HA-JOON CHANG, *supra* note 132, at 258-259, 276-277; HA-JOON CHANG, KICKING AWAY THE LADDER: DEVELOPMENT STRATEGY IN HISTORICAL PERSPECTIVE 19-51; 59-66 (2002); Ha-Joon Chang, *The Market, the State and Institutions in Economic Development*, in RETHINKING DEVELOPMENT ECONOMICS, *supra* note 56, at 43.
134. See Ha-Joon Chang, *The East Asian Development Experience*, in RETHINKING DEVELOPMENT ECONOMICS, *supra* note 56, at 111-117.
135. See HA-JOON CHANG & ILENE GRABEL, RECLAIMING DEVELOPMENT: AN ALTERNATIVE ECONOMIC POLICY MANUAL 70-80 (2004) (explaining the important role of the state in shaping industrial development and critiquing the view that industrial development should be left to the dictates of the market).
136. See Howard Stein, *Rethinking African Development*, in RETHINKING DEVELOPMENT ECONOMICS, *supra* note 56, at 156.
137. See Van der Mensbrugge & Beghin, *supra* note 33, at 130.
138. See Kym Anderson, *Effects on the Environment and Welfare of Liberalizing World Trade: the Cases of Coal and Food*, in THE GREENING OF WORLD TRADE ISSUES 152-154 (Kym Anderson & Richard Blackhurst, eds., 1992). For example, during the last decade, the explosive growth of agro-export production in Brazil has coincided with accelerated deforestation (as forests are converted to farm land and pasture land) and with increased use of agrochemicals. See Larry Rohter, *South America Seeks to Fill the World's Table*, N.Y. TIMES, Dec. 12, 2004, at A1, A22.
139. See COOTE, *supra* note 95, at 194-195; MURPHY, MANAGING THE INVISIBLE HAND, *supra* note 129, AT 8; MADELEY, HUNGRY FOR TRADE, *supra* note, 105, at 76-77; THRUPP, BITTERSWEET HARVESTS FOR GLOBALAL SUPERMARKETS, *supra* note 109, at 67-71.
140. See PAUL SAMUELSON, ECONOMICS 630 (11th ed. 1980).
141. See Fred P. Gale, *Economic Specialization Versus Ecological Diversification: The Trade Policy Implications of Taking the Ecosystem Approach Seriously*, 34 ECOLOGICAL ECONOMICS 285, 288-289 (2000).
142. See *id.* at 289-290.
143. See Stein, *supra* note 165, at 156.
144. See *Universal Declaration of Human Rights*, G.A. Res. 217, U.N. GAOR, section III, art. 25 (1948).
145. See *International Covenant on Economic Social and Cultural Rights*, Dec. 16, 1966, art. 11, 993 U.N.T.S. 3.
146. See *Convention on Biological Diversity*, preamble and art. 8(j), reprinted in 31 I.L.M. 818 (1992).
147. See Elizabeth Becker, *Poorer Countries Pull Out of Talks Over World Trade*, N.Y. TIMES, Sept. 15, 2003, at A1.
148. See Elizabeth Becker, *Trade Group to Cut Farm Subsidies for Rich Nations*, N.Y. TIMES, Aug. 1, 2004, at 8; Elizabeth Becker, *U.S. Will Cut Farm Subsidies in Trade Deal*, N.Y. TIMES, July 31, 2004.
149. These proposed exceptions to the WTO rules are generally referred to collectively as the "Development Box" proposal. See SOPHIA MURPHY & STEVE SUPPAN, INT'L INST. FOR SUSTAINABLE DEVELOPMENT, INTRODUCTION TO THE DEVELOPMENT BOX: FINDING SPACE FOR DEVELOPMENT CONCERNS IN THE WTO'S AGRICULTURE NEGOTIATIONS (2003), available at http://www.iisd.org/pdf/2003/trade_intro_dev_box.pdf.
150. See FATOUMATA JAWARA & AILEEN KWA, BEHIND THE SCENES AT THE WTO: THE REAL WORLD OF INTERNATIONAL TRADE NEGOTIATIONS (2003) (describing the WTO decision-making processes and decrying the lack of transparency and meaningful participation by developing countries).
151. See Simon Romero, *Early End for Talks on Trade*, NY TIMES, Nov. 21, 2003, at C1-2; William Greider & Kenneth Rapoza, *Lula Raises the Stakes*, THE NATION, Dec. 1, 2002, at 11-17. Indeed, Lula had earlier denounced the FTAA as a "type of economic annexation of Latin America by the U.S." Raymond Colitt, *Mistrustful Brazilians Mobilize Against Trade Pact*, FINANCIAL TIMES (London), Sept. 10, 2002, at 12 (quoting Lula's characterization of the proposed FTAA during the 2002 Brazilian presidential campaign).
152. See, e.g., Monte Reel, *Brazil's Corruption Scandals Loom on President's Political Horizon*, WASH. POST, Sept. 28, 2005, at A14.
153. See Gonzalez, *Seasons of Resistance*, *supra* note 66, at 712-728 (describing and evaluating Cuba's economic reforms in the aftermath of the collapse of the Soviet Union).
154. See *id.* at 729-730
155. See *id.* at 729-732.
156. Larry Rohter, *Economic Rally for Argentines Defies Forecasts*, N.Y. TIMES, Dec. 26, 2004, at A1.
157. See, e.g., Barry E. Hill, Steve Wolfson, & Nicholas Targ, *Human Rights and the Environment: A Synopsis and Some Predictions*, 16 GEO. INT'L ENVTL L. REV. 359 (2004) (describing the growing international recognition of the right to a clean and healthy environment); Sumudu Atapattu, *The Right to a Healthy Life or the Right to Die Polluted? The Emergence of a Human Right to a Healthy Environment under International Law*, 16 TUL. ENVTL. L.J. 65 (2002) (discussing the evolution of the right to a healthy environment under international law); U.N. General Assembly, Report of the Special Rapporteur of the Commission on Human Rights on the Right to Food, A/57/356 (27 August 2002) (assessing progress toward the realization of the right to food); U.N. Economic and Social Council, Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights: The Right to Adequate Food (Art. 11), E/C.12/1999/5 (12 May 1999) (discussing the implementation of the right to food under the International Covenant on Economic, Social and Cultural Rights); Anthony Paul Kearns III, *The Right to Food Exists Via Customary International Law*, 22 SUFFOLK TRANSNAT'L L. REV.

223 (1998) (arguing for the existence of a right to food under customary international law); Donald E. Buckingham, *A Recipe for Change: Towards an Integrated Approach to Food under International Law*, 6 PACE INT'L L. REV. 285 (1994) (proposing an approach to food under international law that integrates international human rights law, international humanitarian law, and international trade law).

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Founded in 2002, the Center for Progressive Reform is a 501(c)(3) nonprofit research and educational organization dedicated to protecting health, safety, and the environment through analysis and commentary. CPR believes sensible safeguards in these areas serve important shared values, including doing the best we can to prevent harm to people and the environment, distributing environmental harms and benefits fairly, and protecting the earth for future generations. CPR rejects the view that the economic efficiency of private markets should be the only value used to guide government action. Rather, CPR supports thoughtful government action and reform to advance the well-being of human life and the environment. Additionally, CPR believes people play a crucial role in ensuring both private and public sector decisions that result in improved protection of consumers, public health and safety, and the environment. Accordingly, CPR supports ready public access to the courts, enhanced public participation and improved public access to information. Direct media inquiries to Matthew Freeman at mfreeman@progressivereform.org. For general information, email info@progressivereform.org. Visit CPR's website at www.progressivereform.org. The Center for Progressive Reform is grateful to the Beldon Fund and the Deer Creek Foundation for their generous support of its work.



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