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## Chapter 3

# An environmental justice critique of biofuels

Carmen G. Gonzalez\*

### 1. INTRODUCTION

Replacing fossil fuels with biofuels derived from renewable organic matter has been promoted as a means of mitigating climate change, achieving energy security, and fostering economic development in the countries that produce the crops used as biofuel feedstocks.<sup>1</sup> This win-win narrative presents biofuels as the solution to the challenges of poverty, climate change, and dependence on non-renewable forms of energy. This chapter interrogates this narrative by examining biofuels through the lens of environmental justice.

The chapter argues that the biofuel policies of the United States and the European Union have produced environmental injustice in Asia, Africa, and Latin America by increasing food prices and stimulating large-scale land transactions that deprive local communities of the land and water necessary to grow food. Far from mitigating climate change, these biofuel policies accelerate the worldwide transition to fossil fuel-based industrial agriculture that emits prodigious quantities of greenhouse gases, degrades local ecosystems, and favors export-oriented corporate agribusiness at the expense of small farmers and local food production. In addition, the climate change benefits of biofuels are often illusory because the life-cycle greenhouse gas emissions of many biofuels exceed those of fossil fuels.

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\*This chapter has been adapted from Carmen G. Gonzalez, *The Environmental Justice Implications of Biofuels*, 20 UCLA J. LAW & FOREIGN AFFAIRS 229 (2016).

<sup>1</sup> See JAMES SMITH, BIOFUELS AND THE GLOBALIZATION OF RISK 93 (2010); Brian Tokar, *Biofuels and the Global Food Crisis*, in AGRICULTURE AND FOOD IN CRISIS: CONFLICT, RESISTANCE, AND RENEWAL (Fred Magdoff and Brian Tokar eds., 2010).

## 2. ENVIRONMENTAL JUSTICE AND THE RIGHT TO FOOD

Environmental justice is both a social movement and a paradigm through which to evaluate laws, policies, and practices that have an impact on the environment and on vulnerable populations.<sup>2</sup> Although grassroots resistance to environmental degradation has existed since the dawn of industrialization,<sup>3</sup> the discourse of environmental justice emerged in the United States in the 1980s in response to studies demonstrating the disproportionate concentration of polluting facilities and abandoned hazardous waste sites in low-income neighborhoods of color.<sup>4</sup> In subsequent decades, environmental movements in both affluent and poor nations deployed the language of environmental justice in a wide variety of environmental struggles, including efforts to secure equitable access to food, water, land, and energy as well as campaigns to halt ecologically devastating projects, such as hydroelectric dams, mines, and oil and gas development.<sup>5</sup>

Environmental justice scholars and activists have emphasized four distinct aspects of environmental justice: distributive justice, procedural justice, corrective justice, and social justice.<sup>6</sup> First, environmental justice is premised on the equitable distribution of the benefits and burdens of economic activity as well as equitable access to environmental amenities and

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<sup>2</sup> For an introduction to environmental justice theories and movements, see generally Carmen G. Gonzalez, *Environmental Justice, Human Rights and the Global South*, 13 SANTA CLARA J. INT'L L. 151 (2015); HENRY SHUE, *CLIMATE JUSTICE: VULNERABILITY AND PROTECTION* (2014); RHUKS TEMITOPE AKO, *ENVIRONMENTAL JUSTICE IN DEVELOPING COUNTRIES: PERSPECTIVES FROM AFRICA AND ASIA-PACIFIC* (2013); Carmen G. Gonzalez, *Environmental Justice and International Environmental Law*, in *ROUTLEDGE HANDBOOK OF INTERNATIONAL ENVIRONMENTAL LAW* 77 (Shawkat Alam et al. eds., 2013); GORDON WALKER, *ENVIRONMENTAL JUSTICE: CONCEPTS, EVIDENCE AND POLITICS* (2012); *ENVIRONMENTAL INEQUALITY BEYOND BORDERS: LOCAL PERSPECTIVES ON GLOBAL INJUSTICES* (JoAnn Carmin and Julian Agyeman eds., 2011); DAVID SCHLOSBERG, *DEFINING ENVIRONMENTAL JUSTICE: THEORIES, MOVEMENTS, AND NATURE* (2009).

<sup>3</sup> See CHRISTOPHE BONNEUIL AND JEAN-BAPTISTE FRESSOZ, *THE SHOCK OF THE ANTHROPOCENE* 253–87 (2015).

<sup>4</sup> See LUKE W. COLE AND SHEILA R. FOSTER, *FROM THE GROUND UP: ENVIRONMENTAL RACISM AND THE RISE OF THE ENVIRONMENTAL JUSTICE MOVEMENT* 19–33 (2001).

<sup>5</sup> See Joan Martinez-Alier et al., *Between Activism and Science: Grassroots Concepts for Sustainability Coined by Environmental Justice Organizations*, 21 J. POL. ECOLOGY 19, 27–42 (2014).

<sup>6</sup> See generally Robert R. Kuehn, *A Taxonomy of Environmental Justice*, 30 ENV'T L. REP. 10681 (2000).

necessities, such as parks, open space, clean air, clean water, and safe and nutritious food.<sup>7</sup> Second, environmental justice involves procedural fairness, including the right of all communities to participate in governmental decision-making related to the environment.<sup>8</sup> Third, environmental justice requires governments to enforce environmental statutes and regulations and to provide compensation to those whose rights are violated.<sup>9</sup> Finally, environmental justice is inextricably intertwined with other forms of social and economic justice and cannot be attained without combating related social ills, such as poverty and racism.<sup>10</sup>

Environmental justice has an important international dimension that provides valuable insights into environmental conflicts between affluent nations (the Global North) and poor and middle-income nations (the Global South). North-South relations are characterized by *distributive injustice* because the wealthiest 20 percent of the world's population consumes approximately 80 percent of the planet's economic output<sup>11</sup> and simultaneously produces more than 90 percent of its hazardous waste, which is often exported to the Global South.<sup>12</sup> While the affluent reap the economic benefits of overconsumption, the environmental consequences are borne disproportionately by those who contribute the least to global environmental degradation and who possess the fewest resources to protect themselves against harm, such as vulnerable states, impoverished people, racial and ethnic minorities, and indigenous populations.<sup>13</sup> North-

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<sup>7</sup> See *ibid.* at 10683–88; Gonzalez, *Environmental Justice and International Environmental Law*, *supra* note 2, at 78; Duncan French, *Sustainable Development and the Instinctive Imperative of Justice in the Global Order*, in GLOBAL JUSTICE AND SUSTAINABLE DEVELOPMENT 3 (Duncan French ed., 2010).

<sup>8</sup> See Kuehn, *A Taxonomy of Environmental Justice*, *supra* note 6, at 10688–92; Carmen G. Gonzalez, *Markets, Monocultures, and Malnutrition: Agricultural Trade Policy Through an Environmental Justice Lens*, 14 MICH. ST. J. INT'L L. 345, 348–49 (2006).

<sup>9</sup> See Kuehn, *A Taxonomy of Environmental Justice*, *supra* note 6, at 10693–98; Gonzalez, *Environmental Justice and International Environmental Law*, *supra* note 2, at 85–87 (explaining how environmental justice is grounded in human rights).

<sup>10</sup> See Kuehn, *A Taxonomy of Environmental Justice*, *supra* note 6, at 10698–702.

<sup>11</sup> See William E. Rees and Laura Westra, *When Consumption Does Violence: Can There Be Sustainability and Environmental Justice in a Resource-Limited World?*, in JUST SUSTAINABILITIES: DEVELOPMENT IN AN UNEQUAL WORLD 99, 110–12 (Julian Agyeman et al. eds., 2003); WORLD BANK, 2008 WORLD DEVELOPMENT INDICATORS 4 (2008), available at <http://data.worldbank.org/sites/default/files/wdi08.pdf>.

<sup>12</sup> See DAVID N. PELLOW, RESISTING GLOBAL TOXICS: TRANSNATIONAL MOVEMENTS FOR ENVIRONMENTAL JUSTICE 8 (2007); Carmen G. Gonzalez, *Beyond Eco-Imperialism: An Environmental Justice Critique of Free Trade*, 78 DENV. U.L. REV. 979, 991–92 (2001).

<sup>13</sup> See Rees and Westra, *When Consumption Does Violence*, *supra* note 11, at 100–103.

South relations are also marred by *procedural inequities*, since the perspectives and priorities of Northern states drive the decision-making process in international trade and financial institutions (e.g., the World Bank, the International Monetary Fund (IMF), and the World Trade Organization (WTO)) while the concerns of poor nations are often disregarded.<sup>14</sup> *Corrective injustice* is perhaps most apparent in the inability of communities disproportionately affected by climate change, such as indigenous peoples and small island states, to obtain redress for the harms caused by the North's massive past and ongoing greenhouse gas emissions.<sup>15</sup> Finally, North-South environmental conflicts are embedded in larger *social justice* struggles, including the South's resistance to Northern economic policies that impoverished the Global South and facilitated the Global North's appropriation of the planet's resources.<sup>16</sup>

Environmental justice is grounded in human rights, including the fundamental human right to food.<sup>17</sup> The right to food is recognized by several legal instruments, including the Universal Declaration of Human Rights; the International Covenant on Economic, Social and Cultural Rights (ICESCR); and the United Nations Convention on the Rights of the Child.<sup>18</sup> States are required to respect the right to food by making sure their economic policies do not deprive people of their livelihoods.<sup>19</sup> States must also protect the right to food by taking measures to prevent third parties (such as foreign investors) from depriving people of the means to either grow food or purchase food. For example, states are obligated to ensure that

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<sup>14</sup> See RUCHI ANAND, *INTERNATIONAL ENVIRONMENT JUSTICE: A NORTH-SOUTH DIMENSION* 132–33 (2004); PATRICK HOSSAY, *UNSUSTAINABLE: A PRIMER FOR GLOBAL ENVIRONMENTAL AND SOCIAL JUSTICE* 191–98 (2006); RICHARD PEET, *UNHOLY TRINITY: THE IMF, WORLD BANK AND WTO* 200–204 (2003).

<sup>15</sup> See Maxine Burkett, *Climate Reparations*, 10 MELB. J. INT'L L. 509, 513–20 (2009) (discussing the plight of small island nations); Rebecca Tsosie, *Indigenous Peoples and Environmental Justice: The Impact of Climate Change*, 78 U. COLO. L. REV. 1625, 1633–46 (2007) (discussing the plight of indigenous peoples); Gonzalez, *Environmental Justice, Human Rights, and the Global South*, *supra* note 2, at 187–88 (discussing the difficulty of obtaining reparations for systemic harms).

<sup>16</sup> See Gonzalez, *Environmental Justice, Human Rights, and the Global South*, *supra* note 2, at 159–63 (describing the colonial and post-colonial policies and practices which enabled the Global North to industrialize and prosper at the expense of the Global South).

<sup>17</sup> See Carmen G. Gonzalez, *Genetically Modified Organisms and Justice: The International Environmental Justice Implications of Biotechnology*, 19 GEO. INT'L ENV'T L. REV. 583, 626 (2007).

<sup>18</sup> See G.A. Res. 217 (III) A, Universal Declaration of Human Rights (UDHR), Art. 25 (December 10, 1948); G.A. Res. 2200 (XXI), International Covenant on Economic, Social and Cultural Rights (ICESCR), Art. 11 (December 16, 1966); Convention on the Rights of the Child, Arts. 24, 27 (November 20, 1989) 1577 U.N.T.S. 3 (entered into force February 9, 1990).

<sup>19</sup> See Michael Windfuhr, *The World Food Crisis and the Right to Adequate Food*, in *UNIVERSAL HUMAN RIGHTS AND EXTRATERRITORIAL OBLIGATIONS* 130, 148 (Mark Gibney and Sigrun Skogly eds., 2010).

economically powerful third parties do not deprive small farmers of access to food by displacing them from food production.<sup>20</sup> Finally, states must fulfill the right to food by providing vulnerable populations with jobs or with the resources to grow or purchase their own food.<sup>21</sup>

All states are obligated to protect the human right to food pursuant to the Universal Declaration of Human Rights, which is widely regarded as part of customary international law or as a codification of general principles of law reflected in the national constitutions of a large number of countries in various regions and legal systems of the world.<sup>22</sup> Other human rights instruments also protect aspects of the right to food. For example, the right to food is protected through Article 6(1) of the International Covenant on Civil and Political Rights (ICCPR), which guarantees the right to life,<sup>23</sup> and has been interpreted authoritatively as requiring states to adopt affirmative measures to eliminate malnutrition.<sup>24</sup> Additionally, Article 1 of both the ICESCR and the ICCPR prohibit states from interfering with a population's means of subsistence.<sup>25</sup>

In order to assess the impact of biofuels on the right to food, it is important to keep in mind that many biofuel feedstocks can be used as both food and fuel. Biofuels therefore occupy a unique location at the intersection of energy, climate, and food law and policy. Before turning to the right to food implications of biofuels, this chapter discusses the role of biofuels in climate change mitigation.

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<sup>20</sup> See *ibid.*

<sup>21</sup> See *ibid.*

<sup>22</sup> See UDHR, Art. 25; BERTA ESPERANZA HERNÁNDEZ-TRUYOL AND STEPHEN J. POWELL, JUST TRADE: A NEW COVENANT LINKING TRADE AND HUMAN RIGHTS 56-57 (2009); Olivier De Schutter, *A Human Rights Approach to Trade and Investment Policies*, in THE GLOBAL FOOD CHALLENGE: TOWARDS A HUMAN RIGHTS APPROACH TO TRADE AND INVESTMENT POLICIES 14, 15 (2009), available at [www.fian.org/resources/documents/others/the-global-food-challenge/pdf](http://www.fian.org/resources/documents/others/the-global-food-challenge/pdf). See also Smita Narula, *The Right to Food: Holding Global Actors Accountable Under International Law*, 44 COLUM. J. TRANSNAT'L L. 691, 780-91 (2006) (using human rights treaties, humanitarian law, UN resolutions, multi-state declarations, constitutional rights, and domestic jurisprudence to support the treatment of the right to food as customary international law—apart from the Universal Declaration of Human Rights).

<sup>23</sup> See International Covenant on Civil and Political Rights (ICCPR), December 16, 1966, 999 U.N.T.S. 171, Art. 6(1).

<sup>24</sup> See Office of the High Commissioner for Human Rights, General Comment No. 6: The Right to Life, para. 5 (April 30, 1982), available at [www.unhchr.ch/tbs/doc.nsf/0/84ab9690ccd81fc7c12563ed0046fae3](http://www.unhchr.ch/tbs/doc.nsf/0/84ab9690ccd81fc7c12563ed0046fae3).

### 3. BIOFUELS, CLIMATE CHANGE, AND FOOD

Recent studies have concluded that substantial reserves of oil, coal, and natural gas must remain unexploited in order to avoid catastrophic disruption of the planet's climate.<sup>26</sup> Theoretically, substituting biofuels for fossil fuels will mitigate climate change by releasing fewer greenhouse gases.<sup>27</sup> However, as explained below, many biofuels actually exacerbate climate change because they release more greenhouse gases than the fossil fuels they replace. The cultivation of biofuels also compromises the right to food by depressing food production and contributing to higher food prices.

#### 3.1 Biofuels and Climate Change Mitigation

Biofuels are energy sources in liquid or gaseous form that are derived from biomass.<sup>28</sup> Biofuels are categorized as first, second, or third-generation depending upon the feedstocks from which they are produced. First-generation biofuels are developed from crops that can also be used for food or feed (including ethanol derived from sugar or corn) and biodiesel from oilseed crops (such as soybean, sunflower, rapeseed, or palm oil).<sup>29</sup> Second-generation biofuels are made from non-edible crop parts (such as stems, leaves, and husks), non-food crops cultivated for energy production (such as jatropha and switchgrass), or waste products (such as municipal waste and cane bagasse).<sup>30</sup> While second-generation biofuels are not derived from food and feed, some may nevertheless be grown on land that could be used to cultivate food.<sup>31</sup> Finally, third-generation

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<sup>25</sup> See G.A. Res. 2200 (XXI), International Covenant on Economic, Social and Cultural Rights (ICESCR), Art. 11 (December 16, 1966); ICCPR, Art. 1.

<sup>26</sup> See generally Christopher McGlade and Paul Elkins, *The Geographical Distribution of Fossil Fuels Unused When Limiting Global Warming to 2°C*, 517 NATURE 187 (2015).

<sup>27</sup> See SMITH, BIOFUELS AND THE GLOBALIZATION OF RISK, *supra* note 1, at 93.

<sup>28</sup> See *ibid.* at 15.

<sup>29</sup> See Timothy A. Wise and Emily Cole, *Mandating Food Insecurity: The Global Impacts of Rising Biofuel Mandates and Targets* 8 (Glob. Dev. & Env't Inst., Working Paper No. 15-01, 2015); HIGH LEVEL PANEL OF EXPERTS ON FOOD SECURITY AND NUTRITION OF THE COMMITTEE ON WORLD FOOD SECURITY (HLPE), BIOFUELS AND FOOD SECURITY 44 (2013).

<sup>30</sup> See *ibid.* at 44.

<sup>31</sup> See *ibid.* at 46.



biofuels (such as algae-based biofuels) do not compete with food or with land that could be used for food production.<sup>32</sup>

First-generation biofuels represent 99.85 percent of the biofuels produced worldwide.<sup>33</sup> Second-generation biofuels have developed more slowly due to the high capital costs of refining their feedstocks and the subsidies and other economic incentives that make the cultivation of first-generation biofuels so lucrative.<sup>34</sup> Third generation biofuels derived from algae have been the slowest to develop due to the algae's need for immense amounts of water, nitrogen, and phosphorous to reproduce, along with the high cost of meeting current mandates using these biofuels.<sup>35</sup> First-generation biofuels will be the primary focus of this chapter because they dominate biofuels markets.

The production and consumption of biofuels will mitigate climate change if the biofuels emit fewer greenhouse gases than the fossil fuels they replace. Regrettably, many first-generation biofuels release more greenhouse gases than fossil fuels due to the unsustainable practices used to produce these biofuels.<sup>36</sup> In theory, biofuels should be greenhouse gas neutral because the carbon dioxide that they release upon combustion is equivalent to the carbon dioxide that they sequester from the atmosphere during cultivation.<sup>37</sup> In practice, however, biofuels may generate even more greenhouse gas emissions than fossil fuels due to the clearing of forests and peatlands to plant them, the nitrogen-based fertilizers and petroleum-derived pesticides applied to the growing crops, the petroleum-guzzling machinery used to cultivate and harvest them, and the energy required to convert the plants into fuel.<sup>38</sup> Even when land-use impacts (such as

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<sup>32</sup> See *ibid.* at 44.

<sup>33</sup> See *ibid.* at 45.

<sup>34</sup> See WARREN MABEE AND JACK SADDLER, INTERNATIONAL ENERGY AGENCY, FROM 1ST TO 2ND GENERATION BIOFUEL TECHNOLOGIES: AN OVERVIEW OF CURRENT INDUSTRY AND RD&D ACTIVITIES 80 (2008).

<sup>35</sup> Biofuel.Org.UK, *Third Generation Biofuels* (2010), available at <http://biofuel.org.uk/third-generation-biofuels.html>; see Michael Hannon, Javier Gimpel, Miller Tran, Beth Rasala, and Stephen Mayfield, *Biofuels from Algae: Challenges and Potential* (NIH Public Access, September 2010), available at [www.ncbi.nlm.nih.gov/pmc/articles/PMC3152439/pdf/nihms269384.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3152439/pdf/nihms269384.pdf).

<sup>36</sup> See FAO, THE STATE OF FOOD AND AGRICULTURE: BIOFUELS: PROSPECTS, RISKS AND OPPORTUNITIES 55–59 (2008), available at [www.fao.org/docrep/011/i0100e/i0100e00.htm](http://www.fao.org/docrep/011/i0100e/i0100e00.htm).

<sup>37</sup> See SMITH, BIOFUELS AND THE GLOBALIZATION OF RISK, *supra* note 1, at 41.

<sup>38</sup> See *ibid.*; ROBERT POOL ET AL., THE NEXUS OF BIOFUELS, CLIMATE CHANGE, AND HUMAN HEALTH: WORKSHOP SUMMARY 2–6 (2014); see generally A. Mosnier et al., *Alternative U.S. Biofuel Mandates and Global GHG Emissions: The Role of Land Use Change, Crop Management and Yield Growth*, 57 ENERGY POL'Y 602 (2013); Jerry M. Melillo, *Indirect Emissions from Biofuels: How Important?*, 326 SCIENCE 1397 (2009); JANE EARLEY AND ALICE MCKEOWN, SIERRA CLUB AND WORLDWATCH

deforestation) are *not* taken into account, several studies have concluded that corn-based ethanol (the most commonly used biofuel in the United States) has failed to significantly reduce greenhouse gas emissions and may even emit more greenhouse gases than gasoline.<sup>39</sup>

When researchers include the direct and indirect impacts of biofuels on land use, many studies conclude that first-generation biofuels are more damaging to the climate than fossil fuels.<sup>40</sup> As one analyst explains:

In order to produce biofuels, cultivators may plough up or burn forest or grassland, which releases into the atmosphere much of the carbon previously stored in plants through decomposition or fire. The loss of maturing forests or grasslands also nullifies future sequestration gains as biomass grows each year and this lost potential sequestration ought to be accounted for as a carbon debit. Farmers may instead choose to divert existing crops into biofuels, which indirectly causes similar emissions as farmers seek to expand cropland elsewhere to compensate for losses or to make maximum gain from increasing prices for increasingly scarce crops.<sup>41</sup>

Taking land-use changes into account, one study concluded that the greenhouse gas emissions from US corn-based ethanol are nearly double those of gasoline over a thirty-year period.<sup>42</sup> Similarly, several studies have found that biodiesel from soybeans and palm oil may produce higher greenhouse gas emissions than conventional fossil diesel if forests and peatlands are cleared to cultivate these crops.<sup>43</sup> In sum, the climate impacts of first-generation biofuels vary depending on the type of feedstock used, how the feedstock is produced, and the direct and indirect land-use changes resulting therefrom.<sup>44</sup>

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INSTITUTE, SMART CHOICES FOR BIOFUELS (2009); Joseph Fargione et al., *Land Clearing and the Biofuel Carbon Debt*, 319 SCIENCE 1235 (2008).

<sup>39</sup> HLPE, BIOFUELS AND FOOD SECURITY, *supra* note 29, at 50. See also CONGRESS BUDGET OFFICE (CBO), THE RENEWABLE FUEL STANDARD: ISSUES FOR 2014 AND BEYOND 3 (2014), available at [www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/45477-Biofuels2.pdf](http://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/45477-Biofuels2.pdf); FAO, THE STATE OF FOOD AND AGRICULTURE, *supra* note 36.

<sup>40</sup> See UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP), TOWARDS SUSTAINABLE PRODUCTION AND USE OF RESOURCES: ASSESSING BIOFUELS 67–68 (2009).

<sup>41</sup> SMITH, BIOFUELS AND THE GLOBALIZATION OF RISK, *supra* note 1, at 51.

<sup>42</sup> See Timothy Searchinger et al., *Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change*, 319 SCIENCE 1238, 1239 (2008).

<sup>43</sup> See UNEP, TOWARDS SUSTAINABLE PRODUCTION AND USE OF RESOURCES, *supra* note 40, at 53.

<sup>44</sup> See AZIZ ELBEHRI ET AL., FAO, BIOFUELS AND THE SUSTAINABILITY CHALLENGE: A GLOBAL ASSESSMENT OF SUSTAINABILITY ISSUES, TRENDS, AND POLICIES FOR BIOFUELS AND RELATED FEEDSTOCKS 13 (2013), available at [www.fao.org/docrep/017/i3126e/i3126e.pdf](http://www.fao.org/docrep/017/i3126e/i3126e.pdf). Although less well-studied and less commercially available, second-generation biofuels also vary in their environmental impact depending on the feedstock selected and the method of production. See ANSELM EISENTRAUT,

Despite their questionable contribution to climate change mitigation, the amount of biofuels produced globally soared from under 20 billion liters in 2001 to more than 115 billion liters in 2015.<sup>45</sup> If biofuels are not necessarily superior to fossil fuels from a climate perspective, then what accounts for their popularity? The remainder of this section examines the government policies that sparked the biofuels boom and the impact of these policies on food prices and food production.

### 3.2 Biofuels Boom

The biofuels boom in the United States was sparked by US government support for corn-based ethanol at the behest of corporate agribusiness beginning in the 1970s.<sup>46</sup> Eager to maintain and expand government subsidies based on the quantity of corn produced, US-based agri-food corporations developed new and innovative uses for corn, such as corn-based ethanol, high-fructose corn syrup, and cheap corn filler, used in a variety of food products.<sup>47</sup> After the OPEC oil embargo of the early 1970s and the subsequent energy crisis, Congress encouraged the production of corn-based ethanol through new subsidies and tax incentives, with most of the benefits accruing to large corporations.<sup>48</sup>

The rapid increase in biofuels production in both the United States and the European Union during the first decade of the twenty-first century was likewise driven by powerful corporate interests.<sup>49</sup> Despite the questionable climate benefits of the vast majority of first-

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INTERNATIONAL ENERGY AGENCY, SUSTAINABLE PRODUCTION OF SECOND-GENERATION BIOFUELS: POTENTIAL AND PERSPECTIVES IN MAJOR ECONOMIES AND DEVELOPING COUNTRIES 1 (February 2010), available at [www.iea.org/publications/freepublications/publication/biofuels\\_exec\\_summary.pdf](http://www.iea.org/publications/freepublications/publication/biofuels_exec_summary.pdf).

<sup>45</sup> See HLPE, BIOFUELS AND FOOD SECURITY, *supra* note 29, at 55; BIOFUELS, OECD-FAO AGRICULTURAL OUTLOOK 2016–2025, 4 (OECD Publishing, 2016), available at [www.fao.org/3/a-BO103e.pdf](http://www.fao.org/3/a-BO103e.pdf).

<sup>46</sup> See Melissa Powers, *King Corn: Will the Renewable Fuel Standard Eventually End Corn Ethanol's Reign?*, 11 VT. J. ENV'T'L L. 667, 678 (2010).

<sup>47</sup> See *ibid.* at 678–79.

<sup>48</sup> See *ibid.* at 679–81; Roberta F. Mann and Mona L. Hymel, *Moonshine to Motorfuel: Tax Incentives for Fuel Ethanol*, 19 DUKE ENV'T'L L. & POL'Y F. 43, 72–73 (2008); OZZIE ZEHNER, GREEN ILLUSIONS: THE DIRTY SECRETS OF CLEAN ENERGY AND THE FUTURE OF ENVIRONMENTALISM 66–69 (2012).

<sup>49</sup> See SMITH, BIOFUELS AND THE GLOBALIZATION OF RISK, *supra* note 1, at 67, 69–70, 76–77.

generation biofuels,<sup>50</sup> both the United States and the European Union promoted biofuels as part of their energy policies through subsidies, tax exemptions, and mandates for the blending of biofuels into transportation fuels.<sup>51</sup>

In the United States, the Energy Independence and Security Act of 2007<sup>52</sup> established Renewable Fuel Standards that require the blending of 36 billion gallons of biofuels into US transportation fuels by 2022.<sup>53</sup> The law does not mandate any assessment of the environmental or human rights impacts of biofuels either in the United States or abroad.<sup>54</sup> The only environmental requirement is that the biofuels from facilities constructed after 2007 reduce life-cycle greenhouse gas emissions by 20 percent relative to the life-cycle emissions of fossil fuels.<sup>55</sup> While the legislation itself grandfathers existing corn ethanol producers and exempts them from the 20 percent greenhouse gas reduction requirement, regulations promulgated by the US Environmental Protection Agency (EPA) extended this exemption to new corn ethanol producers by concluding, under questionable assumptions, that most new facilities will meet the 20 percent standard.<sup>56</sup> In other words, the US Renewable Fuel Standards promote the blending of corn-based ethanol into gasoline even if this may ultimately exacerbate climate change by increasing greenhouse gas emissions.<sup>57</sup>

In the European Union, the 2009 Directive on the promotion of the use of energy from renewable sources (the Renewable Energy Directive)<sup>58</sup> requires that each EU Member State

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<sup>50</sup> See MABEE & SADLER, FROM 1ST TO 2ND GENERATION BIOFUEL TECHNOLOGIES, *supra* note 34, at 6, 18–19.

<sup>51</sup> See HLPE, BIOFUELS AND FOOD SECURITY, *supra* note 29, at 27–32; Wise and Cole, *Mandating Food Insecurity*, *supra* note 29, at 14.

<sup>52</sup> 42 U.S.C. § 7545(o) (2009).

<sup>53</sup> See Powers, *King Corn*, *supra* note 46, at 668.

<sup>54</sup> See Jamie Konopacky, *Refueling Biofuel Legislation: Incorporating Social Sustainability Principles to Protect Land Rights*, 30 WIS. INT'L L.J. 401, 405 (2012).

<sup>55</sup> See 42 U.S.C. §7545(o)(2)(B)(ii) (2009).

<sup>56</sup> See Powers, *King Corn*, *supra* note 46, at 672–73, 697–98 (explaining how the statute and regulations perpetuate the dominance of corn-based ethanol in US transportation fuels); 40 C.F.R. §80.1403 (explaining which facilities are exempt from or presumptively in compliance with the 20 percent greenhouse gas reduction requirement). After 2022, the EPA administrator is required to consider several economic and environmental factors in setting blending volumes, including the impacts of biofuels on air and water quality, wetlands, rural economic development, job creation, wildlife habitat, and food prices. See 42 U.S.C. §7545(o)(2)(B)(ii)(I), (V) (2009).

<sup>57</sup> See Powers, *King Corn*, *supra* note 46, at 673.

<sup>58</sup> See Directive on the promotion of the use of energy from renewable resources, Council Directive 2009/28/EC [2009] OJ L140/16 (Renewable Energy Directive).

derive at least 10 percent of its transportation fuels from biofuels by 2020.<sup>59</sup> While the Renewable Energy Directive does establish sustainability criteria for biofuels,<sup>60</sup> these criteria are purely environmental and do not address the social and human rights impacts of biofuels, including the impact on the right to food.<sup>61</sup> However, in April 2015, in response to concerns about the right to food implications of the diversion of significant amounts of land from food cultivation to biofuels production, the European Parliament imposed a 7 percent cap on the contribution of food-based biofuels to the EU's biofuel mandate.<sup>62</sup>

Although 64 countries have now adopted biofuel mandates or targets, the United States and the European Union are the key drivers of biofuel markets, producing and consuming enormous quantities of biofuels and outsourcing biofuels production to the Global South in order to comply with their ambitious mandates.<sup>63</sup> The United States, the world's largest producer and consumer of biofuels, accounts for over 40 percent of the global production of biofuels,<sup>64</sup> consisting primarily of corn-based ethanol.<sup>65</sup> However, due to the requirement that a significant percentage of its mandate be fulfilled by biofuels with lower life-cycle greenhouse gas emissions than corn-based ethanol, the United States will have to import significant amounts of food-based biofuels (most likely sugar-based ethanol from Brazil) in order to meet its biofuels target by 2022.<sup>66</sup> The European Union currently uses 65 percent of its vegetable oil to produce biodiesel, imports significant biofuel feedstocks from the Global South, and will have to increase the level of imports in order to fulfill its mandate by 2020.<sup>67</sup>

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<sup>59</sup> See *ibid.* art. 3(4).

<sup>60</sup> See *ibid.* art. 17. For example, the Directive prohibits the manufacture of biofuels from land with high biodiversity (such as primary forest) and from wetlands and peatlands. See *ibid.* art. 17(3), (4).

<sup>61</sup> See Konopacky, *Refueling Biofuel Legislation*, *supra* note 54, at 408. While the Renewable Energy Directive does establish a special commission to report every two years on the social impacts of biofuel production both within and beyond the European Union, it does not require affirmative measures to prevent human rights abuses.

<sup>62</sup> See *EU Parliament Sets Cap on Crop-Based Biofuels*, CLIMATE POLICY OBSERVER (May 4, 2015), available at <http://climateobserver.org/eu-parliament-sets-cap-crop-based-biofuels/>.

<sup>63</sup> See Wise and Cole, *Mandating Food Insecurity*, *supra* note 29, at 12, 25–30.

<sup>64</sup> See *ibid.* at 12, 25.

<sup>65</sup> See *ibid.* at 7.

<sup>66</sup> See *ibid.* at 25.

<sup>67</sup> See *ibid.* at 29–30; Global Agricultural Information Network, *GAIN Report 26* (June 1, 2017), available at [https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Biofuels%20Annual\\_The%20Hague\\_EU-28\\_6-19-2017.pdf](https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Biofuels%20Annual_The%20Hague_EU-28_6-19-2017.pdf).

### 3.3 Biofuels and Food

The rise of biofuels coincides with financial speculation in agricultural commodity markets that has increased food prices and contributed to food insecurity.<sup>68</sup> After the collapse of the US housing bubble in 2007, many investors shifted their wealth into agricultural commodity markets, contributing to the 2008 global food price crisis.<sup>69</sup> In response to the deregulation of over-the-counter (OTC) derivatives (such as commodity index funds) following the passage of the US Commodity Futures Modernization Act in 2000, commodity index funds sold by commercial banks became a popular investment vehicle.<sup>70</sup> As a small number of commodity traders came to dominate the agricultural derivatives trade, the global food system became increasingly vulnerable to price fluctuations based on the decisions of these traders on behalf of large banks and their clients.<sup>71</sup> The failure of governments to adequately regulate investments in agricultural commodities increased market volatility, posing significant risks to low-income food purchasers (including small farmers) and to net-food-importing Southern nations.<sup>72</sup>

The success of the biofuels industry is a testament to the power of well-organized lobbying by powerful corporations.<sup>73</sup> Agriculture is generally a poor investment due to the relative inelasticity of food demand among wealthy consumers, the limited demand among poor consumers in the Global South, and the oversupply of food on global markets (caused by Northern agricultural subsidies). However, aggressive government promotion of the biofuels industry in the United States and the European Union has enhanced the profitability of the newly

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<sup>68</sup> See generally Philip McMichael, *Biofuels and the Financialization of the Global Food System*, in *FOOD SYSTEMS FAILURES: THE GLOBAL FOOD CRISIS AND THE FUTURE OF AGRICULTURE* (Christopher Rosin, Paul Stock, and Hugh Campbell eds., 2012).

<sup>69</sup> See JENNIFER CLAPP, *FOOD* 141 (2011); Peter Wahl, *The Role of Speculation in the 2008 Food Price Bubble*, in *THE GLOBAL FOOD CHALLENGE: TOWARDS A HUMAN RIGHTS APPROACH TO TRADE AND INVESTMENT POLICIES* 70–71 (2009); Frederick Kaufman, *How Goldman Sachs Created the Food Crisis*, *FOREIGN POLICY* (April 27, 2011), available at <http://foreignpolicy.com/2011/04/27/how-goldman-sachs-created-the-food-crisis/>.

<sup>70</sup> See CLAPP, *FOOD*, *supra* note 69, at 139–44; McMichael, *Biofuels and the Financialization of the Global Food System*, *supra* note 68, at 63; OLIVIER DE SCHUTTER, *FOOD COMMODITIES SPECULATION AND FOOD PRICE CRISES* 5–6 (September 2010), available at [www2.ohchr.org/english/issues/food/docs/Briefing\\_Note\\_02\\_September\\_2010\\_EN.pdf](http://www2.ohchr.org/english/issues/food/docs/Briefing_Note_02_September_2010_EN.pdf); Nicola Colbran, *The Financialisation of Agricultural Commodity Futures Trading: The 2006–2008 Global Food Crisis*, in *THE CHALLENGE OF FOOD SECURITY* 173–74 (Rosemary Rayfuse and Nicole Weisflet eds., 2012).

<sup>71</sup> See CLAPP, *FOOD*, *supra* note 69, at 144.

<sup>72</sup> See Wahl, *The Role of Speculation in the 2008 Food Price Bubble*, *supra* note 69, at 75–76.

<sup>73</sup> See SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 77.

deregulated agricultural commodity derivatives by stimulating and guaranteeing new demand for agricultural products.<sup>74</sup> Furthermore, the US government's expenditure of billions of dollars per year to subsidize the production of biofuels has resulted in handsome profits for agribusiness giants (such as Archer Daniels Midland Company and Cargill) and for the corporations that invest in biofuels research (including Shell, ExxonMobil, Dow, Monsanto, DuPont, and Syngenta).<sup>75</sup> Regrettably, environmental protection has provided an appealing, yet spurious, justification for the transfer of wealth from taxpayers to agri-food and energy corporations (in the form of subsidies) in the United States and the European Union.<sup>76</sup>

The explosive growth of the biofuels industry has compromised the right to food by reducing food production and contributing to higher food prices.<sup>77</sup> Significant percentages of food crops are currently being diverted to the production of first-generation biofuels, and this trend is likely to increase in the major biofuel-producing countries if current mandates are fully implemented.<sup>78</sup> Countries in the Global North lack the domestic capacity to fulfill their biofuels mandates, and countries in the Global South have therefore expanded their biofuels production to meet this demand.<sup>79</sup> Indonesia and Malaysia, for example, have expanded oil palm plantations in order to export to the EU market. Various countries in Africa, Asia, and Latin America are likewise rapidly investing in biofuels at the expense of domestic food production.<sup>80</sup> The United

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<sup>74</sup> See McMichael, *Biofuels and the Financialization of the Global Food System*, *supra* note 68, at 66; SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 70–71.

<sup>75</sup> See SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 76–78.

<sup>76</sup> See *ibid.* at 91–94 (discussing the minimal climate benefits of biofuels, the availability of alternative strategies to address climate change, and the interest groups (“global biofuel assemblages”) that stand to benefit from biofuels mandates and subsidies).

<sup>77</sup> See HLPE, *BIOFUELS AND FOOD SECURITY*, *supra* note 29, at 13–15, 55–73; see generally KELLY STONE ET AL., ACTIONAID INTERNATIONAL, *MANDATING HUNGER: THE IMPACTS OF BIOFUELS MANDATES AND TARGETS* (2015), available at [www.actionaidusa.org/sites/files/actionaid/mandatinghunger-report-actionaid-lores\\_0.pdf](http://www.actionaidusa.org/sites/files/actionaid/mandatinghunger-report-actionaid-lores_0.pdf); *Another Inconvenient Truth: How Biofuels Policies Are Deepening Poverty and Accelerating Climate Change* (Oxfam, Oxfam Briefing Paper No. 114, June 2008), available at [www.oxfam.org.hk/content/98/content\\_3535tc.pdf](http://www.oxfam.org.hk/content/98/content_3535tc.pdf); C. Ford Runge and Benjamin Senauer, *How Biofuels Could Starve the Poor*, 86 FOREIGN AFF. 41 (May/June 2007).

<sup>78</sup> See Wise and Cole, *Mandating Food Insecurity*, *supra* note 29, at 9, 35.

<sup>79</sup> See SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 83; Wise and Cole, *Mandating Food Insecurity*, *supra* note 29, at 23, 25–30.

<sup>80</sup> See SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 82–83.

States and the European Union are anticipated to remain the primary drivers of demand for first-generation biofuels.<sup>81</sup>

#### 4. BIOFUELS, THE ENVIRONMENT, AND THE RIGHT TO FOOD

The biofuels policies of the United States and the European Union are producing environmental injustice in the Global South by ravaging local ecosystems, depressing food production, and depriving vulnerable communities of access to the land and water necessary to produce food.

##### 4.1 Biofuels and the Environment

The expansion of biofuels cultivation to satisfy US and EU demand has had negative environmental consequences for countries in the Global South, including polluted and depleted local water supplies and the exacerbation of climate change through deforestation.<sup>82</sup> In Indonesia and Malaysia, for example, vast tracts of tropical forests and peatlands have been destroyed and replaced by monocultural oil palm plantations, releasing greenhouse gases, and threatening a variety of species with extinction.<sup>83</sup> In 2015, the uncontrolled burning of Indonesian forests to clear land for pulpwood and palm oil sparked one of the worst environmental disasters of the year. The fires released more greenhouse gases than Germany's annual carbon dioxide emissions, blanketed the region (including the neighboring countries of Singapore, Thailand, Malaysia, and the Philippines) in smog and haze, caused a public health emergency, and threatened countless wildlife species, including orangutans, leopards, bears, and tigers.<sup>84</sup> In

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<sup>81</sup> See Wise and Cole, *Mandating Food Insecurity*, *supra* note 29, at 35.

<sup>82</sup> See Tokar, *Biofuels and the Global Food Crisis*, *supra* note 1, at 126; SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 100; Fargione et al., *Land Clearing and the Biofuel Carbon Debt*, *supra* note 38.

<sup>83</sup> See Tokar, *Biofuels and the Global Food Crisis*, *supra* note 1, at 127; SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 51–52, 102–3.

<sup>84</sup> See, e.g., *Indonesia Burning: Forest Fires Predicted to Be Worst on Record*, *GUARDIAN* (October 28, 2015), available at [www.theguardian.com/world/ng-interactive/2015/oct/28/indonesia-burning-forest-fires-predicted-to-be-worst-on-record](http://www.theguardian.com/world/ng-interactive/2015/oct/28/indonesia-burning-forest-fires-predicted-to-be-worst-on-record); George Monbiot, *Indonesia Is Burning: So Why is the World Looking Away*, *GUARDIAN* (October 30, 2015), available at [www.theguardian.com/commentisfree/2015/oct/30/indonesia-fires-disaster-21st-century-world-media](http://www.theguardian.com/commentisfree/2015/oct/30/indonesia-fires-disaster-21st-century-world-media); Matt Osborn et al., *Indonesia Forest Fires: How the Year's Worst Environmental Disaster Unfolded*,



Brazil, the expansion of sugarcane, soy, and animal feed production for biofuels have contributed to the destruction of the Amazon rainforest as well as the biodiverse mixture of savannah and woodland known as the *cerrado*.<sup>85</sup> From the sugarcane fields of Brazil to the cornfields of the United States, many biofuels also place significant pressure on local soil and water resources, thereby limiting the water available for local consumption and food production, contaminating water supplies with pesticides and herbicides, and accelerating soil erosion through intensive monocultural production.<sup>86</sup> In sum, biofuels degrade soil and water, exacerbate climate change, and destroy biodiversity, all of which threaten food production.

## 4.2 Biofuels, Land-Grabbing, and the Right to Food

In addition to their impact on food prices and on the environment, biofuels are also triggering an explosion of large-scale leases or purchases of Southern agricultural lands on terms that may deprive current users and occupiers of land, water, and other food-producing resources.<sup>87</sup>

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GUARDIAN (December 1, 2015), available at [www.theguardian.com/environment/ng-interactive/2015/dec/01/indonesia-forest-fires-how-the-years-worst-environmental-disaster-unfolded-interactive](http://www.theguardian.com/environment/ng-interactive/2015/dec/01/indonesia-forest-fires-how-the-years-worst-environmental-disaster-unfolded-interactive). In addition to demand for Indonesian palm oil from abroad, the Indonesian government subsidizes palm oil-based biodiesel for domestic consumption in order to reduce oil imports. See *Government Levies Palm Oil Exports to Fund Biodiesel Push*, JAKARTA POST (April 6, 2015), available at [www.thejakartapost.com/news/2015/04/06/govt-levies-palm-oil-exports-fund-biodiesel-push.html](http://www.thejakartapost.com/news/2015/04/06/govt-levies-palm-oil-exports-fund-biodiesel-push.html).

<sup>85</sup> See Tokar, *Biofuels and the Global Food Crisis*, *supra* note 1, at 127.

<sup>86</sup> See *ibid.* at 127; SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 100; see Powers, *King Corn*, *supra* note 46, at 683–84; ELIZABETH CUSHION, ADRIAN WHITEMAN, AND GERHARD DIETERLE, THE WORLD BANK, *BIOENERGY DEVELOPMENT: ISSUES AND IMPACTS FOR POVERTY AND NATURAL RESOURCE MANAGEMENT* 119 (2010), available at <http://siteresources.worldbank.org/INTARD/Resources/Bioenergy.pdf>; OECD AND FAO, *OECD-FAO AGRICULTURAL OUTLOOK 2011–2020*, 88–89 (2011), available at [www.oecd-ilibrary.org/docserver/download/5111041e.pdf?expires=1457916513&id=id&accname=ocid194760&checksum=B68B67D63DEEC124FCD74246B464B49D](http://www.oecd-ilibrary.org/docserver/download/5111041e.pdf?expires=1457916513&id=id&accname=ocid194760&checksum=B68B67D63DEEC124FCD74246B464B49D).

<sup>87</sup> See HLPE, *BIOFUELS AND FOOD SECURITY*, *supra* note 29, at 77–87; AZIZ ELBEHRI ET AL., FAO, *BIOFUELS AND THE SUSTAINABILITY CHALLENGE: A GLOBAL ASSESSMENT OF SUSTAINABILITY ISSUES, TRENDS, AND POLICIES FOR BIOFUELS AND RELATED FEEDSTOCKS* 89 (2013), available at [www.fao.org/docrep/017/i3126e/i3126e.pdf](http://www.fao.org/docrep/017/i3126e/i3126e.pdf); see generally WARD ANSWEUW ET AL., *LAND RIGHTS AND THE RUSH FOR LAND: FINDINGS OF THE GLOBAL COMMERCIAL PRESSURES ON LAND RESEARCH PROJECT* (Tim Bending & David Wilson eds., 2012), available at [www.landcoalition.org/sites/default/files/documents/resources/ILC%20GSR%20report\\_ENG.pdf](http://www.landcoalition.org/sites/default/files/documents/resources/ILC%20GSR%20report_ENG.pdf); LORENZO COTULA, SONJA VERMEULEN, REBECA LEONARD, AND JAMES KEELEY, FAO, INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT (IIED), AND INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD), *LAND GRAB OR DEVELOPMENT OPPORTUNITY? AGRICULTURAL*

According to data gathered by the Land Matrix, an independent land monitoring initiative, the production of biofuels and other export crops has triggered approximately 49 million hectares of land transfers. More than 20 million additional hectares are under negotiation.<sup>88</sup> Africa remains the principal target of these land grabs, but South America has recently become a close second.<sup>89</sup> Indeed, contrary to claims that biofuels will promote energy security by reducing dependence on petroleum from conflict-ridden countries in the Middle East, many of the countries targeted for land-grabbing (e.g., Somalia, Eritrea, Sudan, and the Democratic Republic of the Congo) are notorious for political instability, lack of democracy, and weak adherence to the rule of law.<sup>90</sup>

Transnational corporations have orchestrated many of these land grabs, capitalizing on the growing demand for biofuels. Foreign investors (including Northern investment banks, hedge funds, and pension funds) speculate on cheap but rapidly appreciating Southern agricultural lands. Middle-income Southern countries (e.g., China, India, Saudi Arabia, Qatar, and South Korea) seek to invest in the offshore production of food to offset price volatility on international food markets and domestic scarcity of fertile land and irrigation water.<sup>91</sup> While most of the land grabs have been spearheaded by Northern enterprises, certain middle-income Southern nations (including India, Brazil, South Africa, and China) have come to play a significant role in the global land rush, generating significant South-South tensions.<sup>92</sup>

These large-scale land deals threaten the livelihoods of small farmers in the targeted Southern countries by evicting them from lands traditionally used for food cultivation,

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INVESTMENT AND INTERNATIONAL LAND DEALS IN AFRICA (2009), available at [www.ifad.org/pub/land/land\\_grab.pdf](http://www.ifad.org/pub/land/land_grab.pdf); Alexandra Spielloch and Sophia Murphy, *Agricultural Land Acquisitions: Implications for Food Security and Poverty Alleviation*, in *LAND GRAB? THE RACE FOR THE WORLD'S FARM LAND* (Michael Kugelman and Susan L. Levenstein eds., 2009), available at [www.wilsoncenter.org/sites/default/files/ASIA\\_090629\\_Land%20Grab\\_rpt.pdf](http://www.wilsoncenter.org/sites/default/files/ASIA_090629_Land%20Grab_rpt.pdf).

<sup>88</sup> See Land Matrix, <http://landmatrix.org/en/>.

<sup>89</sup> See ANSWEEUW ET AL., *BIOFUELS AND THE SUSTAINABILITY CHALLENGE*, *supra* note 87, at 23; see Land Matrix, <http://landmatrix.org/en/get-the-detail/by-target-region/>.

<sup>90</sup> Chidi Oguamanam, *Sustainable Development in the Era of Bioenergy and Agricultural Land Grab*, in *INTERNATIONAL ENVIRONMENTAL LAW AND THE GLOBAL SOUTH* 246 (Shawkat Alam, Sumudu Atapattu, Carmen G. Gonzalez, and Jona Razzaque eds., 2015).

<sup>91</sup> See Spielloch and Murphy, *Agricultural Land Acquisitions*, *supra* note 87, at 41–42; ANSWEEUW ET AL., *BIOFUELS AND THE SUSTAINABILITY CHALLENGE*, *supra* note 87, at 21; CLAPP, *FOOD*, *supra* note 69, at 150–51; Oguamanam, *Sustainable Development in the Era of Bioenergy*, *supra* note 90, at 237–55.

<sup>92</sup> See LORENZO COTULA, *THE GREAT AFRICAN LAND GRAB? AGRICULTURAL INVESTMENTS AND THE GLOBAL FOOD SYSTEM* 55–67 (2013); see generally TOMASO FERRANDO, *TRANSNATIONAL INSTITUTE, LAND GRABBING UNDER THE COVER OF LAW: ARE BRICS-SOUTH RELATIONSHIPS ANY DIFFERENT?* (2014), available at [www.tni.org/files/download/shifting\\_power-land.pdf](http://www.tni.org/files/download/shifting_power-land.pdf).

contaminating or depleting the local water supply through the industrial production of food or biofuel feedstocks for export, and depriving them of access to grazing lands, fisheries, forests, and other essential natural resources.<sup>93</sup> For example, small farmers and herders whose traditional ownership or usufruct rights are not recognized by the state may be evicted or forcibly relocated by government officials, foreign investors, or local elites seeking to lease or sell these lands to foreign investors.<sup>94</sup> The capital-intensive, export-oriented industrial farms that supplant small subsistence-based production may diminish local food availability; exacerbate poverty by reducing rural employment; pollute the local water supply with pesticide and fertilizer runoff; accelerate soil erosion through intensive cultivation; intensify greenhouse gas emissions; and deprive local communities of water needed for drinking, cooking, bathing, and irrigation.<sup>95</sup>

Local communities often lack legal recourse to prevent dispossession or to obtain compensation for the loss of lands and livelihoods.<sup>96</sup> In Africa, the epicenter of land-grabbing, national laws generally vest ownership of rural lands in the government or customary chiefs rather than in the communities that use the land.<sup>97</sup> Government officials and local elites frequently welcome foreign agricultural investment and collaborate with foreign investors to evict local residents in order to enhance personal wealth and power.<sup>98</sup> Governments typically negotiate land purchase and lease agreements behind closed doors without consulting local land users or conducting social and environmental impact assessments.<sup>99</sup> Many of these contracts contain “stabilization clauses” entitling the foreign investor to compensation for any economic losses caused by the government’s modification of the legal framework applicable to the investment, thereby discouraging the state from promulgating new laws and regulations to

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<sup>93</sup> See Spieldoch and Murphy, *Agricultural Land Acquisitions*, *supra* note 87, at 43–48.

<sup>94</sup> Raul Q. Montemayor, *Overseas Farmland Investments: Boon or Bane for Farmers in Asia?*, in LAND GRAB? THE RACE FOR THE WORLD’S FARM LAND 101–2 (Michael Kugelman and Susan L. Levenstein eds., 2009); Olivier De Schutter, *The Green Rush: The Global Race for Farmland and the Rights of Land Users*, 52 HARV. INT’L L.J. 501, 537 (2011).

<sup>95</sup> Ruth Meinzen-Dick and Helen Markelova, *Necessary Nuance: Toward a Code of Conduct in Foreign Land Deals*, in LAND GRAB? THE RACE FOR THE WORLD’S FARM LAND 74 (Michael Kugelman and Susan L. Levenstein eds., 2009); Montemayor, *Overseas Farmland Investments*, *supra* note 94, at 102–5; Spieldoch and Murphy, *Agricultural Land Acquisitions*, *supra* note 87, at 46–47.

<sup>96</sup> See COTULA, *THE GREAT AFRICAN LAND GRAB?*, *supra* note 92, at 99–100.

<sup>97</sup> See *ibid.* at 27, 86–87, 90–101.

<sup>98</sup> See LORENZO COTULA, *Land Grabbing in the Shadow of the Law: Legal Frameworks Regulating the Global Land Rush*, in THE CHALLENGE OF FOOD SECURITY 218 (Rosemay Rayfuse and Nicole Weisflet eds., 2012).

<sup>99</sup> See COTULA, *THE GREAT AFRICAN LAND GRAB?*, *supra* note 92, at 112–13.

protect the local environment and the human rights of its citizens.<sup>100</sup>

These inequities are often compounded by international investment agreements that protect the assets of foreign investors from government actions that might diminish their value while providing no redress to local communities harmed by the actions of foreign investors (such as the right to bring a claim in the foreign investor's home state).<sup>101</sup> Bilateral investment treaties between the host state (where the investment is located) and the foreign investor's home state typically prohibit direct and indirect expropriation, guarantee fair and equitable treatment of the foreign investor and the right to export the goods produced, and permit the foreign investor to bypass the domestic legal system in the event of a dispute by initiating arbitration proceedings against the host state.<sup>102</sup> These provisions may deter the host state from enacting labor, health and safety, environmental, and human rights legislation in order to avoid claims for compensation from foreign investors for economic losses resulting from this legislation.<sup>103</sup> For example, the fair and equitable treatment obligation requires the host state to honor the foreign investor's "legitimate expectations" arising from the land transaction even if these expectations (such as water to irrigate crops) are not spelled out in the land purchase agreement.<sup>104</sup> If the host state reallocates water rights in order to ensure that area residents have enough water for drinking, bathing, and small-scale agriculture, the foreign investor may be entitled to financial compensation.<sup>105</sup> Similarly, if the host state responds to domestic food shortages by restricting the investor's ability to export agricultural products, the host state may be required to compensate the foreign investor even if the export restrictions are authorized under the WTO and

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<sup>100</sup> See *ibid.* at 116–17.

<sup>101</sup> See Kate Miles, *International Investment Law: Origins, Imperialism and Conceptualizing the Environment*, 21 *COLO. J. INT'L ENV'T'L L. & POL'Y* 1, 40–44 (2010); Carmen G. Gonzalez, *Bridging the North-South Divide: International Environmental Law in the Anthropocene*, 32 *PACE ENV'T'L L. REV.* 407, 413 (2015).

<sup>102</sup> See CARIN SMALLER AND HOWARD MANN, IISD, *A THIRST FOR DISTANT LANDS: FOREIGN INVESTMENT IN AGRICULTURAL LAND AND WATER* 11–13 (2009), available at [www.iisd.org/pdf/2009/thirst\\_for\\_distant\\_land.pdf](http://www.iisd.org/pdf/2009/thirst_for_distant_land.pdf).

<sup>103</sup> See Miles, *International Investment Law*, *supra* note 101, at 40–44.

<sup>104</sup> See SMALLER AND MANN, *A THIRST FOR DISTANT LANDS*, *supra* note 102, at 12; UN Department of Economic and Social Affairs (UNDESA), *Foreign Land Purchases for Agriculture: What Impact on Sustainable Development?* 3 (Sustainable Dev. Innovation Brief No. 8, January 2010), available at <https://docs.google.com/gview?url=http://sustainabledevelopment.un.org/content/documents/no8.pdf&embedded=true>.

<sup>105</sup> SMALLER AND MANN, *A THIRST FOR DISTANT LANDS*, *supra* note 102, at 16–17.

other applicable free trade agreements.<sup>106</sup>

Beyond their immediate impact on food-insecure populations, these land grabs hasten the South's transition to large-scale, capital-intensive industrial agriculture<sup>107</sup> at a time when scientists and policy-makers are increasingly promoting small-scale sustainable agriculture in food-insecure countries as a means of fulfilling the right to food and addressing climate change. For example, the United Nations Conference on Trade and Development (UNCTAD) published a major report in 2013 recommending a paradigm shift away from industrial agriculture and toward sustainable, regenerative agricultural production systems that enhance the productivity of small-scale farmers.<sup>108</sup> Numerous studies have demonstrated the ability of sustainable agriculture to increase agricultural yields in Asia, Africa, and Latin America while improving environmental quality, decreasing dependence on external inputs, and preserving the traditional agro-ecological knowledge of small farmers and indigenous communities.<sup>109</sup> Additional studies have emphasized the ability of sustainable agriculture to enhance climate change mitigation and adaptation by reducing dependence on agrochemical and energy inputs, enhancing soil fertility, diversifying plant species and genetic resources, and increasing the water retention capacity of soils.<sup>110</sup>

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<sup>106</sup> UNDESA, *Foreign Land Purchases for Agriculture*, *supra* note 104, at 4.

<sup>107</sup> See SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 62–63; ASBJØRN EIDE, FAO, *THE RIGHT TO FOOD AND THE IMPACT OF LIQUID BIOFUELS (AGROFUELS)* 17–18 (2008) (explaining how biofuels production favors large-scale plantations).

<sup>108</sup> See generally UNCTAD, *TRADE AND ENVIRONMENT REVIEW 2013, WAKE UP BEFORE IT IS TOO LATE: MAKE AGRICULTURE TRULY SUSTAINABLE NOW FOR FOOD SECURITY IN A CHANGING CLIMATE* (2013), available at [http://unctad.org/en/PublicationsLibrary/ditcted2012d3\\_en.pdf](http://unctad.org/en/PublicationsLibrary/ditcted2012d3_en.pdf).

<sup>109</sup> See Olivier De Schutter, *Report Submitted by the Special Rapporteur on the Right to Food*, para. 20, UN Doc. A/HRC/16/49 (December 2010), available at [www2.ohchr.org/english/issues/food/docs/A-HRC-16-49.pdf](http://www2.ohchr.org/english/issues/food/docs/A-HRC-16-49.pdf); UNCTAD and UNEP, *Organic Agriculture and Food Security in Africa*, UN Doc. UNCTAD/DITC/TED/2007/15 (2008), available at [http://unctad.org/en/docs/ditcted200715\\_en.pdf](http://unctad.org/en/docs/ditcted200715_en.pdf); Carolyn Badgley et al., *Organic Agriculture and the Global Food Supply*, 22 *RENEWABLE AGRIC. & FOOD SYSTEMS* 86 (2007); Jules N. Pretty et al., *Resource Conserving Agriculture Increases Yields in Developing Countries*, 40 *ENVTL SCI. & TECH.* 1114 (2006); IFAD, *THE ADOPTION OF ORGANIC AGRICULTURE AMONG SMALL FARMERS IN LATIN AMERICA AND THE CARIBBEAN* (2003), available at [www.ifad.org/evaluation/public\\_html/eksyst/doc/thematic/pl/organic.htm](http://www.ifad.org/evaluation/public_html/eksyst/doc/thematic/pl/organic.htm); NICHOLAS PARROTT AND TERRY MARSDEN, *THE NEW GREEN REVOLUTION: ORGANIC AND AGROECOLOGICAL FARMING IN THE SOUTH* (2002); Jules N. Pretty, *Reducing Food Poverty by Increasing Sustainability in Developing Countries*, 95 *AGRIC. ECOSYSTEMS & ENV'T* 217 (2003); Jules N. Pretty and Rachel Hine, *The Promising Spread of Sustainable Agriculture in Asia*, 24 *NAT. RESOURCES F.* 107 (2002); Jules N. Pretty, *Can Sustainable Agriculture Feed Africa? New Evidence on Progress, Processes and Impacts*, 1 *ENV'T, DEV., & SUSTAINABILITY* 253 (1999).

<sup>110</sup> See generally IIED WORKING GROUP ON CLIMATE CHANGE AND DEVELOPMENT, *OTHER WORLDS ARE POSSIBLE: HUMAN PROGRESS IN AN AGE OF CLIMATE CHANGE* 40–42 (2009), available at <http://pubs.iied.org/pdfs/10022IIED.pdf>; INTERNATIONAL TRADE CENTER UNCTAD/WTO AND

In sum, biofuels are not simply an alternative technology designed to address climate change. Rather, they represent the perpetuation and intensification of an industrial model of agricultural production that threatens the planet's ecosystems, contributes to climate change, and exacerbates food insecurity in the Global South. The offshore cultivation of biofuel feedstocks also replicates patterns observed in the manufacturing sector, namely, the outsourcing of economic activity to the Global South in order to capitalize on lower labor costs and weak environmental standards while imposing the social and environmental externalities on vulnerable local communities.<sup>111</sup>

## 5. LEGAL AND POLICY INTERVENTIONS TO PROMOTE ENVIRONMENTAL JUSTICE

An environmental justice framework provides a morally compelling language with which to discuss biofuel policy and may offer insights on the multiplicity of legal strategies necessary to address the problems posed by bioenergy. Biofuels contribute to *distributive injustice* because the benefits are reaped by commercial lenders, financial speculators, oil companies, agribusiness corporations, and affluent consumers, who can maintain their car-dependent, energy-intensive lifestyles by simply replacing fossil fuels with food-based biofuels.<sup>112</sup> The costs are borne disproportionately by the world's most food-insecure populations who confront rising food prices and eviction from the lands they have traditionally used for farming, foraging, and grazing. Biofuels are an example of *procedural injustice* because the US and EU biofuel mandates are being implemented without an adequate assessment of their environmental and human rights impacts and without any input from the communities in the Global South who bear the bulk of these impacts. Similarly, the large-scale land acquisitions are transpiring without the

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RESEARCH INSTITUTE OF ORGANIC AGRICULTURE, ORGANIC FARMING AND CLIMATE CHANGE (2007), available at [www.intracen.org/uploadedFiles/intracenorg/Content/Exporters/Sectoral\\_Information/Agricultural\\_Products/Organic\\_Products/Organic\\_Farming\\_Climate\\_Change.pdf](http://www.intracen.org/uploadedFiles/intracenorg/Content/Exporters/Sectoral_Information/Agricultural_Products/Organic_Products/Organic_Farming_Climate_Change.pdf). See also Miguel A. Altieri and Victor Manuel Toledo, *The Agroecological Revolution in Latin America: Rescuing Nature, Ensuring Food Sovereignty and Empowering Peasants*, 38 J. PEASANT STUD. 587, 596–97 (2011) (discussing the social and environmental benefits of agroecology, including its ability to foster climate change resilient agricultural systems).

<sup>111</sup> See McMichael, *Biofuels and the Financialization of the Global Food System*, *supra* note 68, at 65–67.

<sup>112</sup> See SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 91–92 (discussing the negligible climate benefits of biofuels and suggesting alternative strategies to reduce the global North's massive greenhouse gas emissions).

free, prior, and informed consent of the affected populations. Biofuel policies exemplify *corrective injustice* because the communities deprived of the right to food (by rising food prices) or evicted from their lands (due to land-grabbing) often have no legal recourse either in the country where they reside or in other legal fora. Finally, biofuels policies are inextricably intertwined with larger *social justice* issues, including an international economic order that has historically enriched the Global North at the expense of nature and of the planet's most vulnerable communities.<sup>113</sup>

A justice-oriented approach to bioenergy must promote the human right to food, regulate the corporations that dominate the global food system, curb financial speculation in agricultural commodity markets, and halt land-grabbing. This section discusses several necessary reforms in order to mitigate the environmental injustice caused by the bioenergy policies of the United States and the European Union.

## 5.1 Compliance with Right to Food Obligations

The right to food is enshrined in the UDHR, the ICESCR, and the United Nations Convention on the Rights of the Child.<sup>114</sup> All states, even those who are not parties to treaties with binding right-to-food obligations, are required to protect the right to food pursuant to the UDHR, which is generally regarded as part of customary international law or as a codification of general principles of law reflected in national constitutions of a large number of states and legal systems

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<sup>113</sup> See Gonzalez, *Environmental Justice, Human Rights and the Global South*, *supra* note 2, at 159–63 (examining the contemporary and historic features of the global economic order that impoverish the global South and threaten the planet's fragile ecosystems).

<sup>114</sup> See UDHR, *supra* note 18; ICESCR, *supra* note 18; Convention on the Rights of the Child, *supra* note 18. While the United States is not a party to the Convention on the Rights of the Child, it is a signatory to the ICESCR and must therefore act consistently with the object and purpose of the treaty. See *Current Status of Ratifications for the International Covenant on Economic, Social and Cultural Rights*, U.N. TREATY COLLECTION, [https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg\\_no=IV-3&chapter=4&lang=en](https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-3&chapter=4&lang=en). Furthermore, the United States must comply with the UDHR, which is widely regarded as a legally binding codification of general principles of international law, or alternatively as customary international law. See Olivier de Schutter, *A Human Rights Approach to Trade and Investment*, Paper Presented at Conference: Confronting the Global Food Challenge: Finding New Approaches to Trade and Investment that Support the Right to Food (November 2008), available at [www.iatp.org/files/451\\_2\\_104504.pdf](http://www.iatp.org/files/451_2_104504.pdf).

in the world.<sup>115</sup>

International human rights law requires states to comply with their right-to-food obligations not just within their own borders, but also extraterritorially.<sup>116</sup> The extraterritorial nature of human rights obligations is derived, in part, from the customary international law principles affirmed in the *Trail Smelter Arbitration*<sup>117</sup> which prohibit states from using their territory in ways that harm persons or property located in another state.<sup>118</sup> In addition, Article 56 of the Charter of the United Nations imposes affirmative extraterritorial obligations on all states by requiring all UN members to “take joint and separate action in cooperation with the Organization” to ensure the realization of human rights.<sup>119</sup> Finally, Article 2(1) of the ICESCR requires states to “take steps, individually and through international assistance and cooperation” to progressively realize the rights set forth in the treaty, including the right to food.<sup>120</sup>

In order to comply with the right-to-food obligations under international human rights law, the United States and the European Union should actively discourage the production and

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<sup>115</sup> See generally, de Schutter, *A Human Rights Approach to Trade and Investment*, *supra* note 114; HERNANDEZ-TRUYOL & POWELL, *JUST TRADE*, *supra* note 22, at 56–57. See also Narula, *The Right to Food*, *supra* note 22, at 780–91 (using human rights treaties, UN resolutions, humanitarian law, multi-state declarations, constitutional provisions, and jurisprudence in national courts as evidence that the right to food is part of customary international law).

<sup>116</sup> See SARAH JOSEPH, *BLAME IT ON THE WTO? A HUMAN RIGHTS CRITIQUE* 245–64 (2011) (discussing the legal and moral arguments in favor of the recognition of extraterritorial human rights obligations); Carmen G. Gonzalez, *International Economic Law and the Right to Food*, in *RETHINKING FOOD SYSTEMS: STRUCTURAL CHALLENGES, NEW STRATEGIES AND THE LAW* 168–69 (Nadia C.S. Lambek et al. eds., 2014); Windfuhr, *The World Food Crisis and the Right to Adequate Food*, *supra* note 19, at 130–56. In 2011, a distinguished group of human rights experts developed a series of principles to clarify the extraterritorial obligations of states. See generally ETOS Consortium, *Maastricht Principles on Extraterritorial Obligations of States in the Area of Economic, Social and Cultural Rights* (September 2011), available at [www.etoconsortium.org/nc/en/main-navigation/library/maastricht-principles/?tx\\_drblob\\_pi1%5BdownloadUid%5D=23](http://www.etoconsortium.org/nc/en/main-navigation/library/maastricht-principles/?tx_drblob_pi1%5BdownloadUid%5D=23); Oliver de Schutter et al., *Commentary to the Maastricht Principles on Extraterritorial Obligations of States in the Area of Economic, Social and Cultural Rights*, 34 *HUM. RTS. Q.* 1084 (2012).

<sup>117</sup> *Trail Smelter Arbitration* (United States v. Canada), 3 R.I.A.A. 1905, 1963–81 (Perm. Ct. Arb. 1941).

<sup>118</sup> See HERNANDEZ-TRUYOL & POWELL, *JUST TRADE*, *supra* note 22, at 287 (discussing the human rights implications of the *Trail Smelter Arbitration*). The duty to refrain from causing transboundary harm was subsequently re-affirmed in Principle 2 of the Rio Declaration on Environment and Development and Principle 21 of the Stockholm Declaration. See UN Conference on Environment and Development, *Rio Declaration on Environment and Development*, Principle 2, UN Doc. A/CONF.151/26/Rev. 1 (Vol. I), annex I (August 12, 1992); UN Conference on the Human Environment, *Stockholm Declaration*, Principle 21, UN Doc. A/CONF.48/14/Rev. 1, ch. 1 (June 16, 1972).

<sup>119</sup> UN Charter, Art. 56, [www.un.org/en/charter-united-nations/](http://www.un.org/en/charter-united-nations/). These obligations are extraterritorial because they require countries to work together toward the realization of human rights in their own countries and in other countries.

<sup>120</sup> ICESCR, Art. 2, para. 1.



consumption of first- and second-generation biofuels that compete with food production for land and water, including biofuels produced from non-food energy crops (such as jatropha and switchgrass). First, the United States and the European Union should phase out the subsidies, tax credits, and other incentives that make the production of these biofuels so lucrative.<sup>121</sup> Second, the United States and the European Union should abolish renewable energy mandates for transportation fuels until third-generation biofuels that do not compete with food have been developed, tested, and scrutinized for their environmental and human rights impacts and have been commercially produced.<sup>122</sup> Third, the United States and the European Union should devise mechanisms to limit demand for biofuels that interfere with food production. Even if the subsidies, tax credits, and mandates are eliminated, biofuels will remain attractive if prices for competing fossil fuels rise.<sup>123</sup> The United States and the European Union should devise regulatory barriers to the expansion of first and second-generation biofuels that threaten food security, including taxes and outright prohibitions.<sup>124</sup> Fourth, the United States and the European Union should invest in research to expedite the development of third-generation biofuels, such as algae-based biofuels, that do not make use of land or water that could be used for food production. Any new technology should be subjected to rigorous environmental and human rights impact assessments, including assessments of the impacts in the Global South. These assessments should adopt methodologies that include input from local populations likely to be affected and should take into account impacts on food security, land rights, and climate change.

Finally, instead of relying on technological fixes to the climate crisis, the United States and the European Union should adopt alternative methods of reducing greenhouse gas emissions in the transportation sector, including more stringent fuel efficiency standards; reduced speed

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<sup>121</sup> The United States has made modest progress in this direction by allowing the tax credit for corn-based ethanol and biodiesel to expire in 2011. However, other tax credits (such as those for biodiesel infrastructure) and smaller government agency incentive programs remain in place. See Wise and Cole, *Mandating Food Insecurity*, *supra* note 29, at 14, 25. While the mandates have not been abolished, the United States did reduce its original mandated volume in 2017. See US EPA, *2017 Amendments for the Renewable Fuel Standard*, [www.epa.gov/renewable-fuel-standard-program/2017-announcements-renewable-fuel-standards](http://www.epa.gov/renewable-fuel-standard-program/2017-announcements-renewable-fuel-standards).

<sup>122</sup> For a discussion of the promise of algal biofuels and potential environmental challenges, see generally Heather Hunziker, *Finding Promise in Pond Scum: Algal Biofuels, Regulation, and the Potential for Environmental Problems*, 42 TEX. ENVTL. L. J. 59 (2011).

<sup>123</sup> See HLPE, BIOFUELS AND FOOD SECURITY, *supra* note 29, at 62–63 (explaining how changes in fossil fuel prices influence the production and consumption of biofuels).

<sup>124</sup> For a discussion of the legality under the GATT/WTO of human rights-based restrictions on trade, see JOSEPH, BLAME IT ON THE WTO?, *supra* note 116, at 91–130.

limits; subsidies and incentives to promote public transit and car sharing; congestion charges; bicycle-friendly policies; and electric vehicles powered by renewable energy.<sup>125</sup> These alternative approaches would enable affluent countries to take responsibility for their disproportionate contribution to climate change rather than investing in false solutions that enrich Northern banks, agribusiness corporations, oil companies, and financial speculators at the expense of the world's most vulnerable communities.

## 5.2 Regulation of Corporate Conduct and Financial Speculation

One of the greatest obstacles to the realization of the right to food is corporate domination of the global food system. From land-grabbing to obtaining perverse biofuels mandates and subsidies, transnational corporations are significant contributors to global food insecurity. The governance challenges of Southern states and the failure of Northern states to regulate the conduct of their transnational corporations enable these business entities to evade responsibility for their right-to-food violations. While a complete discussion of the legal strategies that might be adopted to achieve corporate accountability is beyond the scope of this chapter, possible approaches include enhancing the human rights enforcement capacity of Southern countries; holding Northern countries liable for failing to regulate the extraterritorial conduct of their corporations; strengthening the mechanisms available in the corporation's home state to adjudicate human rights violations abroad; negotiating treaties that impose human rights obligations directly on corporations; and mitigating the market power of transnational corporations through the aggressive use of anticompetition law.<sup>126</sup>

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<sup>125</sup> See SMITH, *BIOFUELS AND THE GLOBALIZATION OF RISK*, *supra* note 1, at 91–92.

<sup>126</sup> For a detailed discussion of these options, see generally Robert McCorquodale and Penelope Simons, *Responsibility Beyond Borders: State Responsibility for Extraterritorial Violations by Corporations*, 70 *MODERN L. REV.* 598 (2007); PENELOPE SIMONS AND AUDREY MACKLIN, *THE GOVERNANCE GAP: EXTRACTIVE INDUSTRIES, HUMAN RIGHTS, AND THE HOME STATE ADVANTAGE* (2014); Gonzalez, *Environmental Justice and International Environmental Law*, *supra* note 2, at 92–95; Human Rights Council Res. 26/9, *Elaboration of an International Legally Binding Instrument on Transnational Corporations and Other Business Enterprises with Respect to Human Rights*, UN Doc. A/HRC/RES/26/9 (July 14, 2014); UNCTAD, *MODEL LAW ON COMPETITION*, UN Doc. TD/RBP/CONF.5/7/Rev.3, UN Sales No. E-07.II.D.7 (2007); Tristan Feunteun, *Cartels and the Right to Food: An Analysis of States' Duties and Options*, 18 *J. INT'L ECON. L.* 341, 366–81 (2015). One of the more intriguing suggestions is holding states responsible for the human rights violations of their corporations where a state has actual

Furthermore, it is essential to curb financial speculation in agricultural commodity markets that contributes to rising food prices. The United States has been slow to regulate the financial services industry despite the fact that financial speculation in agricultural commodity markets has increased the volatility of food prices to the detriment of low-income consumers and Southern nations dependent upon food imports.<sup>127</sup> The European Union, by contrast, adopted the Markets in Financial Instruments Directive (MiFID) in 2007 to regulate speculation in agricultural commodity markets by imposing position limits and other mechanisms to curb speculative trading.<sup>128</sup> However, the MiFID has been criticized for broad exemptions that allow certain groups, such as energy companies, insurance firms, and pension funds, to evade many of the Directive's requirements.<sup>129</sup> Since releasing the MiFID, the European Union has sought to close some of these exemptions and impose additional restrictions on commodity speculation.<sup>130</sup> However, implementation of these reforms has been delayed until 2018 due to pressure from the measure's opponents.<sup>131</sup>

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knowledge of potential human rights violations (caused by land-grabbing or export dumping, for example) and either fails to exercise due diligence to prevent such violations or enters into trade and investment agreements that curtail the affected state's ability to protect the human rights of its citizens. See McCorquodale and Simons, *Responsibility Beyond Borders*, *supra* note 126, at 619–23.

<sup>127</sup> See TIMOTHY A. WISE AND SOPHIA MURPHY, INSTITUTE OF AGRICULTURE AND TRADE POLICY, *RESOLVING THE FOOD CRISIS: ASSESSING GLOBAL POLICY REFORMS SINCE 2007* 30–31 (2012), available at [www.ase.tufts.edu/gdae/Pubs/rp/ResolvingFoodCrisis.pdf](http://www.ase.tufts.edu/gdae/Pubs/rp/ResolvingFoodCrisis.pdf). Even though the Dodd Frank Wall Street Reform and Consumer Protection Act of 2010 attempted to curb excessive speculation on the prices of raw materials and agricultural products, the promulgation of regulations has been bogged down by the demanding evidentiary standards imposed by the courts on financial rule-making. See generally Leslie Josephs, *CFTC Nears New Rules to Curb Excessive Speculation*, WALL ST. J. (January 22, 2015), available at [www.wsj.com/articles/cftc-nears-new-rules-to-curb-excessive-speculation-1421964452](http://www.wsj.com/articles/cftc-nears-new-rules-to-curb-excessive-speculation-1421964452); James W. Williams, *Dodging Dodd-Frank: Excessive Speculation, Commodities Markets, and the Burden of Proof*, 37 L. & POL'Y 119 (2015); Ben Geier, *Four Years on, Dodd-Frank Is Still Unfinished*, FORTUNE (July 21, 2014), available at <http://fortune.com/2014/07/21/four-years-on-dodd-frank-is-still-unfinished/>.

<sup>128</sup> Directive 2004/39/EC. See generally Umberto Marengo, *The Effects of the Financial Crisis on EU Financial Regulation for Commodities*, REV. ENV'T, ENERGY & ECON. (May 14, 2015), available at <http://dx.doi.org/10.7711/feemre3.2015.05.002>;

<sup>129</sup> See DIEGO VALIANTE AND KAREL LANNON, CENTER FOR EUROPEAN POLICY STUDIES, *MiFID 2.0: CASTING NEW LIGHT ON EUROPE'S CAPITAL MARKETS* 123 n.170 (2011).

<sup>130</sup> Jonathan Herbst et al., *MiFID Review: Commodities*, NORTON ROSE FULBRIGHT (October 2011), available at [www.nortonrosefulbright.com/knowledge/publications/57724/mifid-review-commodities](http://www.nortonrosefulbright.com/knowledge/publications/57724/mifid-review-commodities).

<sup>131</sup> See Jared Bernstein, *The Case for a Tax on Financial Transactions*, NEW YORK TIMES (July 22, 2015), available at [www.nytimes.com/2015/07/22/opinion/the-case-for-a-tax-on-financial-transactions.html](http://www.nytimes.com/2015/07/22/opinion/the-case-for-a-tax-on-financial-transactions.html); European Union, Banking and Finance, *Updated Rules for Markets in Financial Instruments: MiFID II*, available at [http://ec.europa.eu/finance/securities/isd/mifid2/index\\_en.htm](http://ec.europa.eu/finance/securities/isd/mifid2/index_en.htm) (extending the application date of the MiFID II rules until January 3, 2018).

While a full discussion of this topic is beyond the scope of this chapter, the United States and the European Union might consider the policy recommendations put forth by the UNCTAD. These recommendations include increasing transparency in physical markets, commodity futures exchanges, and OTC markets; tightening regulations on financial investors (such as position limits); introducing a transaction tax system; and creating mechanisms to deal with speculative bubbles.<sup>132</sup> Above all, it is essential for the United States and the European Union to coordinate their policies and to promote the adoption of these measures on a worldwide basis.

### 5.3 Reforming International Investment Law

International investment law has facilitated the land grabs that currently threaten small farmers in the Global South. Investment agreements between the host state and the foreign investor's home state often compound the weaknesses in national laws that enable governments and local elites to sell or lease large tracts of land to foreign investors for the offshore production of food and biofuels without consulting with local communities or taking into account their customary land rights.<sup>133</sup> Grassroots demands for the return of contested lands to the affected communities could conflict with investment treaty obligations requiring states to protect the rights of foreign investors.<sup>134</sup> Government efforts to protect the water rights of local communities or to adopt more robust environmental and human rights impact assessments could be challenged by foreign investors as breaches of the expropriation clauses and fair and equitable dealing clauses of investment agreements.<sup>135</sup> States may be required to compensate foreign investors or go through expensive and time-consuming arbitration proceedings to defend themselves against investor claims if they attempt to resist land-grabbing and protect the rights of local communities.<sup>136</sup>

The crux of the problem is that model investment agreements developed by capital-exporting countries restrict the regulatory authority of host states to protect the rights and livelihoods of their citizens while imposing no corresponding obligations on foreign investors to

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<sup>132</sup> See *Don't Blame the Physical Markets: Financialization is the Root Cause of Oil and Commodity Price Volatility 4* (UNCTAD, Policy Brief No. 25, September 2012).

<sup>133</sup> See LORENZO COTULA, INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT, LAND RIGHTS AND INVESTMENT TREATIES: EXPLORING THE INTERFACE 27–29 (2015).

<sup>134</sup> See *ibid.* at 29.

<sup>135</sup> See *ibid.* at 30.

<sup>136</sup> See *ibid.* at 31, 36.

comply with human rights and environmental standards. These model investment agreements also provide no means for host states to raise such non-compliance as a counterclaim in arbitration proceedings.<sup>137</sup> Instead of perpetuating international investment law's single-minded focus on protecting the interests of investors and capital-exporting countries, the United States and the European Union should develop model agreements that better balance investor rights and responsibilities and provide host countries with greater policy space to respect, protect, and fulfill the right to food.

## 5.4 Moratorium on Land-Grabbing

Governments and international organizations have proposed a variety of legal frameworks to regulate land-grabbing. Perhaps the most well-known framework is the World Bank's proposed Principles for Responsible Agricultural Investment (PRAI).<sup>138</sup> This framework, like other codes of conduct favored by mainstream development organizations, generally treats these large land transactions as economic development opportunities and seeks to maximize their potential benefits by promoting respect for existing land rights, enhancing transparency and community consultation, and using the employment, technology transfer, infrastructure development, and agro-export opportunities created by these investments to increase rural incomes and combat poverty.<sup>139</sup> By contrast, many civil society organizations (including farmers' movements, human rights organizations, and local and indigenous communities) oppose these investments on the ground that the large-scale industrial agricultural model advanced by these land deals dispossesses small farmers, degrades the environment, and exacerbates food insecurity.<sup>140</sup> As one observer points out:

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<sup>137</sup> See Penelope Simons, *International Law's Invisible Hand and the Future of Corporate Accountability for Violations of Human Rights*, 3 J. HUM. RTS. & ENV'T 5, 18 (2012).

<sup>138</sup> See UNCTAD, *The Principles for Responsible Agricultural Investment (PRAI)*, <http://unctad.org/en/Pages/DIAE/G-20/PRAI.aspx>. This proposal is also sponsored by UNCTAD, FAO, and IFAD.

<sup>139</sup> See *ibid.*; Oguamanam, *Sustainable Development in the Era of Bioenergy*, *supra* note 90, at 252–53.

<sup>140</sup> See generally Saturnino M. Borras, Jennifer Franco, and Chunyu Wang, *The Challenge of Global Governance of Land Grabbing: Changing International Agricultural Context and Competing Political Views and Strategies*, 10 GLOBALIZATION 161 (2013).

[F]ull compliance with the PRAI principles is unlikely to produce positive outcomes for the poor and will, at best, entrench the pre-existing inequitable status quo. For example, securing “existing” land rights does not benefit landless peasants and future generations. Ensuring participatory and transparent land acquisition processes will make no difference if power relations remain asymmetrical. The same is true of social and environmental impact assessments, regardless of their outcomes ... Simply stated, the PRAI reflects an attempt to preserve the interests of capital, facilitate land acquisition, and sustain an agro-industrial model with marginal regard to complex environmental, economic, and social relations that sustain the livelihoods and culture of local and indigenous farming communities.<sup>141</sup>

In addition to these concerns, the PRAI is, in the end, a form of industry self-regulation with no sanctions for non-compliance.<sup>142</sup> Instead of addressing land-grabbing on an ad hoc, project-by-project basis governed by a set of non-binding principles, countries in the Global North and the Global South should collaborate to impose a moratorium on these large-scale land transactions. This should be done in order to allow host governments, home governments, civil society, and international institutions to develop more effective norms and oversight mechanisms.

## 6. CONCLUSION

The biofuel laws and policies of the United States and the European Union have violated the right to food of some of the world’s poorest people by increasing food prices and triggering large-scale land acquisitions that deprive local communities of access to land, water, and food. Biofuels represent the intensification of an industrial model of agricultural production that destroys local ecosystems, contributes to climate change, and exacerbates food insecurity. Ironically, the life-cycle greenhouse gas emissions of many biofuels exceed those of the fossil fuels they replace. Biofuel mandates also forestall more enlightened policies to reduce greenhouse gas emissions in the transportation sector, such as policies that promote public transit. As one observer candidly acknowledges:

[W]e are transferring ... the risks of climate change, and of mitigation on to the poorest people in the most vulnerable parts of the world. We are, in effect,

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<sup>141</sup> Oguamanam, *Sustainable Development in the Era of Bioenergy*, *supra* note 90, at 254.

<sup>142</sup> *Ibid.*

expecting the rural poor in the developing world to alter their land-use patterns [and] their livelihoods ... in order that we may maintain our consumption and energy-use patterns for as long as possible.<sup>143</sup>

An environmental justice framework reveals the complex ways that food, energy, and climate policies intersect to inflict violence on the environment and on the planet's most vulnerable human beings.

In order to promote environmental justice and comply with their right-to-food obligations, the United States and the European Union should reduce, and eventually eliminate, the subsidies, tax incentives, and mandates that have fostered the explosive growth of food-based biofuels. In addition, they should affirmatively erect regulatory barriers to the expansion of first- and second-generation biofuels that compete with food production. Finally, the United States and the European Union should address the regulatory gaps and failures that have fueled financial speculation in agricultural commodity markets, land-grabbing, and the quasi-monopolistic power of transnational corporations in the global food system. If we are to persuade the United States and the European Union to modify their biofuel policies, it is essential to reframe the debates over biofuels as a matter of human rights and environmental justice rather than a technical problem to be resolved by scientific experts.

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<sup>143</sup> SMITH, BIOFUELS AND THE GLOBALIZATION OF RISK, *supra* note 1, at 95.