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## Sustainable Development and National Security

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# SUSTAINABLE DEVELOPMENT AND NATIONAL SECURITY

SANFORD E. GAINES\*

## INTRODUCTION

Ten years ago, the National Security Strategy of the United States observed:

Not all security risks are . . . [immediate or] military in nature. Transnational phenomena such as terrorism, narcotics trafficking, environmental degradation, natural resource depletion, rapid population growth and refugee flows also have security implications for both present and long term American policy. In addition, an emerging class of transnational environmental issues are increasingly affecting international stability and consequently will present new challenges to U.S. strategy.<sup>1</sup>

By officially linking environmental issues and terrorism with national security, the 1994-1995 National Security Strategy was drawing on a then-growing body of environmental security analysis.<sup>2</sup> One of the leading analysts of this school, Canadian scholar Thomas Homer-Dixon, emphasized the increasing scarcity of renewable resources such as cropland, fresh water, and forests

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<sup>1</sup> President William J. Clinton, A NATIONAL SECURITY STRATEGY OF ENGAGEMENT AND ENLARGEMENT (Feb. 1995), at 1, *available at* [http://webharvest.gov/peth04/20041029025809/www.dtic.mil/doctrine/jel/research\\_pubs/nss.pdf](http://webharvest.gov/peth04/20041029025809/www.dtic.mil/doctrine/jel/research_pubs/nss.pdf) (last visited Jan. 21, 2006).

<sup>2</sup> *See id.* at 133-34.

that are required to meet the needs of growing populations as the critical factor connecting environmental and security concerns:

This environmental scarcity helps generate chronic, diffuse, subnational violence—exactly the kind of violence that bedevils conventional military institutions. Around the world, we see conventional armies pinned down and often utterly impotent in the face of interethnic violence or attacks by ragtag bands of lightly armed guerillas and insurgents. As yet, environmental scarcity is not a major factor behind most of these conflicts, but we can expect it to become a more important influence in coming decades because of larger populations and higher per capita resource consumption rates.<sup>3</sup>

I will call the three-step logical chain of causation behind Homer-Dixon's analysis the "standard model" of environmental security studies. In this model, environmental degradation, combined with overpopulation in foreign countries, deepens poverty and engenders civil and ethnic strife over access to increasingly scarce resources.<sup>4</sup> Poverty and civil strife in turn lead to political instability and the migration of "environmental refugees."<sup>5</sup> Instability and migration in developing countries set the stage for armed civil and inter-ethnic conflict, posing tangible threats to the national security of developed countries such as the United States.<sup>6</sup> Homer-Dixon was candid about his narrow focus at the time, arguing that "'environmental security' encompasses an almost unmanageable array of sub-issues," especially if security is broadly defined.<sup>7</sup> To limit his research and analysis to a manageable scale, Homer-Dixon focused

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<sup>3</sup> THOMAS F. HOMER-DIXON, *ENVIRONMENT, SCARCITY, AND VIOLENCE* 13 (Princeton U. Press 1999) [hereinafter *VIOLENCE*].

<sup>4</sup> *See id.* at 12.

<sup>5</sup> *See id.* at 16.

<sup>6</sup> *See id.* at 12.

<sup>7</sup> *Id.* at 3.

exclusively on one aspect of the problem: "conflict," specifically "violent . . . conflict."<sup>8</sup>

The narrow range of issues considered by Homer-Dixon and other writers who contributed to the standard environmental security literature of the 1990s left gaps too large for their conclusions to continue to be persuasive. Even at the time, other analysts questioned whether the fundamental source of civil and ethnic violence really is a competition for access to scarce resources, noting the frequent instances of ethnic or civil struggle for control over abundant resources of high value.<sup>9</sup> In the post-9/11 world, moreover, the tendency toward a singular focus on environmental scarcity as a source of conflict leaves us without a satisfactory explanation for radical Islamic terrorism, which has roots in the educated classes of the Arab world and little apparent relationship to (or interest in) the politics of scarcity and environmental degradation.<sup>10</sup>

Happily, the student editors who conceived the 2005 *William and Mary Environmental Law and Policy Review* symposium, "Global Terrorism and Its Impact on Sustainable Development: Exploring the Linkages Between Sustainable Development, Security and Terrorism," framed the question in terms of sustainable development. This article builds on the premise that the substitution of the broad term "sustainable development" for the simpler term "environment" in the field of environmental security is deeply significant because "sustainable

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<sup>8</sup> *See id.*

<sup>9</sup> Compare VIOLENCE, *supra* note 3 with Michael Watts, Petro-Violence: Community, Extraction, and Political Ecology of a Mythic Commodity, in VIOLENT ENVIRONMENTS 189, 189-91 (Nancy Lee Peluso & Michael Watts eds., Cornell U. Press 2001) (discussing violence in Nigeria, Ecuador, Kazakhstan and other oil-rich countries) [hereinafter VIOLENT ENVIRONMENTS]; and Susan C. Stonich & Peter Vandergeest, Violence, Environment, and Industrial Shrimp Farming, in VIOLENT ENVIRONMENTS 261 (describing violent conflict in Thailand over coastal mangrove swamps as lucrative shrimp farming locations).

<sup>10</sup> But see Jeffrey D. Sachs, *The Strategic Significance of Global Inequality*, 9 ECSP REP. 27, 34 (2003) (asserting a link between economic failure—including environmental degradation—and state failure, which in turn leads to terrorism).

development" reincorporates multiple social, economic, and political factors shaping environmental conditions and environmental governance, which were missing from the simplified analysis of environmental scarcity and violent conflict. The social and economic dimensions of sustainable development also invite a broader conception of "security." Exploring security linkages in the sustainable development frame of reference thus opens our minds to broader, more complex, and ultimately more meaningful connections between personal security and the patterns of economic activity and social organization that affect human use and abuse of the environment. The time is right to go beyond Homer-Dixon's "violent conflict" conception and embrace the analytically "unmanageable array of sub-issues" he sidestepped.<sup>11</sup> This will evoke conceptually powerful notions of human security relevant to nations and peoples.

Part I of this article briefly reviews the standard model of early environmental security studies. In the process, it shows why that discourse is unpersuasive about the environment-security linkage, necessitating new ways of conceptualizing the relationship. Part II develops definitions of the two elements to be linked: "sustainable development" and "security." Sustainable development has social and economic elements that make it a more complex—but more powerful—explanatory concept, reaching beyond the simple analysis of environmental resources and conditions that typify the environmental security literature. With the social and economic elements of sustainable development in mind, security is appropriately broadened to embrace much more than the traditional state-centered and fundamentally military issues often associated with "national security." Using these broad definitions of sustainable development and security, Part III argues that there are meaningful, indeed critical, linkages between sustainable development and security, emphasizing the underappreciated role of unsustainable patterns of consumption in the developed world in contributing to our increasing insecurity. Part III also draws normative conclusions about how the public

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<sup>11</sup> VIOLENCE, *supra* note 3, at 3.

policies of the United States, both domestic and foreign, need radical reform in order to obtain the security benefits of a full commitment to sustainable development.

## I. ENVIRONMENT AND SECURITY IN THE STANDARD MODEL

In the 1980s, emerging patterns in world affairs drew attention to the possible connection between environmental conditions and national security. On the security side, the military establishment of the developed world (which for decades had focused on the strategic East-West struggle for world domination between free market democracy and communism) was beginning to confront the diffuse security challenges of a world increasingly divided between North and South, from famine (Somalia), ethnic warfare (Sudan, Rwanda, and Yugoslavia), low-level insurgencies (Central America), border conflicts (Ethiopia and Somalia), and large movements of people across borders as refugees or economic migrants.<sup>12</sup> Concurrently, deeper scientific understanding and the accelerating pace of environmental change brought to public attention the vulnerability of even the more industrialized and developed countries to deterioration in environmental conditions.<sup>13</sup> Desertification, stratospheric ozone depletion, declines in fisheries, species extinction, tropical deforestation, and climate change filled an exploding agenda of international environmental challenges<sup>14</sup> while HIV/AIDS forcibly demonstrated the susceptibility of populations everywhere to pandemic disease. Part I.A. reviews the

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<sup>12</sup> A NATIONAL SECURITY STRATEGY, *supra* note 1. President Clinton's Strategy mentions most of these areas of tension or conflict, and identifies a role for the United States to "encourage peaceful resolution of internal disputes" and to engage in "humanitarian intervention." *Id.* at 31-32.

<sup>13</sup> Symbolic of the new awareness was Time magazine's choice of the "Endangered Earth" as the "Planet of the Year" for 1988. TIME, Jan. 2, 1989, cover.

<sup>14</sup> Rajendra Ramlogan, *The Environment and International Law: Rethinking the Traditional Approach*, 3 VT. J. ENVTL L. (2001-02), available at <http://www.vjel.org/articles/articles/ramlogan.html> (tabulating 107 multilateral environmental agreements during the 1970s and 113 during the 1980s). *Id.* at n.28.

standard model environmental security literature that emerged in the 1980s and blossomed in the 1990s.

The standard environmental security model, however, did not go unchallenged. One line of criticism came from orthodox or neoconservative theorists;<sup>15</sup> another from internationalists;<sup>16</sup> and a third from left-leaning social and political scientists.<sup>17</sup> Part I.B. examines these criticisms.

#### A. *The Early Environmental Security Model*

As with any endeavor to reach a new understanding of the world, hindsight enables us to recognize forerunners who identified the major themes well before others began to build up a scholarly or popular literature on those themes. In environmental security studies, two forerunners from 1980 stand out: the *Global 2000 Report to the President*, prepared by government agencies at the request of Jimmy Carter;<sup>18</sup> and the Report of the Brandt Commission on International Development Issues.<sup>19</sup> *Global 2000*, encyclopedic in scope, made predictions about such core environmental factors as population growth, deforestation, desertification, and

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<sup>15</sup> See, e.g., YAHYA SADOWSKI, *THE MYTH OF GLOBAL CHAOS* (1998) [hereinafter *GLOBAL CHAOS*].

<sup>16</sup> Eric K. Stern, *The Case for Comprehensive Security*, in *CONTESTED GROUNDS: SECURITY AND CONFLICT IN THE NEW ENVIRONMENTAL POLITICS* 127, 138-40 (Daniel H. Deudney & Richard A. Matthew eds., SUNY Press 1999) [hereinafter *CONTESTED GROUNDS*] (discussing the globalist critique of comprehensive security).

<sup>17</sup> Nancy Lee Peluso & Michael Watts, Introduction to *VIOLENT ENVIRONMENTS*, *supra* note 9, at 5 (emphasizing the "political economy of access to and control over resources"); see also Richard Matthew, Mark Halle & Jason Spitzer, Introduction to *CONSERVING THE PEACE: RESOURCES, LIVELIHOODS AND SECURITY* 1, 10 (Richard Matthew, Mark Halle & Jason Spitzer eds., International Institute for Sustainable Development 2002), available at [http://www.iisd.org/pdf/2002/envsec\\_conserving\\_peace.pdf](http://www.iisd.org/pdf/2002/envsec_conserving_peace.pdf) [hereinafter *CONSERVING THE PEACE*].

<sup>18</sup> U.S. COUNCIL ON ENVTL. QUALITY AND U.S. DEP'T OF STATE, *THE GLOBAL 2000 REPORT TO THE PRESIDENT—ENTERING THE TWENTY-FIRST CENTURY* (1980) [hereinafter *GLOBAL 2000*].

<sup>19</sup> WILLY BRANDT ET AL., *NORTH-SOUTH: A PROGRAMME FOR SURVIVAL* (1980).

species loss—all of which have proven to be remarkably accurate.<sup>20</sup> It was also the first major study to identify climate change as an aspect of environmental change with profound ecological and social implications.<sup>21</sup> Noting that these environmental threats “are inextricably linked to some of the most perplexing and persistent problems in the world—poverty, injustice, and social conflict,”<sup>22</sup> the report pointed to the need for new initiatives “if worsening poverty and human suffering, environmental degradation, and international tension and conflicts are to be prevented.”<sup>23</sup>

At the same time, the Brandt Commission, focusing on the North-South issue of development, foresaw the possibility of “chaos” due to “mass hunger, economic disaster, environmental catastrophes and terrorism” and urged thinking beyond the “traditional threats to peace.”<sup>24</sup> Later in the 1980s, other environmental writers explored similar connections—for example, the link between environmental degradation and civil wars and insurgencies in Central America.<sup>25</sup>

In the late 1980s, just as the security landscape was undergoing a major transformation, global environmentalism emerged as a major policy consideration. Many new international environmental agreements were negotiated on issues ranging from hazardous waste management to conservation of biodiversity.<sup>26</sup>

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<sup>20</sup> See JAMES GUSTAVE SPETH, *RED SKY AT MORNING: AMERICA AND THE CRISIS OF THE GLOBAL ENVIRONMENT* 6-7 (2004). Professor Speth was one of the principal authors of *GLOBAL 2000*.

<sup>21</sup> *Id.* at 7-8.

<sup>22</sup> *GLOBAL 2000*, *supra* note 18, at 4.

<sup>23</sup> *Id.*

<sup>24</sup> BRANDT, *supra* note 19, at 13, (quoted in SPETH, *RED SKY*, *supra* note 20, at 8).

<sup>25</sup> See, e.g., NORMAN MYERS, *NOT FAR AFIELD: U.S. INTERESTS AND THE GLOBAL ENVIRONMENT* (1987); JANET WELSH BROWN, *IN THE U.S. INTEREST: RESOURCES, GROWTH, AND SECURITY IN THE DEVELOPING WORLD* (1990).

<sup>26</sup> Basel Convention on Transboundary Movements of Hazardous Waste and Their Disposal, *concluded* Mar. 22, 1989, 28 I.L.M. 657; Montreal Protocol on Substances that Deplete the Ozone Layer, *adopted* Sept. 16, 1987, 26 I.L.M. 1550; Convention on the Regulation of Antarctic Mineral Resource Activities, *concluded* June 2, 1988, 27 I.L.M. 859; Convention on Environmental Impact Assessment in a Transboundary Context, *adopted* Sept. 10, 1991, 30 I.L.M. 800 (Espoo Convention);



The World Commission on Environment and Development produced a powerful report that linked economic development, economic equity, and alleviation of poverty with environmental protection.<sup>27</sup> Meanwhile, the Communist Bloc unraveled in the autumn of 1989 and the Soviet Union itself dissolved into independent states soon thereafter, thus removing the enemy that had preoccupied North American and European security analysts for more than forty years. In response to these developments, the field of environmental security studies began to take shape.<sup>28</sup>

Popular writers seized on these new ideas, publicizing in particular a simple environmental security model which emphasized resource degradation and population growth in developing countries. The popular literature is famously represented by journalist Robert Kaplan's 1994 article, *The Coming Anarchy*, in which he declared boldly that "[i]t is time to understand The Environment [sic] for what it is: the national-security issue of the early twenty-first century."<sup>29</sup>

On a less polemic level, noted environmental commentator Jessica Tuchman Mathews wrote an article in *Foreign Affairs*, which brought the environmental security viewpoint directly to the attention of the foreign policy establishment.<sup>30</sup> This 1989 article, along with the work of many other environmental security scholars,<sup>31</sup> began to have significant influence at the highest policy

United Nations Framework Convention on Climate Change, *concluded* May 9, 1992, U.N. Doc. A/CONF.151/26, 31 I.L.M. 849 (1992); Convention on Biological Diversity, *concluded* June 5, 1992, 31 I.L.M. 818 (1992).

<sup>27</sup> WORLD COMM'N ON ENV'T AND DEV., OUR COMMON FUTURE 1, 1-23 (Oxford U. Press, 1987) [hereinafter OUR COMMON FUTURE].

<sup>28</sup> For a short history of environment and security studies, see CONSERVING THE PEACE, *supra* note 17, at 7-12.

<sup>29</sup> Robert D. Kaplan, *The Coming Anarchy: How Scarcity, Crime, Overpopulation, Tribalism, and Disease are Rapidly Destroying the Social Fabric of Our Planet*, 273 ATLANTIC MONTHLY 44, 58 (1994).

<sup>30</sup> Jessica Tuchman Mathews, *Redefining Security*, 68 FOREIGN AFF. 162 (1989).

<sup>31</sup> In addition to the work of the Toronto Group under Homer-Dixon, another comprehensive research project was conducted in Switzerland under the title "Environment and Conflicts Project" ("ENCOP"). See ENVIRONMENTAL DEGRADATION AS A CAUSE OF WAR (Günther Bächler et al. eds., 1996).

levels with the United States and its security allies in the North Atlantic Treaty Organization ("NATO") in the early 1990s.<sup>32</sup> Foreign and defense policy makers were receptive to these new ideas because other political and social currents of the day were leading to a thorough reconsideration of the key elements of national security strategy. In particular, the environmental explanation for growing conflict dovetailed with the contemporary popularity of "global chaos theory,"<sup>33</sup> which, after the demise of communism, gave the military defense establishment fresh justifications for maintaining a state of readiness against foreign threats.<sup>34</sup>

Although environmental issues were mentioned specifically in the 1991 National Security Strategy of the United States,<sup>35</sup> it was not until President Clinton came into office in 1993 that environmental security thinking was fully incorporated into national security policy. The Clinton Administration promptly created the post of deputy undersecretary of defense for environmental security and reorganized the National Security Council to include an office of environmental affairs.<sup>36</sup>

<sup>32</sup> The NATO work, done through its Committee on the Challenges of Modern Society, is described in *NATO, ENVIRONMENT AND SECURITY IN AN INTERNATIONAL CONTEXT* (Kurt M. Leitzmann & Gary D. Vest eds., 1999).

<sup>33</sup> "Global Chaos Theory" viewed ethnic and religious conflicts and clashes of culture emerging as the major threats to national security. The theory is summarized in *GLOBAL CHAOS*, *supra* note 15, at 15-19.

<sup>34</sup> See, e.g., *GLOBAL CHAOS*, *supra* note 15, at 69-72 (explaining the ethnic conflicts predicted by global chaos theorists such as Samuel Huntington and the "ecological version" of global chaos theory that emerged strongly in the State Department during the Clinton Administration).

<sup>35</sup> *NAT'L SECURITY STRATEGY OF THE UNITED STATES* (Aug. 1991), <http://www.fas.org/man/docs/918015-nss.htm>.

<sup>36</sup> For a good brief review of these early official developments, see Kent Hughes Butts, *The Case for DOD Involvement in Environmental Security*, in *CONTESTED GROUNDS*, *supra* note 16, at 109-11. It is interesting to note that the environment virtually has disappeared in the most recent (2002) version of the National Security Strategy; the only reference to it is in connection with free trade. The 2002 strategy gives some attention to the security value of economic development for developing countries and to conflicts over resources in Africa, but environmental conditions are not specifically mentioned in those contexts. George W. Bush, *THE NAT'L SECURITY STRATEGY OF THE UNITED STATES* 19

The basic thesis of environmental security analysis in the 1990s is best presented in Thomas Homer-Dixon's<sup>37</sup> comprehensive and intellectually rigorous book *Environment, Scarcity, and Violence*.<sup>38</sup> Homer-Dixon's own research and thinking about the sources of violence and insecurity has since evolved beyond his early emphasis on environmental conditions.<sup>39</sup> Nevertheless, his book offers a sophisticated model that captures many of the ideas propounded in the broader traditional literature.

At the outset of *Environment, Scarcity, and Violence*, Homer-Dixon deliberately rejects a broad interpretation of security.<sup>40</sup> He even argues that patterns of conflict entail too vast a topic for rigorous study; therefore he narrows his focus to violent conflict.<sup>41</sup> His book, then, examines "how environmental stress affects violent national and international conflict."<sup>42</sup> Homer-Dixon begins his analysis with the axiom that human societies are dependent for their survival on natural resources.<sup>43</sup> He notes that the poorer half of the human population is particularly dependent on renewable natural resources for food, fuel, and shelter.<sup>44</sup> Homer-Dixon then posits that resource scarcity is "an omnipresent feature of our existence."<sup>45</sup>

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(2002), available at <http://www.whitehouse.gov/nsc/nss.pdf> [hereinafter NAT'L SECURITY STRATEGY 2002].

<sup>37</sup> Homer-Dixon directs a peace and conflict studies program at the University of Toronto. He began publishing articles on environmental security as early as 1991.

<sup>38</sup> See *VIOLENCE*, *supra* note 3; see also *ECOVIOLENCE: LINKS AMONG ENVIRONMENT, POPULATION, AND SECURITY* (Thomas F. Homer-Dixon & Jessica Blitt eds., 1998) [hereinafter *ECOVIOLENCE*].

<sup>39</sup> THOMAS F. HOMER-DIXON, *THE INGENUITY GAP* 21 (2000) ("But once I was deep into the issue, I found that environmental problems cannot, by themselves, cause violence. They must combine with other factors, usually the failure of economic institutions or government.") [hereafter *THE INGENUITY GAP*].

<sup>40</sup> See *VIOLENCE*, *supra* note 3, at 3. I will return to this issue in Part II; it marks one disagreement I have with this analysis.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> *Id.* at 3-7.

<sup>44</sup> *Id.* at 13. The policy relevance of this essential truth is expressed most recently in the framework for assessment of the UN-sponsored MILLENNIUM ECOSYSTEM ASSESSMENT. See *MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: FRAMEWORK FOR ASSESSMENT* 71-84 (2003).

<sup>45</sup> *VIOLENCE*, *supra* note 3, at 47.

Homer-Dixon identifies three ways that resource scarcity can arise: (1) reduced supply, (2) increased demand, or (3) change in relative access by different groups.<sup>46</sup> He describes supply-induced scarcity as the result of a combination of population growth, use of technology, and per capita consumption outstripping (or degrading) the available resource supply.<sup>47</sup> Demand-induced scarcity is also directly attributable to increases in population and per capita consumption rates.<sup>48</sup> Thus, population growth figures heavily in Homer-Dixon's analysis, though he expends considerable effort to distinguish his overall analysis from the neo-Malthusian school associated with such commentators as Paul Ehrlich.<sup>49</sup> Homer-Dixon's third cause of scarcity occurs when social structures limit the poor's access to otherwise sufficient environmental resources.<sup>50</sup> He posits that access-related scarcity usually interacts with supply or demand scarcities, leading one social group to capture a resource or to marginalize another group ecologically by forcing them to use degraded or deficient resources.<sup>51</sup> Access to croplands exemplify this type of scarcity, with some groups in a particular society controlling the croplands with the best soil and water, forcing others to migrate to marginally productive lands.<sup>52</sup>

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<sup>46</sup> *Id.* at 48.

<sup>47</sup> This aspect of the analysis is known widely in the environmental literature as the 'IPAT' formula, holding that environmental impact (I) is the product of population (P), per capita consumption as indicated by affluence (A), and the technologies employed to produce the goods being consumed (T). Even if population and consumption increase, the overall environmental impact can be reduced with the use of better technologies. The promise of technology, or what Homer-Dixon more broadly terms ingenuity, is the basic argument of his most recent book. See THE INGENUITY GAP, *supra* note 39, at 3-4; see also VIOLENCE, *supra* note 3, at 49.

<sup>48</sup> See VIOLENCE, *supra* note 3, at 51.

<sup>49</sup> See PAUL R. EHRLICH, THE POPULATION BOMB (1968) (arguing that explosive world population growth was placing such demands on environmental resources that we would reach a crisis by the end of the twentieth century).

<sup>50</sup> VIOLENCE, *supra* note 3, at 48.

<sup>51</sup> *Id.* at 76-77.

<sup>52</sup> See *id.*

The next step in Homer-Dixon's logic is that environmental scarcity "often acts as a deep, underlying stressor of social systems,"<sup>53</sup> inducing social change. He identifies five critical social changes: (1) constraints on agricultural productivity, which affect health and welfare; (2) constraints on economic productivity, which also affect well-being; (3) migration; (4) social segmentation; and (5) disruption of social institutions.<sup>54</sup> The final step in his analysis asserts that scarcity-induced social changes lead to violent conflict.<sup>55</sup> Homer-Dixon emphasizes three forms of violence in his model: (1) simple scarcity conflicts (resource wars, such as over access to a fishery); (2) group identity conflicts (brought on by migration and social segmentation); and (3) insurgencies (arising most often out of some combination of segmentation and weakening of social institutions).<sup>56</sup> Homer-Dixon argues that interstate resource wars are unlikely,<sup>57</sup> but that group identity conflicts and insurgency are "important both in terms of their probable frequency in the future (which will rise . . . as scarcities worsen in some parts of the world) and their policy implications."<sup>58</sup>

### *B. Criticisms of the Traditional Environmental Security Model*

The environmental scarcity model propounded by Homer-Dixon and others did not go unchallenged. Three lines of criticism

<sup>53</sup> *Id.* at 81.

<sup>54</sup> *Id.* at 80-103.

<sup>55</sup> *See id.* at 80.

<sup>56</sup> *Id.* at 137.

<sup>57</sup> *Id.* at 5. But for an anecdotal example of how such conflicts can flare up, recall the Canadian Navy's seizure of a Spanish fishing vessel near the Newfoundland Grand Banks in 1995. Bryan McDonald & Ted Gaulin, *Environmental Change, Conflict, and Adaptation: Evidence from Cases* (2002), <http://www.gechs.uci.edu/McDonaldGaulinISA2002.pdf> (discussing the prelude to and the aftermath of the so-called Turbot War). A current inter-nation tension point over resources is the Chinese deployment of naval vessels in the East China Sea as part of a dispute between China and Japan over ownership of seabed oil and natural gas resources in the area. Norimitsu Onishi & Howard W. French, *Japan's Rivalry with China is Stirring a Crowded Sea*, N.Y. TIMES, Sept. 11, 2005, at A4.

<sup>58</sup> VIOLENCE, *supra* note 3, at 147.

quickly appeared in the writings of scholars and policy analysts. One commentator has styled these respectively as orthodox, globalist, and reformist criticisms.<sup>59</sup> The orthodox critics are national security traditionalists who view environmental security issues as a distraction from military preparedness.<sup>60</sup> The globalist critics voice concern that making the environment a national security issue will foment nationalism and undermine international cooperation.<sup>61</sup> The reformist critics question the environmental determinism of the environmental security literature, arguing that political and social inequities are more fundamental to the rise in violent conflict.<sup>62</sup> The apparent failure of the environmental scarcity model to anticipate or explain the types of violence and security threats that have emerged in the early years of the twenty-first century now must be added to these contemporaneous criticisms.

Orthodox and neoconservative theorists criticized the environmental scarcity model as part of their broader resistance to the attention given to the global chaos of subnational ethnic, nationalist, or secessionist violence as a primary security issue.<sup>63</sup> One analyst acidly suggests that ecological security thinking “cannibalized” global chaos theory and used it to influence security policy.<sup>64</sup> He writes scornfully that President Clinton’s first Secretary of State, Warren Christopher, “had become a fervent convert to the environmental perspective . . . .”<sup>65</sup> This critic also noted that Clinton himself had become enamored of global chaos theory, both in general and in the environmental version of it publicized in Robert Kaplan’s *Atlantic Monthly* article.<sup>66</sup> Clinton

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<sup>59</sup> Stern, *The Case for Comprehensive Security*, in CONTESTED GROUNDS, *supra* note 16, at 134-42.

<sup>60</sup> *Id.* at 134-38.

<sup>61</sup> *Id.* at 138-40.

<sup>62</sup> See, e.g., Nancy Peluso & Michael Watts, *Violent Environments: Responses*, 9 ECSP REP. 93 (2003) (arguing that the study of cases of violence “should begin with the precise and changing relations between political economy and mechanisms of access, control, and struggle over environmental resources”).

<sup>63</sup> See, e.g., GLOBAL CHAOS, *supra* note 15.

<sup>64</sup> *Id.* at 71.

<sup>65</sup> *Id.*

<sup>66</sup> Kaplan, *supra* note 29; see also GLOBAL CHAOS, *supra* note 15, at 72.

used a commencement address at the U.S. Naval Academy to warn of "a new world threatened with instability, even abject chaos . . . aggravated by environmental disaster, by abject hunger by mass migrations."<sup>67</sup> The core of the criticism from this quarter lies in conservatives' belief that a sound national security policy requires a coherent view of national security needs—a "grand strategy"—and that the world view propounded by global chaos theorists of various persuasions lacked such a unifying vision.<sup>68</sup> According to Sadowski, the result was a foreign policy that "tended to be cautious, reactive rather than proactive, or outright waffling."<sup>69</sup>

Another challenge to traditional environmental security analysis comes from globalists, who are concerned that the security focus of the theory appeals to nationalist self-interest and, thus, undermines a global approach to environmental protection.<sup>70</sup> One analyst of this school agrees with Homer-Dixon that "environmental degradation is not very likely to cause interstate wars," but uses this conclusion to argue against defining the environment as a national security issue.<sup>71</sup> Simon Dalby, a frequent writer on this topic, expresses a broader concern that, if the United States makes international environmental affairs into a national security issue, it could lead to hegemonic co-optation of environmental policy, and that environmental controls would become an instrument by which developed countries could maintain post-colonial domination of developing countries.<sup>72</sup> Part II, below, develops another part of Dalby's critique.

Yet another group of critics of the environmental security literature comprises mostly social and political scientists, who articulate two main problems. These critics do not deny that environmental degradation contributes to poverty and conflict, but

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<sup>67</sup> *Id.* (quoting President Clinton).

<sup>68</sup> *Id.* at 73.

<sup>69</sup> *Id.*

<sup>70</sup> See CONTESTED GROUNDS, *supra* note 16, at 138-40.

<sup>71</sup> Daniel H. Deudney, *Environmental Security: A Critique*, in CONTESTED GROUNDS, *supra* note 16, at 187, 190.

<sup>72</sup> Simon Dalby, *Threats from the South?: Geopolitics, Equity, and Environmental Security*, in CONTESTED GROUNDS, *supra* note 16, at 155, 163, 169.

they find that Homer-Dixon's emphasis on environmental factors and population growth ignores the socio-political root causes of violence.<sup>73</sup> According to these critics, scarcity of resources arises out of the relations of political economy with mechanisms of access, control, and struggle over resources.<sup>74</sup> Indeed, some sociologists and political scientists believe the evidence shows that resource abundance has closer ties to environmentally-related violence than scarcity.<sup>75</sup> Therefore, they consider inequitable access to resources and political oppression, rather than environmental scarcity, to be the primary driver of conflict. The reformists also worry about the association that arises between environmental security scholarship and the military security establishment.<sup>76</sup>

Deep and complex interactions among social and economic conditions, politics, and environmental degradation have in fact marked the evolution of both domestic and international environmental policy. The internationalist and reformist criticisms of an over-deterministic emphasis on environmental scarcity as a root cause of social violence thus have merit. In response to this criticism, environmental security analysts themselves have softened their deterministic tone. Homer-Dixon, for example, has moved away from his singular focus on environmental scarcity toward a broader, more nuanced, view of the challenges facing developing

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<sup>73</sup> Nancy Peluso & Michael Watts, *Violent Environments: Responses*, 9 ECSP REP. at 93 (2003), <http://wilsoncenter.org/topics/pubs/exchange.pdf> (arguing that Homer-Dixon's notion of scarcity is bereft of social specificity and that inspection of cases of violence necessitates a discussion of political economy) [hereinafter Peluso & Watts, *Responses*].

<sup>74</sup> Nils Petter Gleditsch, *Armed Conflict and the Environment: A Critique of the Literature*, 35 J. PEACE RES. 381 (1998); Nancy Lee Peluso & Michael Watts, *Violent Environments*, in *VIOLENT ENVIRONMENTS*, *supra* note 9, at 3, 5 (emphasizing the "political economy of access to and control over resources").

<sup>75</sup> Indra de Soysa, *The Resource Curse: Are Civil Wars Driven by Rapacity or Paucity?*, in *GREED AND GRIEVANCE: ECONOMIC AGENDAS IN CIVIL WARS* 113 (Mats Berdal & David M. Malone eds., 2000) (arguing that struggles for control of the wealth from abundant resources are a greater source of conflict than struggles over access to scarce resources).

<sup>76</sup> Peluso & Watts, *Responses*, *supra* note 73, at 94.



countries that includes social and political failures.<sup>77</sup> In a similar vein, Jared Diamond,<sup>78</sup> another writer occasionally accused of giving undue weight to strictly environmental factors,<sup>79</sup> describes environmentally-challenged societies that have succeeded in achieving sustainability and takes pains to point out that, far from being environmentally determinist, his book demonstrates that “while environmental conditions certainly make it more difficult to support human societies in some environments than in others, that still leaves much scope for a society to save or doom itself by its own actions.”<sup>80</sup>

From a twenty-first century perspective, the simple environmental scarcity model of threats to the national security of the United States or other industrial powers seems deficient for other reasons. First, most of the conflict and violence in the world at present does not directly threaten the national security of the United States or other developed countries. Sudan, Rwanda, the Congo, Nepal, the Philippines, Colombia, and Bolivia all are recent examples of group identity conflict, active insurgency, or both. Some of this violence has roots in deepening patterns of environmental scarcity and internal conflict over resources. Diamond, for example, attributes the 1994 violence in Rwanda to a combination of overpopulation and inequitable access to sufficient land to feed families and provide an income, in spite of fertile soils and favorable climate conditions for crops.<sup>81</sup> Yet, the developed world

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<sup>77</sup> See *supra* note 39.

<sup>78</sup> JARED DIAMOND, *COLLAPSE: HOW SOCIETIES CHOOSE TO FAIL OR SUCCEED* (2005) [hereinafter *COLLAPSE*].

<sup>79</sup> See Gregg Easterbrook, *There Goes the Neighborhood*, N.Y. TIMES, Sunday, Jan. 30, 2005, at 10-11 (reviewing *COLLAPSE*, *supra* note 78; accusing Diamond of generalizing from “environmental failures on isolated islands to environmental threats to society as a whole,” and failing to consider “society’s evolutionary arc”).

<sup>80</sup> *COLLAPSE*, *supra* note 78, at 438.

<sup>81</sup> *Id.* at 311-28. Homer-Dixon, interestingly, finds such a perspective too superficial and environmental scarcity peripheral, emphasizing instead political factors such as the insecurity of the elite and the regime. Valerie Percival & Thomas Homer-Dixon, *The Case of Rwanda*, in *ECOVIOLENCE*, *supra* note 38, at 201. For a first-person perspective reflecting a blend of these views, see SPETH,

scarcely can stir itself to care about these distant disturbances. They stir moral outrage and humanitarian impulses but, beyond that, there is a palpable reluctance to commit national security assets to their solution.<sup>82</sup> For the United States, the exception is Colombia, where active U.S. military and law enforcement involvement rests on issues of continued access to oil and the interdiction of drug trafficking.<sup>83</sup> However, the roots of the Colombian conflict have little to do with Homer-Dixon's scarcity-driven social breakdown.<sup>84</sup>

Second, the direct physical national security threat of terrorism to the North—as happened in New York, Madrid, and London in recent years—finds sustenance in a religious fundamentalism built on historical grievances, deep-rooted religious animosities, and a clash between traditional and modern conceptions of the world that have little to do with environmental degradation. Jeffrey Sachs argues that “terrorists prey on failed states, and state failure is closely related to economic failure.”<sup>85</sup> However, he views economic collapse and state failure as a contributor to, rather than a root cause of, environmental degradation.<sup>86</sup> We return to poverty as an issue of independent significance in Part II.

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RED SKY IN THE MORNING, *supra* note 20, at 122-23 (quoting a former Rwandan agriculture minister to the effect that environmental scarcities, which resulted from “complex interactions between high population pressure, land shortage and its inequitable distribution, and soil degradation,” precipitated a “socio-economic crisis that converged with the elites’ power rivalry and with a high rate of rural unemployment”).

<sup>82</sup> See Nicholas Kristol, *Dithering as Others Die*, N.Y. TIMES, June 26, 2004, at A13.

<sup>83</sup> Joel Brinkley, *Anti-Drug Gains in Colombia Don't Reduce Flow to U.S.*, N.Y. TIMES, Apr. 28, 2005, at A3; Juan Forero, *Safeguarding Colombia's Oil*, N.Y. TIMES, Oct. 22, 2004, at W1.

<sup>84</sup> See generally Winifred Tate, *Paramilitaries in Colombia*, 8 BROWN J. WORLD AFF. 163 (2001), available at <http://www.watsoninstitute.org/bjwa/archive/8.1/Essays/Tate.pdf>.

<sup>85</sup> Jeffrey D. Sachs, *The Strategic Significance of Global Inequality*, 9 ECSP REP. 27, 34 (2003).

<sup>86</sup> *Id.* at 31.

Third, the standard model of environmental security does not fully account for the social, political, economic, and equitable contexts in which conflicts engendered by environmental scarcity play out. As one commentator has noted, "[c]onsidering conflicts to be 'environmental' in origin can obscure the political-economic origins of what . . . are definitively political events."<sup>87</sup> However, accounting for social, political, and economic factors, and deciding what to attribute to environmental conditions remain controversial questions for analysts and policy makers alike. As summarized in a recent report from the United Nations Environment Program, "[t]he relationship between environmental degradation and political instability—whether it is insecurity or violent conflict—is poorly understood."<sup>88</sup>

The rest of this article proposes one possible resolution of the discordant themes of traditional and critical environmental security analysts that leads to a fresh perspective on the linkage between environment and national security. It begins by embracing sustainable development as a more revealing lens through which to examine how environmental conditions threaten or enhance our security. It then urges a broad conception of national security, one that has a new emphasis on social and political factors while diminishing concerns that the environmental community is playing into the hands of the military<sup>89</sup> or that sustainable development is in danger of being co-opted by the security community's "practices of specifying threats and its managerial modes for responding to dangers."<sup>90</sup>

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<sup>87</sup> James Fairhead, *International Dimensions of Conflict over Natural and Environmental Resources*, in *VIOLENT ENVIRONMENTS*, *supra* note 9, at 213, 235.

<sup>88</sup> Steve Lonergan, *Introduction to UNITED NATIONS ENVIRONMENT PROGRAM, UNDERSTANDING ENVIRONMENT, CONFLICT, AND COOPERATION 7-10* (United Nations Environment Programme, Woodrow Wilson International Center for Scholars 2004). The report presents the key conclusions from a conference on Environment, Conflict, and Cooperation: Scoping Gaps and Opportunities for Research and Policy Agendas.

<sup>89</sup> Peluso & Watts, *Responses*, *supra* note 73, at 93-94.

<sup>90</sup> SIMON DALBY, *ENVIRONMENTAL SECURITY* xxxii (2002).

## II. UNDERSTANDING "SUSTAINABLE DEVELOPMENT" IN TERMS OF "SECURITY"

### A. *The Contours of Sustainable Development*

As part of the preparations for the 1992 United Nations Conference on Environment and Development, the United Nations appointed a distinguished group of business people, government officials, and environmental experts to a World Commission on Environment and Development ("WCED"), chaired by the Norwegian prime minister, Gro Harlem Brundtland.<sup>91</sup> The final report of the WCED, *Our Common Future*, distilled the best thinking of the day on the world's environmental condition, the challenge of economic development for developing countries, and the connections between the two.<sup>92</sup> By integrating economic and social development issues with environmental conditions and environmental protection,<sup>93</sup> *Our Common Future* brought sustainable development into the sphere of international and national policy debate. It also set the stage for environmental security studies by dramatizing the WCED's prediction that "the deepening and widening environmental crisis presents a threat to national security—and even survival—that may be greater than well-armed, ill-disposed neighbors."<sup>94</sup> As Gro Harlem Brundtland later remarked, "[t]he environmental problems of the poor will affect the rich as well, in the not too distant future, transmitted through political instability and turmoil."<sup>95</sup>

Sustainable development is a broad and ambiguous concept. Its breadth and ambiguity are its virtues as well as its weaknesses. Sustainable development draws strength from its integration of

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<sup>91</sup> OUR COMMON FUTURE, *supra* note 27, at xii-xv.

<sup>92</sup> *Id.* at 2-3.

<sup>93</sup> *Id.* at 4.

<sup>94</sup> *Id.* at 7.

<sup>95</sup> Steve Lonergan, *Human Security, Environmental Security and Sustainable Development*, in ENVIRONMENT AND SECURITY: DISCOURSES AND PRACTICES 66 (Miriam R. Lowi & Brian R. Shaw eds., 2000) (quoting Gro Harlem Brundtland).

multiple factors affecting society, and political sustenance from its indeterminate nature, which allows people of many different backgrounds and perspectives to agree that sustainable development should be embraced as a world goal. By the same token, some have suggested that sustainable development is such a vague concept that it is not a useful guide for determining policy,<sup>96</sup> while others see it as a mask for the agenda of vested economic interests, for whom sustainable development is “about sustaining development as economically rationalized environment rather than the development of a sustaining ecology.”<sup>97</sup> Whole books have been dedicated to elaborating workable definitions of sustainable development in an effort to resolve its ambiguities. Rather than engage in this definitional discourse, the purpose here is to apply the main contours of the concept as originally presented by the WCED in 1987. The central message of the WCED is that our development path, to be sustainable, should “meet[] the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>98</sup> This definition carries within it several key thoughts relevant to security.<sup>99</sup>

First, there are human needs—in particular, the basic needs of the world’s poorest people for adequate food, water, and shelter.<sup>100</sup> The world community subsequently has developed and embraced Millennium Development Goals to establish measurable benchmarks on the path to eradicating the worst of the world’s poverty.<sup>101</sup> The world’s leading economic powers, the Group of

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<sup>96</sup> See, e.g., Daniel C. Esty, *A Term's Limits*, FOREIGN POL'Y, Sept.-Oct. 2001, at 74.

<sup>97</sup> DALBY, *supra* note 90, at xxxii (quoting Tim Luke).

<sup>98</sup> OUR COMMON FUTURE, *supra* note 27, at 43.

<sup>99</sup> *Id.* at 291.

<sup>100</sup> *Id.* at 54-55.

<sup>101</sup> See generally United Nations, *U.N. Millennium Development Goals*, <http://www.un.org/millenniumgoals/index.asp>. In September 2005, the United States sought to distance itself from the Millennium Development Goals but ultimately accepted a summit resolution that called for continued pursuit of those goals. Celia W. Dugger, *U.N. vs. Poverty: Seeking a Focus, Quarreling over the Vision*, N.Y. TIMES, Sept. 14, 2005, at A10.

Eight, or G8, also noted the elimination of global poverty as a moral imperative and as necessary for a stable world.<sup>102</sup> Interestingly, the latest iteration of the National Security Strategy of the United States places fresh emphasis on global poverty reduction as an element of security policy because of the link between poverty and state failure.<sup>103</sup> The former president of the World Bank, James Wolfensohn, made a similar argument in the immediate aftermath of 9/11, asserting that terrorism is the symptom, and “[t]he disease is the discontent seething in Islam and, more generally, in the world of the poor.”<sup>104</sup>

Some analysts view these simple statements as erroneous and possibly dangerous because they could lead to a military response to problems requiring a more complex response.<sup>105</sup> In the view of one, the “real political threat” is that a wide rich–poor divide in the world community “undermines the political legitimacy of the richer states” within a globalized world where even the richer states must live in community with the poorer.<sup>106</sup> Others, skeptical of a realistic connection between poverty and national security, embrace the goal on humanitarian grounds alone. Robert Kagan, reviewing Robert Kaplan’s book, *The Coming Anarchy*,<sup>107</sup> dismissed Kaplan’s apocalyptic vision that the chaos and violence of West Africa would be visited on Americans.<sup>108</sup> Kagan concluded that “the most powerful reason” why Westerners should care about West Africans

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<sup>102</sup> Vincent Ferraro, *Globalizing Weakness: Is Global Poverty a Threat to the Interests of States?*, 9 ESCP REP. 12 (2003) (citing a “Global Poverty Report” issued at the G8 summit in Okinawa, Japan in July, 2000); Sachs, *supra* note 85, at 28 (referring to the work of the State Failure Task Force of the Central Intelligence Agency).

<sup>103</sup> See NAT’L SECURITY STRATEGY 2002, *supra* note 36 (declaring that “poverty, weak institutions, and corruption can make weak states vulnerable to terrorist networks . . . within their borders”).

<sup>104</sup> Ferraro, *supra* note 102, at 17 (quoting the World Bank).

<sup>105</sup> *Id.* at 17.

<sup>106</sup> *Id.* at 17, 18.

<sup>107</sup> See Kaplan, *supra* note 29.

<sup>108</sup> Robert Kagan, *The Return of Cheap Pessimism. Inside the Limo*, 222 NEW REPUBLIC 32, 34 (2000) (book review), available at <http://www.tnr.com/041000/kagan041000.html>.

is "that they are human."<sup>109</sup> In light of the emphasis of the George W. Bush Administration on "public diplomacy,"<sup>110</sup> perhaps even Kagan's altruistic humanism dovetails with the national security interests of the United States.

The second concept embedded in sustainable development is intergenerational equity: the argument that the present generation owes a duty to future generations to leave them an environment with a sufficient variety and abundance of resources to meet their own needs.<sup>111</sup> Intergenerational equity necessarily implies responsibility, including the environmental responsibility of developed countries to promote sustainable development as an essential element of protecting their own security. It should be noted that security, too, has an intergenerational dimension. Security today avails little if it does not also promote security for the indefinite future.

A third concept implicit in the sustainable approach to meeting human development needs, intragenerational equity, draws attention to the need for equitable access within the present generation to resources and other development opportunities.<sup>112</sup> Development is not sustainable if it does not rest on a stable social and political foundation.<sup>113</sup> The social and political dimensions of sustaining ecological systems has been elaborated recently in the work of the Millennium Ecosystem Assessment.<sup>114</sup> Their analysis,

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<sup>109</sup> See *id.* at 41.

<sup>110</sup> NATIONAL SECURITY STRATEGY 2002, *supra* note 36, at 6.

<sup>111</sup> OUR COMMON FUTURE, *supra* note 27, at 43, 46. For a full discussion of the concept, see Edith Brown Weiss, IN FAIRNESS TO FUTURE GENERATIONS: INTERNATIONAL LAW, COMMON PATRIMONY AND INTERGENERATIONAL EQUITY (Transnational Pub. 1989).

<sup>112</sup> OUR COMMON FUTURE, *supra* note 27, at 43 (noting that the concern for intergenerational equity "must logically be extended to equity within each generation").

<sup>113</sup> *Id.* at 43-44 ("A world in which poverty and inequality are endemic will always be prone to ecological and other crises. Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life.").

<sup>114</sup> MILLENNIUM ECOSYSTEM ASSESSMENT, *supra* note 44, at 96-104 (noting that human activities, institutions, and values are "drivers" of ecosystem change, including sociopolitical forces such as expanding public participation and changing mechanisms of dispute resolution).

and the concept of intragenerational equity in general, connects directly with the reformist critique of the environmental scarcity line of analysis, binding sustainable development and security tightly together.

The essence of the reformist critique is that traditional environmental security analysis views environmental conditions as the initiator of, or a major contributing factor to, ethnic, civil, or even international violent conflict.<sup>115</sup> Reformists argue that political ecologists should seek the primary causal factors in the social and political context within which particular people gain access to and use or abuse environmental resources.<sup>116</sup> An explicit feature of this perspective is the belief, supported by a number of case studies, that existing inequities in social and political power foster or perpetuate a culture of violence.<sup>117</sup> Steve Lonergan puts it most forcefully:

[T]he one overwhelming argument in favor of linking environment and security: *that environmental problems must always be presented from within a broader perspective that encompasses various forms of inequity, including world poverty.* Why is this the case? It is the case precisely because poverty and inequity are two of the key factors contributing to tension and insecurity throughout the world.<sup>118</sup>

Several academic researchers studying environmental conflict situations around the world have documented patterns that are consistent with the view that social and political inequities, rather than scarcity of resources, are the prime causes of resource misallocation and violence. For example, one study shows that violence between different ethnic, tribal, and/or religious groups is present in struggles over oil production in countries as diverse as Nigeria

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<sup>115</sup> Steve Lonergan, *Human Security, Environmental Security, and Sustainable Development in ENVIRONMENT AND SECURITY: DISCOURSES AND PRACTICES* 66, 67 (Miriam R. Lowi & Brian R. Shaw eds., 2000).

<sup>116</sup> See *supra* notes 73-76 and accompanying text.

<sup>117</sup> See Lonergan, *supra* note 115, at 71.

<sup>118</sup> *Id.* at 70-71.



and Ecuador (and now, perhaps, Iraq).<sup>119</sup> Another study documents systematic theft and physical violence in the competition between individual communities and larger commercial operators for prime shrimp-farming properties along the coast of Thailand.<sup>120</sup> Even environmental conflict situations that have elements of the environmental scarcity scenario, on close analysis, are strongly influenced by social (caste) or tribal conflicts and violent exercises of state police power. Moreover, the exercises of power tend to be on one side of the struggle, such as the imposition of new restrictions on traditional community access to forest resources.<sup>121</sup>

The political ecology perspective, which emphasizes social and political context and struggles for equity and power as the determining factors behind environmental violence, seems an even gloomier science than the environmental scarcity analysis of Homer-Dixon because the underlying problems it exposes are even more difficult to solve on national and international scales than "mere" environmental scarcity. However, there also is an upside to the stress on intragenerational equity, because it leads to the understanding that environmental conflicts are amenable to political solutions. Two scholars at the Global Environmental Change and Human Security study center at the University of California, Irvine, have identified several instances of positive social and political adaptation to resolve environmental conflicts, or at least to remove the violent element.<sup>122</sup> They differentiate their work from other environmental security studies partly because of the

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<sup>119</sup> See Michael Watts, *Petro-Violence: Community, Extraction, and Political Ecology of a Mythic Commodity*, in *VIOLENT ENVIRONMENTS*, *supra* note 9, at 189, 200-12.

<sup>120</sup> Susan C. Stonich & Peter Vandergeest, *Violence, Environment, and Industrial Shrimp Farming*, in *VIOLENT ENVIRONMENTS*, *supra* note 9, at 261.

<sup>121</sup> Nandini Sundar, *Beyond the Bounds? Violence at the Margins of New Legal Geographies*, in *VIOLENT ENVIRONMENTS*, *supra* note 9, at 328-31; see also Amita Baviskar, *Written on the Body, Written on the Land: Violence and Environmental Struggles in Central India*, in *VIOLENT ENVIRONMENTS*, *supra* note 9, at 354; Lydia Polgreen, *Blood Flows with Oil in Poor Nigerian Villages*, *N.Y. TIMES*, Jan. 1, 2006, available at <http://www.mindfully.org/Energy/2006/Blood-With-Oil/1jan06.htm> (last visited Jan. 21, 2006).

<sup>122</sup> McDonald & Gaulin, *supra* note 57.

time scale of their analysis, which spans a decade or more to capture both the evolution of the situation leading to violent confrontation and the ensuing social adaptations that reduce tensions.<sup>123</sup> They correctly assert that this approach gives full significance to the concept of sustainable development, which, by its nature, is a continuing process.<sup>124</sup> One observer has commented that development is “a learning-process which increases a society’s viability;”<sup>125</sup> another notes that “sustainability focuses on changing the way we think about the environment.”<sup>126</sup> Therefore, one of the important lessons about the link between sustainable development and security is that we must take the long-term view. This is not an excuse for inaction; quite the contrary, immediate actions are required if we are to alleviate environmental threats to security that will become manifest ten or twenty years from now.<sup>127</sup>

### B. *Redefining Security*

What do we mean by national security? What *should* we mean? United States national security policy in the 1980s, construed national security in classic terms—the defense of national territory and welfare against external threats, especially threats of military or quasi-military attack.<sup>128</sup> In the post-Cold

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<sup>123</sup> *Id.* at 5.

<sup>124</sup> *Id.* at 6.

<sup>125</sup> WOLFGANG SACHS ET AL., GREENING THE NORTH: A POST-INDUSTRIAL BLUEPRINT FOR ECOLOGY AND EQUITY 158 (1998) (quoting Ghanaian economist Ebenezer Mireku) [hereinafter GREENING].

<sup>126</sup> Lonergan, *supra* note 95, at 82.

<sup>127</sup> We have a vivid demonstration of this in terms of the social and environmental damage wrought along the Gulf Coast by Hurricane Katrina in 2005, much of which could have been prevented if suitable policies had been implemented and measures taken decades before. *See infra* notes 190-99 and accompanying text.

<sup>128</sup> *See, e.g.*, President Ronald Reagan, Address to the Nation on National Security, Feb. 26, 1986, *available at* [http://reagan2020.us/speeches/address\\_on\\_national\\_security.asp](http://reagan2020.us/speeches/address_on_national_security.asp); President Ronald Reagan, Address to the Nation on National Security, Mar. 23, 1983, *available at* <http://teachingamericanhistory.org/library/index.asp?document=730> (last visited Jan. 21, 2006).

War 1990s, the field of environmental security studies led the Department of Defense, the State Department, NATO, and others to redefine U.S. national security interests to embrace threats from environmental degradation and chaos in foreign lands leading to migration, disruption of economic activities, and the like.<sup>129</sup> Under the influence of this thinking, the official U.S. national security strategy moved to preventive security by taking measures "to prevent the conditions for conflict and help to create the conditions for peace."<sup>130</sup> After September 11th, the United States government identifies nonstate actors (terrorists) as the most substantial threats to national security.<sup>131</sup> In 2002, Secretary of State Colin Powell remarked that "sustainable development is a security imperative. Poverty, destruction of the environment and despair are destroyers of people, of societies, of nations, a cause of instability as an unholy trinity that can destabilize countries and destabilize entire regions."<sup>132</sup> Security analysis has clearly moved beyond the traditional focus on inter-state conflict and military defense. This shift is a step in the right direction, but this section will argue that we need a much broader view of security to truly appreciate both the security challenges confronting us and their connection to sustainable development. To begin imagining a broader view of national security, we must consider the following two questions: (1) security for whom; and (2) security from what risks?

Security for whom? In the customary terms of the environmental security dialogue, the very term 'national security' implicitly answers that question by identifying the nation (or, in current parlance, the 'homeland') as the object to be secured. The term 'nation,' however, is at once an abstraction and a construct of a particular configuration of social organization that emerged only

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<sup>129</sup> See *supra* notes 1, 37-38, 66-69 and accompanying text.

<sup>130</sup> Mary Margaret Evans et al., *The Changing Definition of National Security*, in ENVIRONMENT AND SECURITY, *supra* note 95, at 11 (quoting a 1996 speech by then Secretary of Defense William Perry).

<sup>131</sup> See NAT'L SECURITY STRATEGY 2002, *supra* note 36.

<sup>132</sup> *Introduction to Should Global Poverty be a U.S. National Security Issue?* 9 ECSP REP. at 12 (2003) (quotations omitted).

in recent centuries,<sup>133</sup> so the question of security for whom remains relevant. In 1995, the International Commission on Global Governance urged that thinking about “[g]lobal security must be broadened from it[s] traditional focus on the security of states to include the security of people and the planet.”<sup>134</sup> That statement captures the dual challenge of reconceiving national security. In one way of thinking, nations are the elements of and participants in the global community of nations.<sup>135</sup> The integration of economies and cultures that marks the world of the twenty-first century, along with the objective ecological integrity of the planet, makes obvious that any one nation’s national security is considerably bound up with the security of other nations. This interdependence is why the Commission emphasizes the security of “the planet”<sup>136</sup> and it is one of the central themes of environmental security analysis. I will return to that dimension in answering the question of what are the security threats against which we might be guarding.

Apart from the nation, or the nation-state, the Commission also refers to the security of people.<sup>137</sup> From this point of view, the nation state—that is, the government that interacts within the framework of international law—is nothing more than the constitutional representative of the individual citizens of that nation acting collectively.<sup>138</sup> The security of individuals, however, is more than the disaggregation of the security of the nation. In the modern world one of the most important goals of national governments has become the provision of security for their citizens. Lloyd Axworthy, Canada’s foreign minister during much of the 1990s,

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<sup>133</sup> See Philip Bobbit, *THE SHIELD OF ACHILLES: WAR, PEACE, AND THE COURSE OF HISTORY* 75-204 (2002) (charting the progression from princely states to kingly states to territorial states, and thence from “state-nations” in the late 18th and 19th centuries to “nation-states” in the 20th century).

<sup>134</sup> Eric K. Stern, *The Case for Comprehensive Security*, in *CONTESTED GROUNDS*, *supra* note 16, at 127, 133.

<sup>135</sup> See *id.* at 39.

<sup>136</sup> *Id.* at 133.

<sup>137</sup> *Id.*

<sup>138</sup> International law defines “states” in part by their exercise of government authority with the consent of the governed. See, e.g., BARRY E. CARTER, PHILLIP R. TRIMBLE, & CURTIS A. BRADLEY, *INTERNATIONAL LAW* 432-41 (4th ed. 2003).

repeatedly sounded a theme of "human security."<sup>139</sup> In a speech to the North Atlantic Council of NATO in 1998, he mentioned heavy losses of civilian life in civil conflicts and the "terrorist dangers each of us can face inside our own borders."<sup>140</sup> From these examples of insecurity, he concluded: "[w]hile the old interstate security threats persist, this changing environment puts the security of ordinary citizens more directly at risk."<sup>141</sup> On another occasion, speaking directly about terrorism, he remarked:

Terrorism may never be eliminated, but its attraction can be significantly diminished by addressing causes: poverty, despair, disenfranchisement, religious fanaticism, absence of effective and meaningful democracy, etc. Some of these efforts have already been undertaken. They are complex, resource-intensive and require innovative international co-operation. This is a human security approach . . . .<sup>142</sup>

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<sup>139</sup> Notes for an Address by the Honourable Lloyd Axworthy, Minister of Foreign Affairs, to the Woodrow Wilson International Center for Scholars, June 16, 2000, *available at* <http://www.peace.ca/axworthyaddresstwoodrow.htm> (citing new priorities and initiatives in Canada's foreign policy as "the basis for our human security approach").

<sup>140</sup> The Honourable Lloyd Axworthy, Canadian Minister of Foreign Affairs, Address to the North Atlantic Council Meeting (Dec. 8, 1998), <http://www.nato.int/docu/speech/1998/s981208i.htm>. Similarly, in another speech he remarked:

[A] shift has occurred in what it means to be secure. As a result, the language of international affairs has begun to change. No longer are we limited to discussions of states' rights and national sovereignty. . . . This shift in language reflects a change in perception—a recognition that the needs of individuals must be our principal concern. We arrived at this point via the broad realization that there is a changing world reality.

The Honourable Lloyd Axworthy, Canadian Minister of Foreign Affairs, Notes for an Address to the Woodrow Wilson International Center for Scholars (June 16, 2000), <http://www.peace.ca/axworthyaddresstwoodrow.htm>.

<sup>141</sup> *Id.*

<sup>142</sup> The Honourable Lloyd Axworthy, Comments on "Nuclear Waste Management in Canada: The Security Dimension" by Professor Franklyn Griffiths (2003), [http://www.nwmo.ca/adx/asp/adxGetMedia.asp?DocID=279,206,199,20,1,Documents&MediaID=993&Filename=14\\_NWMO\\_Comments\\_Axworthy.pdf](http://www.nwmo.ca/adx/asp/adxGetMedia.asp?DocID=279,206,199,20,1,Documents&MediaID=993&Filename=14_NWMO_Comments_Axworthy.pdf).

Axworthy contrasts this human security approach with the "crusade" of counter-terrorism, which he characterizes as "primarily a military response, non-collaborative in approach."<sup>143</sup>

Axworthy is far from alone in his emphasis on human security as opposed to state security, but many who share his perspective address the issue as one of the collective interests of many individuals. Steve Loneragan, for example, sees human security as one dimension of environmental security because environmental degradation and resource depletion are two of the many factors that affect human security.<sup>144</sup> Correspondingly, Loneragan sees the source of our insecurity as "individual or collective human perceptions and evaluations of actual and expected conditions of the environment."<sup>145</sup> Another analyst frames the environmental security challenge in similar human security terms:

A threat to national security exists once an action or sequence of events "threatens . . . to degrade the quality of life for the inhabitants of a state or . . . threatens significantly to narrow the range of policy choices available to the government of a state or to private nongovernmental entities within the state."<sup>146</sup>

This last statement, focusing on the "range of policy choices"<sup>147</sup> available to governments and private actors alike, pulls thinking about environmental security back into the orbit of sustainable development, which also is concerned with maintaining options for future generations. With an appropriately broad conception of security, the link between sustainable development and security thus becomes inescapable.<sup>148</sup> Even conventional or official formulations touch on the theme. In 1996, when Secretary of

<sup>143</sup> *Id.*

<sup>144</sup> Loneragan, *supra* note 95, at 68.

<sup>145</sup> *Id.* at 82.

<sup>146</sup> Michel Fr  d  rick, *A Realist's Conceptual Definition of Environmental Security*, in CONTESTED GROUNDS, *supra* note 16, at 93 (quoting Richard Ullman).

<sup>147</sup> *See id.*

<sup>148</sup> *See supra* notes 133-36 and accompanying text.

Defense William Perry defined the task of national security as "prevent[ing] the conditions for conflict and help[ing] to create the conditions for peace,"<sup>149</sup> he specifically alluded to George Marshall, who said in 1947 that the national security of the United States depended in part on "restoring confidence of the people of Europe and the economic future of their own countries and of Europe as a whole."<sup>150</sup> This is the language of sustainable development, though the term had not yet been coined.

In much the same vein, other analysts define security as an issue of governance or as "the capacity for *societal* resilience."<sup>151</sup> Governance and resilience again are ideas that resonate in definitions of sustainable development. This analysis also plays into other subthemes of sustainable development, such as the participation of civil society in the formulation of policy and the need for social institutions to underpin economic development and measures for environmental protection.<sup>152</sup>

One can take this broad notion of security further and ask other questions that are germane to sustainable development as well as security. For example, what constitutes security for an Amazon tribe? Does their security lie in sustainable development? If sustainable development means some policy determined in Brasilia, the answer is arguably, no. But if sustainable development means development that sustains all, including cultures still intact that live apart from modern society, and preserves environmental and social options for communities, then the security of the tribe and the tribe's sustainable development would be synonymous.

The small island states of the Pacific have raised security concerns in a more poignant context. Even in classical terms—defense of the sovereign territory against physical invasion from

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<sup>149</sup> Evans et al., *supra* note 95, at 11 (quoting a 1996 speech by then Secretary of Defense William Perry).

<sup>150</sup> *Id.* at 13.

<sup>151</sup> Steve Rayner & Elizabeth C. Malone, *Security, Governance, and the Environment*, in ENVIRONMENT AND SECURITY, *supra* note 95, at 49, 50.

<sup>152</sup> OUR COMMON FUTURE, *supra* note 27, at 62-65, 308-42; see also MILLENNIUM ECOSYSTEM ASSESSMENT, *supra* note 44, at 178-200.

the outside—their overriding national security interest is in arresting climate change, which is bringing with it rising sea levels.<sup>153</sup> Acting as the Association of Small Island States, they have been appealing urgently to the international community to take steps to stop global warming, lest their territories literally disappear beneath the waves.<sup>154</sup> In a very real sense, the personal security of the islanders and the national security of their states are one and the same.

Whether one holds to a classic definition of national security or embraces the much broader definition argued for here, there are some common elements to security that, once again, coincide with the perspective of sustainable development. First, there is the matter of autonomy, whether it be national independence or personal freedom. Independence and freedom mean more than the mere recognition of individuality; they also imply the absence of physical threat or psychological intimidation, be it from weapons, terrorists, police, or individuals who would do violence.<sup>155</sup> However, physical threats to integrity and well-being can also arise from environmental changes, both those that are self-inflicted, as well as those imposed through actions beyond one's control.<sup>156</sup> Finally, a full definition of security must include the notion of future opportunities and the ability to exercise national or personal choice

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<sup>153</sup> See, e.g., Intergovernmental Panel on Climate Change, *Climate Change 2001: Working Group II: Impacts, Adaptation and Vulnerability*, § 17.2.2.1, available at [http://www.grida.no/climate/ipcc\\_tar/wg2/](http://www.grida.no/climate/ipcc_tar/wg2/) (discussing the threat to small island states from projected sea level rise due to climate change of approximately 5mm per year). Villages in Vanuatu and Papua New Guinea have recently been relocated because of rising sea levels. Ben Boheme, *Vanuatu: A Village Flees for Safer Ground*, SYDNEY MORNING HERALD, Dec. 23, 2005, available at <http://www.climateark.org/articles/reader.asp?linkid=49844>.

<sup>154</sup> See, e.g., Statement by Ambassador Tuiloma Neroni Slade (Samoa) on behalf of the Ass'n of Small Island States, to the Meeting of the Intergovernmental Group of Experts on Energy and Sustainable Development, Mar. 6, 2000, available at <http://www.sidsnet.org/aosis/statements/07.html>.

<sup>155</sup> See generally J.S. MILL, ON LIBERTY (Mill also argues against social oppression by religious groups and others on issues of personal behavior).

<sup>156</sup> See *supra* notes 190-99 and accompanying text. This truth was made vivid by the physical destruction and social dislocation wrought by Hurricane Katrina.



to take advantage of such opportunities.<sup>157</sup> In terms of environmental security analysis, opportunity goes hand in hand with access to environmental resources.<sup>158</sup> For example, in many respects international law already contains the idea of equal access for all nations to the global commons, which some would argue is an "inalienable" right.<sup>159</sup> A broad conception of security, consistent with sustainable development would include an extension of a right of access and an equality of opportunity to all essential environmental resources and offer opportunities for personal and national development. Pursuit of this goal would simultaneously mitigate the social sources of environmental violence, which so frequently involve control of or restrictions on access to vital resources.<sup>160</sup>

### III. SUSTAINABLE DEVELOPMENT STEPS TOWARD SECURITY FOR THE UNITED STATES

The standard model environmental security literature of the 1990s portrayed a security threat coming from degraded environmental conditions and population growth leading to social breakdown, migration, and violent conflict over scarce resources in developing countries, thereby threatening the security of the developed world.<sup>161</sup> In the early years of the twenty-first century, the focus has shifted somewhat to poverty and economic maldevelopment leading to state failure,<sup>162</sup> which opens the way to violent internal conflict and to terrorist activities threatening developed societies. Even the reformist environmental security scholars, with their well-placed emphasis on the social and

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<sup>157</sup> See *infra* note 148.

<sup>158</sup> OUR COMMON FUTURE, *supra* note 27, at 44 ("Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life."); *id.* at 48 ("many problems arise from inequalities in access to resources").

<sup>159</sup> GREENING, *supra* note 125, at 163.

<sup>160</sup> See Peluso & Watts, *Responses*, *supra* note 9.

<sup>161</sup> See *supra* notes 37-58 and accompanying text.

<sup>162</sup> See *supra* notes 100-10 and accompanying text.

political roots of environmental violence, devote their analysis to case studies in developing countries.<sup>163</sup>

But there is another environmental security threat to developed countries that is becoming more evident each year: a direct threat to individual and national well-being from environmental change, especially climate change.<sup>164</sup> The WCED saw this threat nearly 30 years ago: "Environmental threats to security are now beginning to emerge on a global scale. The most worrisome of these stem from the possible consequences of global warming . . ."<sup>165</sup> This Part will argue that this self-inflicted environmental security threat is as great or greater than the traditional environmental scarcity threat. To address it will require a hard look at our own lifestyles as a major contributor to our increasing insecurity.

As far back as 1992, the Rio Declaration urged countries to "reduce and eliminate unsustainable patterns of production and consumption" as part of the world effort to achieve sustainable development.<sup>166</sup> Many production practices in developing countries, such as forest clearing for agriculture or excessive pollution from manufacturing, are unsustainable. But as Simon Dalby has remarked, portraying the link between environment and security in terms of behaviors in developing countries avoids looking at consumption patterns in the developed countries themselves, which are contributing to the environmental conditions that threaten their own long-term security.<sup>167</sup> This Part embraces Dalby's logic, arguing that the pursuit of sustainable development in the United States by curtailing our unmistakable consumption patterns would contribute enormously to our own environmental security.<sup>168</sup> I will use energy consumption, and particularly the consumption of fossil fuels, to exemplify both the unsustainable

<sup>163</sup> See *supra* notes 81-84 and accompanying text.

<sup>164</sup> See *supra* notes 35-58 and accompanying text.

<sup>165</sup> OUR COMMON FUTURE, *supra* note 27, at 294.

<sup>166</sup> Rio Declaration on Environment and Development, *adopted* June 13, 1992, U.N. Doc. A/CONF.151/26 (1992), 31 I.L.M. 874 princ. 8 (1992).

<sup>167</sup> Simon Dalby, *Threats from the South?: Geopolitics, Equity, and Environmental Security*, in CONTESTED GROUNDS, *supra* note 16, at 155, 161.

<sup>168</sup> *Id.* at 164.

pattern of U.S. consumption and the immediate threat our consumption presents to our own national security.

There are two aspects of the security threat posed by our own consumption patterns. One is that extraction of mineral, energy, and forest resources from developing countries adds to the very environmental stresses in those countries cited repeatedly in the environmental security literature.<sup>169</sup> The other is that our consumption patterns directly undermine the security we derive from the environmental services provided by the ecological resources within our own borders. This Part will take up the direct security effect of consumption on domestic environmental change first, and then return to the more traditional issues of environmental change in developing countries driven by North American consumption patterns.

#### A. *Precaution, Equity, and Responsibility*

To give some prescriptive direction to the discussion, this analysis will apply three normative values that originate in or connect closely with sustainable development—the values of precaution, equity, and responsibility.<sup>170</sup> The actions and policies of a developed country striving to enhance security through sustainable development should properly implement these principles. Violations of any one of them is indicative of a significant deviation from the sustainable development path.

Widely popular with environmentalists, the precautionary principle remains controversial as a legal or prescriptive norm, but it has long been accepted as a general guide to action.<sup>171</sup> The Rio Declaration, which uses the term “precautionary approach” to avoid the legal implications of the word “principle,” gives a

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<sup>169</sup> See *supra* notes 124-26 and accompanying text.

<sup>170</sup> See generally Experts Group on Environmental Law of the World Commission on Environment and Development, ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT: LEGAL PRINCIPLES AND RECOMMENDATIONS (1986).

<sup>171</sup> See generally DAVID HUNTER ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 405-11 (2d ed. 2002).

standard description of the concept: “[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”<sup>172</sup> As called for in the Rio Declaration, a developed country like the United States should “widely” apply a precautionary approach.<sup>173</sup>

Precaution helps to promote the sustainable development goal of maintaining viable ecosystems in order to preserve options for future generations to meet their needs. Sustainable development notions of equity, especially intragenerational equity, were presented in Part II above.<sup>174</sup> It bears emphasis here that sustainable development policy cannot achieve its security objective if it falls substantially short of meeting equitable criteria. Equity considerations are relevant not only in the international context, but also in the domestic context, where some groups within American society are more vulnerable than others to the loss of security through environmental change.<sup>175</sup>

The concept of responsibility derives from the Rio Declaration affirmation that all nations have “common, but differentiated” responsibilities to help the world as a whole “conserve, protect and restore the health and integrity of the Earth’s ecosystem.”<sup>176</sup> The notion of responsibility carries overtones of legal obligation and legal liability to other countries, which may be appropriate to consider with respect to specific decisions and their environmental consequences even though international law may not attach legal responsibility to the implementation of sustainable development policy in general.<sup>177</sup>

<sup>172</sup> Rio Declaration, *supra* note 166, at princ. 15.

<sup>173</sup> *Id.*

<sup>174</sup> See *supra* notes 91-160 and accompanying text.

<sup>175</sup> See discussion *infra* notes 197-207, 230.

<sup>176</sup> Rio Declaration, *supra* note 166, at princ. 7.

<sup>177</sup> The WCED Legal Experts explore some of these questions using a conventional distinction between liability (for lawful acts) and responsibility (for unlawful acts). See ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT, *supra* note 170, at 80-85, 127-30.

Whether or not responsibility is fraught with legal significance, developed countries have accepted that they bear a special responsibility "in view of the pressures their societies place on the global environment and of the technologies and financial resources they command."<sup>178</sup>

*B. Unsustainable Consumption and Ecosystem Changes in the United States*

One security effect of developed country consumption is direct impairment of environmental resources and services in the consuming countries themselves. The most obvious way U.S. consumption directly contributes to our own insecurity is our gargantuan appetite for oil and other fossil fuel energy. The United States is by far the world's largest consumer of energy, using approximately 98 quadrillion British thermal units, or quads, each year, which equates to more than 23% of world energy use.<sup>179</sup> Fossil fuels, with carbon content that gives them high global warming potential, account for nearly 85% of U.S. energy.<sup>180</sup> Close to half of U.S. fossil fuel energy comes from petroleum.<sup>181</sup> The United States accounts for more than a quarter of the world's total petroleum consumption, nearly matching the entire national energy consumption of China from all sources.<sup>182</sup> On a per capita basis, the United States stands out as a profligate energy consumer, exceeded only by Persian Gulf oil producers Kuwait, Bahrain, Qatar, and the United Arab Emirates.<sup>183</sup>

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<sup>178</sup> Rio Declaration, *supra* note 166, at princ. 7.

<sup>179</sup> U.S. Energy Info. Admin., Annual Energy Outlook 2006, Early Release, tbl.2, Energy Consumption by Sector and Source, at 3, at [http://www.eia.doe.gov/oiaf/aeo/pdf/aeotab\\_2.pdf](http://www.eia.doe.gov/oiaf/aeo/pdf/aeotab_2.pdf). The 98 quads of energy consumption in the U.S. compares with 411 quads for world consumption. See Energy Info. Admin., International Energy Annual 2003, tbl.E.1, at <http://www.eia.doe.gov/pub/international/iealf/tablee1.xls>.

<sup>180</sup> See *id.* (of the 98 quads, a total of 84.38 quads come from petroleum, natural gas, and coal).

<sup>181</sup> See *id.* (of the 84.38 quads from fossil fuel, 38.96 quads come from petroleum).

<sup>182</sup> China's total energy consumption in 2003 was 45 quads.

<sup>183</sup> Energy Info. Admin., International Energy Annual 2003, tbl.E.1c, at <http://www.eia.doe.gov/pub/international/iealf/tablee1c.xls>. Compare U.S. per capita use of 340 MMBtu with, for example, 151 MMBtu for Western Europe. *Id.*

One way to understand the environmental consequence of all this energy consumption is to calculate the “energy footprint,” which is the surface area required to provide the fuels and absorb the wastes from their use.<sup>184</sup> The average energy footprint for each person in the United States is six hectares (roughly 15 acres).<sup>185</sup> This means that 300 million Americans require 1.8 billion hectares to support their energy habit, a national footprint close to twice the area of the 50 United States.<sup>186</sup> In other words, the United States fully uses not only the ecosystem services of the United States itself but takes an equal amount of the world’s ecosystem services from the peoples of other countries.

Driven so far mainly by the historic and continuing high rates of emissions of greenhouse gasses in developed countries, global climate change is already causing physical destruction to important economic assets in the United States and other developed countries. Some of the effects are arguably trivial, such as shorter ski seasons. Others are tragic, such as loss of life and property due to intensifying tropical storms in the United States,<sup>187</sup> or unprecedented extremes of summer heat, winter storms, drought, and flood in Western Europe.<sup>188</sup> The resulting decline in security for many people is palpable. Fishermen, lumbermen, farmers, resort operators, and others who make their livelihood from nature are either losing that

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<sup>184</sup> World Wildlife Fund, Living Planet Report 2004, at 14, <http://assets.panda.org/downloads/lpr2004.pdf>.

<sup>185</sup> *See id.*

<sup>186</sup> *See id.*

<sup>187</sup> Estimates of insured losses from Katrina are \$55 billion, with total damage estimated at \$135 billion. 2005 storms Rita and Wilma caused an estimated \$15 billion damage each. Swiss Re Estimates 2004 storms Jerome and Frances also caused extensive damage. Record \$80 billion in insured losses during 2005. NAMIC Online, Dec. 21, 2005, at <http://www.namic.org/topnews/051221st1.asp>.

<sup>188</sup> Spain is suffering its worst drought ever. See news story at website of the World Meteorological Organization, <http://www.wmo.ch/index-en.html>. In 2003, Western Europe, especially France, suffered extreme heat for several weeks. See Impacts of Summer 2003 Heat Wave in Europe at [http://www.grid.unepich/product/publication/download/ew\\_heat\\_wave.en.pdf](http://www.grid.unepich/product/publication/download/ew_heat_wave.en.pdf). Serious flooding has struck Europe in recent years. *See, e.g.*, Northern Europe Flooding, July 2002, [http://earth.esa.int/ew/floods/northern\\_europe\\_org](http://earth.esa.int/ew/floods/northern_europe_org).

livelihood or paying higher costs to maintain their productivity. As often happens, the people most directly affected are the most vulnerable and have the fewest options. In the United States and Canada, the people most vulnerable to climate change include the Inuit and other tribal groups in the Arctic, who are seeing their whole way of life disintegrate as the Arctic winter shortens, the sea-ice disappears in the summer, and animal populations decline or relocate in the face of the changing climate.<sup>189</sup>

Hurricane Katrina in the autumn of 2005 illustrates the loss of security involved in America's continued pursuit of unsustainable patterns of production and consumption and its tardiness in reshaping its economy to meet the objectives of sustainable development. If any doubts were left, Hurricane Rita a few weeks later should have erased them. Global warming is almost surely part of the story—Katrina and Rita were particularly intense hurricanes because of unusually warm waters in the southeastern Gulf of Mexico.<sup>190</sup> Other patterns of unsustainable consumption and unsustainable development in the Gulf Coast region also contributed to the tragic loss of life, enormous property damage, and economic disruption caused by the hurricanes. Intensive commercial and residential development of vulnerable barrier islands and beach areas placed billions of dollars of property into areas prone to destruction by a hurricane.<sup>191</sup> Ironically, that intensive development

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<sup>189</sup> Clifford Kraus, *Eskimos Fret as Climate Shifts and Wildlife Changes*, N.Y. TIMES, Sept. 6, 2004, at A4; see also Daniel Glick, *GeoSigns: The Big Thaw*, 206 NAT'L GEOGRAPHIC, No. 3, at 12 (Sept. 2004); Fen Montaigne, *EcoSigns: No Room to Run*, 206 NAT'L GEOGRAPHIC, No. 3, at 34 (Sept. 2004); Andrew C. Revkin, *In a Melting Trend, Less Arctic Ice to Go Around*, N.Y. TIMES, Sept. 29, 2005, at A1.

<sup>190</sup> P.J. Webster et al., *Changes in Tropical Cyclone Number, Duration, and Intensity in a Warming Environment*, 309 SCIENCE 1844, Sept. 16, 2005 (concluding that global data document a 30-year trend toward more frequent and more intense storms, especially Category 4 and 5 storms, and that this trend is "not inconsistent" with climate change modeling predicting increased frequency of the most intense tropical storms).

<sup>191</sup> See generally Evan Mills, *Insurance in a Climate of Change*, 309 SCIENCE 1040, Aug. 12, 2005 (noting that increasing casualty insurance losses worldwide are attributable in significant part to socioeconomic and demographic trends, in particular the migration of people to flood-prone areas).

includes critical segments of the U.S. capacity for producing and importing oil and natural gas and the onshore facilities for processing, refining, and distributing those fuels,<sup>192</sup> revealing another security vulnerability. Furthermore, the protective wetlands to the south of New Orleans are smaller and less resilient after decades of artificial management of the Mississippi River cut off sediments needed to restore soils.<sup>193</sup> Ill-advised shipping channels and multiple incursions into the wetlands to provide access to oil and gas wells further degraded the wetlands.<sup>194</sup> Additionally, the levee and flood wall system protecting the city of New Orleans was not designed to withstand a full-force hurricane; it also suffered from critical design flaws, including those in shipping access channels that helped funnel the storm surge directly into the eastern end of the city.<sup>195</sup> The potential for all of the devastating consequences of these faults had been identified years earlier, but the government failed to commit the necessary funds to correct them.<sup>196</sup> The social and economic effects were particularly tragic because New Orleans was beset with social and racial divisions, a weak economy, and inadequate public services,<sup>197</sup> all of which led to a startling breakdown in local security in the week following the storm.<sup>198</sup> In the case of Rita, vulnerable lower-income communities of southwest Louisiana were almost completely destroyed.<sup>199</sup>

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<sup>192</sup> LAWRENCE KUMINS & ROBERT BAMBERGER, OIL AND GAS DISRUPTION FROM HURRICANE KATRINA AND RITA, CRS REPORT FOR CONGRESS, Oct. 21, 2005, available at <http://fpc.state.gov/documents/organization/55824.pdf>.

<sup>193</sup> Joel Bourne, *Louisiana's Vanishing Wetlands: Going, Going . . .*, 289 SCIENCE 1860, Sept. 15, 2000; *Sediment Transport: Restoring Louisiana's Coastal Landscape*, WATERMARKS, Aug. 2005, available at <http://www.lacoast.gov/watermarks/2005.08/watermarks-2005-08.pdf> (a publication of the U.S. Army Corps of Eng'rs, New Orleans Dist.).

<sup>194</sup> *Id.*

<sup>195</sup> Christopher Drew & Andrew Revkin, *Storm and Crisis: The Defenses: Design Flaws Seen in New Orleans Flood Walls*, N.Y. TIMES, Sept. 21, 2005, at A1.

<sup>196</sup> Louis Uchitelle, *Disasters Waiting to Happen*, N.Y. TIMES, Sept. 11, 2005, at C1.

<sup>197</sup> *Id.*

<sup>198</sup> *See id.*

<sup>199</sup> Jennifer Steinhauer, *Smaller Communities on Coast Bore Brunt of Rita's Force*, N.Y. TIMES, Oct. 1, 2005, at A1.



C. *Unsustainable Patterns of Consumption and Global Security*

As one group of commentators has remarked, "[i]n general terms, industrial countries do far more harm to the poor in the South by what they lay claim to for themselves than by withholding assistance."<sup>200</sup> The endless appetite of the North for resources and goods appropriates important resources from the South for consumptive use in the North, arguably in a manner that is neither equitable nor observant of the principle of precaution. Moreover, the business of acquiring the resources, with developed country governments often lending diplomatic or financial support to private companies,<sup>201</sup> also foment the political power struggles for control over abundant resources in developing countries that exacerbate social tensions and give rise to civil or revolutionary conflict.<sup>202</sup> A report for the World Bank cautions that the production of valuable mineral and energy resources in developing countries and their export to developed countries frequently lead to a decline in living standards rather than sustainable economic development, an outcome known as the "resource curse."<sup>203</sup>

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<sup>200</sup> GREENING, *supra* note 125, at 158.

<sup>201</sup> One modest example: The U.S. Export-Import Bank financed a national gas project in Qatar, "helping to meet U.S. energy needs." News Release, Ex-Im Bank Finances Qatargas 3 Liquid Natural Gas Complex, Dec. 15, 2005, <http://www.exim.gov/pressrelease.cfm/2FD72175-0B53-5374-ADE746A6F632AC0B>. On a more serious level, a former CIA operative reports on U.S. government use of the CIA in support of energy industry interests in Western Asia. ROBERT BOER, *SEE NO EVIL* (2002).

<sup>202</sup> See, e.g., HUMAN RIGHTS WATCH, *THE PRICE OF OIL: CORPORATE RESPONSIBILITY AND HUMAN RIGHTS VIOLATIONS IN NIGERIA'S OIL PRODUCING COMMUNITIES* (1999), available at <http://hrw.org/reports/1999/nigeria/index.htm>; IRIN FOCUS ON THE SIMMERING CONFLICT IN THE NIGER DELTA (2001), available at [http://www.irinnews.org/report.asp?ReportID=18255&SelectRegion=West\\_Africa](http://www.irinnews.org/report.asp?ReportID=18255&SelectRegion=West_Africa) (IRIN is a news service of the UN office for the Coordination of Humanitarian Affairs).

<sup>203</sup> Extractive Industries Review, *Striking a Better Balance: The World Bank Group and Extractive Industries 2-3* (2003), [http://iris36.worldbank.org/domdoc/PRD/Other/PRDDContainer.nsf/All+Documents/85256D240074B56385256FF6006843AB/\\$File/volume1english.pdf](http://iris36.worldbank.org/domdoc/PRD/Other/PRDDContainer.nsf/All+Documents/85256D240074B56385256FF6006843AB/$File/volume1english.pdf).

Beyond the mere appropriation of a disproportionate share of the available resources in the world, unsustainable consumption in the North has social and environmental ramifications for developing countries that further impair the security of the people of the South even if they do not seem to impinge directly on the security of the North. The production and consumption of food and other agricultural products (cotton, for example) is a salient case in point. On the one hand ease of transportation and the purchasing power of Northern firms created global markets of agricultural products, with producers from developing countries competing with each other for export sales.<sup>204</sup> Meanwhile, governments of Northern countries also pay for enormous subsidies and other production incentives to their own farmers so that they can compete in this global marketplace in spite of their high costs of production.<sup>205</sup> The net effect has been to drive down the world market prices for many agricultural products, including sugar, cotton, and corn.<sup>206</sup> Farmers in the rural South who can no longer make a living on the land because of declining commodity prices migrate to urban areas where their personal and environmental security is very low.<sup>207</sup> The WCED cited urban air quality, water quality, and inadequate sanitation in developing countries as grave environmental harms affecting

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<sup>204</sup> See CHRISTOPHER DELGADO, NICHOLAS MINOT, & NIKOLAS WADA, *HIGH VALUE AGRICULTURE* (2001), available from the Int'l Food Pol'y Research Inst. at [http://www.ifpri.org/2020/focus/focus08/focus08\\_06.htm](http://www.ifpri.org/2020/focus/focus08/focus08_06.htm).

<sup>205</sup> See, e.g., Food and Agric. Org., *COTTON: IMPACT OF SUPPORT POLICIES ON DEVELOPING COUNTRIES—WHY DO THE NUMBERS VARY?* (2004), available at <ftp://ftp.fao.org/docrep/fao/007/y5533e/y5533e00.pdf> [hereinafter FAO].

<sup>206</sup> World Bank, *Global Economic Prospects 2004: Realizing the Development Promise of the Doha Agenda xvii-xix* (2003) (estimating developed country agricultural subsidies of \$330 billion per year and calculating that their removal would result in a \$350 billion gain in welfare for developed countries and an additional \$170 billion for developing countries); FAO, *supra* note 205, at 2 (giving estimates of price increases for cotton of 2%-35% if developed country subsidies are removed).

<sup>207</sup> For an interesting, complex analysis of migration patterns, see Catherine Locke, W. Neil Adger, & P. Mick Kelly, *Changing Places: Environmental Impact of Migration*, ENV'T, Sept. 2000, at 24.

the health and even the lives of millions of people.<sup>208</sup> Even if displaced people remain in rural areas, social problems can arise. In Yunnan Province, China, overly intensive collection of mountain plants needed to satisfy export demands for Chinese medicines has prompted the authorities to resettle entire communities of indigenous people to more tropical lowland regions, resulting in social tensions and health problems for the resettled people as well as significant changes in land use.<sup>209</sup> More commonly, especially in Africa and Latin America, young people from rural households migrate to the North, often illegally, to secure higher paying jobs that can help support their families in the home country.<sup>210</sup> Such migrations lead to political tensions and occasional violence, and displaced communities in the North become prime recruiting areas for terrorist networks. In a more direct threat to the environment, government programs to increase commodity exports to developed country markets often work to accelerate the degradation of ecological systems for short-term economic gain regardless of long-term environmental costs. For example, the government of Vietnam has promoted large scale coffee farming and shrimp farming, with devastating consequences for upland forest zones and for coastal mangroves and other wetland ecosystems.<sup>211</sup> In another example from southeast Asia, construction of dams in China to meet rapidly increasing energy needs will moderate the seasonal variations in the natural flow of the Mekong River, threatening to disrupt, among others, the fishery in the Tonle Sap that is a major source of animal protein for the people of Cambodia, not to mention the source of livelihood for thousands of people.<sup>212</sup>

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<sup>208</sup> See OUR COMMON FUTURE, *supra* note 27.

<sup>209</sup> From a presentation of interim research results by the Asian International Rivers Center, Yunnan University, to a World Wildlife Fund workshop, July 18, 2005.

<sup>210</sup> Nina Bernstein, *Most Mexican Immigrants in New Study Gave Up Jobs to Take Their Chances in U.S.*, N.Y. TIMES, Dec. 7, 2005, at A30; Romesh Ratnesar, *Knocking on Europe's Door*, TIME (EUROPE), July 3, 2000.

<sup>211</sup> See LOCKE ET AL., *supra* note 207.

<sup>212</sup> Fred Pearce, *Where have all the Fish Gone? The Mighty Mekong is Drying Up—and so is the River's Rich Harvest. Vast New Dams in China Could Be to Blame*, INDEPENDENT, Apr. 14, 2004.

These examples reveal complex patterns of ecological disruption across a range of geographic scales and time periods that have or are likely to result in environmental losses to security across national boundaries. If such ecological changes were only isolated anecdotes, the environmental and security consequences might be manageable. Unfortunately, as documented recently by the Millenium Ecosystem Assessment project, the overwhelming scale of human activity and the widening web of global interconnections mean that the accumulation of these local and regional environmental changes is seriously impinging on the global ecological web, threatening the security of all.<sup>213</sup>

Yet many of these environmental and social changes in the South remain more or less invisible to the distant consumers of the North whose purchases are driving them. Geographical distance and lack of a legal jurisdictional connection between the consuming decision maker and the producing communities make it difficult to build a coordinated approach to ecosystem management.<sup>214</sup> Ideally, market mechanisms would mediate between consumer and producer, but global patterns of production mean that buyers of common commodities have multiple sources of supply, which leaves the individual producers in the position of being price takers, without effective control over their own production choices.<sup>215</sup> Moreover, the consumer typically lacks information about the origin of the product or the manner of its production and is therefore unable to express any preference for one product over another.<sup>216</sup> Building information links between consumers and producers can be effective in changing the market's response, but this task is not easily accomplished.

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<sup>213</sup> MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: SYNTHESIS 1-2 (2005).

<sup>214</sup> Peter Dauvergne, *Dying of Consumption: Accidents or Sacrifices of Global Morality?*, 5 GLOBAL ENVTL. POLITICS, No. 3, at 35, 38 (Aug. 2005).

<sup>215</sup> See, e.g., DELGADO ET AL., *supra* note 204.

<sup>216</sup> Apart from organic food labels and some environmental certification of wood products, consumer information labels about the environmental merits of products in the United States are scarce.

Environmental labeling and other consumer information systems are promising initiatives to fill this gap, but are still very modest in scale.<sup>217</sup> For developing country producers, the opportunities and demands of the export market are thus exogenous variables over which they have limited control.<sup>218</sup> In short, putting Northern consumption on the path of sustainable development for Southern producers, with corresponding security benefits for both parties, is a formidable challenge.

Climate change, which has immediate effects on the United States and other Northern countries described in the preceding section, also has enormous implications for the security of people in the South. As a recent report on the environmental and social consequences of climate change succinctly states, "[d]espite their minimal, per-person contributions to greenhouse gas emissions, the impacts of climate change will disproportionately affect people living in poverty in developing countries."<sup>219</sup> The report finds that floods, storms, and droughts present the most widespread risk to human security,<sup>220</sup> and documents the consequences of these hydro-meteorological changes on developing countries and communities in terms of the basic human needs identified in the WCED definition of sustainable development, including food, water, and health.<sup>221</sup>

#### D. *Precaution, Equity, and Responsibility*

In the face of documented environmental change already occurring and its devastating consequences for many in the developing world, the United States government dismisses global

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<sup>217</sup> U.S. ENVT'L PROT. AGENCY, ENVIRONMENTAL LABELING ISSUES, POLICIES, AND PRACTICES WORLDWIDE (1998), <http://www.epa.gov/opptintr/epp/pubs/envlab/wwlabel3.pdf>.

<sup>218</sup> Dauvergne, *supra* note 214, at 36.

<sup>219</sup> Andrew Simms, John Magrath, & Hannah Reid, UP IN SMOKE? THREATS FROM, AND RESPONSES TO, THE IMPACT OF GLOBAL WARMING ON HUMAN DEVELOPMENT 29 (2004). This report is a joint effort of many nongovernmental groups, mostly European, organized as The Working Group on Climate Change and Development.

<sup>220</sup> *Id.* at 5.

<sup>221</sup> See *id.*

climate change as a pressing issue. U.S. greenhouse gas emissions continue to steadily increase, despite committing to reduce such emissions under the United Nations Framework Convention on Climate Change.<sup>222</sup> This posture violates all three principles of sustainability and security enumerated above.

First, it is a policy that spurns any notion of precaution. Scientists repeatedly warn that inexorable changes in the climate are already under way but could be mitigated with early action to reduce greenhouse gas emissions drastically.<sup>223</sup> Even some oil industry leaders predict “disaster” if governments do not take urgent action.<sup>224</sup> The George W. Bush Administration’s vague and rather unrealistic promises of research on new energy technologies such as hydrogen are neither timely nor effective enough to achieve the necessary immediate reductions in greenhouse gas emissions.<sup>225</sup> Most energy commentators agree that we need

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<sup>222</sup> See United Nations, United Nations Framework Convention on Climate Change: Parties and Observers, Annex I, [http://unfccc.int/parties\\_and\\_observers/parties/items/2228.php](http://unfccc.int/parties_and_observers/parties/items/2228.php).

<sup>223</sup> See, e.g., T.M.L. Wigley, *The Climate Change Commitment*, 307 SCIENCE 1766, Mar. 18, 2005 (estimating a temperature rise of 1 degree Celsius and a sea level rise of 10 centimeters per century if all emissions ceased today, and a temperature rise of 2 to 6 degrees Celsius and sea level rise of 25 centimeters per century if emissions were kept constant at today’s levels); Gerald A. Meehl et al., *How Much More Global Warming and Sea Level Rise*, 307 SCIENCE 1769, 1772, Mar. 18, 2005 (using a different analytical methodology but coming to similar conclusions as Wigley, such that “we are already committed to significant warming and sea level rise no matter what scenario we follow”); Michael D. Mastrandrea & Stephen H. Schneider, *Probabilistic Integrated Assessment of “Dangerous” Climate Change*, 304 SCIENCE 571, 674, Apr. 23, 2004 (concluding “[i]t is possible that some thresholds for dangerous anthropogenic interference with the climate system are already exceeded, and it is likely that more such thresholds are approaching. . . . [D]espite great uncertainty in many aspects of integrated assessment, prudent actions can substantially reduce the likelihood and thus the risks of dangerous anthropogenic interference”).

<sup>224</sup> Geoffrey Lean, *Apocalypse Now: How Mankind is Sleepwalking to the End of the Earth*, INDEPENDENT, Feb. 6, 2005 (quoting Lord Oxbrough, the head of Shell in the United Kingdom).

<sup>225</sup> See, e.g., Donald Athrop, *Hydrogen’s Empty Environmental Promise*, Cato Inst. Briefing Paper No. 90, Dec. 7, 2004 (explaining that the main current source of hydrogen is fossil fuels, and it would take tremendous amounts of energy to extract hydrogen from water and make the energy available to consumers as a vehicle fuel).

immediate investment in a range of short-term strategies, including energy efficiency improvements, carbon sequestration, and sharply increased use of renewable energy sources such as biofuels.<sup>226</sup> Others argue that such mitigation steps are a wise "insurance policy" against possible nonlinearities and surprises in the climate's response to the increased forcing of rising atmospheric carbon dioxide,<sup>227</sup> and that a mitigation strategy has a highly beneficial cost-benefit ratio.<sup>228</sup>

With five percent of world population responsible for emitting 24% of the total carbon dioxide,<sup>229</sup> the environmental inequities of U.S. energy policy are obvious. The United States is geographically less vulnerable to the adverse effects of climate change than many other countries, and it certainly has a large capacity to bear the costs of adapting to a changed climate in its agriculture, water supply, indoor climate control, and so forth. Yet, the U.S. government and the American public at large continue with business-as-usual, giving scant thought to the responsibility owed to other nations and peoples, each of whom will feel some environmental effect from our behavior. British Prime Minister Tony Blair sees the point clearly: "It is the poorest countries of the world that will suffer most . . . yet it is they who have contributed least to the problem. . . . [t]hat is why the world's richest nations in the G8 have a responsibility to lead the way."<sup>230</sup>

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<sup>226</sup> See, e.g., Eileen Claussen, *An Effective Approach to Climate Change*, 306 SCIENCE 816, Oct. 29, 2004.

<sup>227</sup> See generally *infra* notes 59-88 and accompanying text.

<sup>228</sup> William R. Cline, *The Costs of Inaction with Respect to Climate Change*, Paper for EPOC High-Level Special Session on the Costs of Inaction, Organization for Economic Cooperation and Development, Apr. 14, 2005, at 16 (calculating that delaying abatement by 20 years would cost \$7 trillion (in 1990 prices), that is, the lost benefits of abatement would exceed the costs of abatement by that amount).

<sup>229</sup> Tabulation in Wikipedia, based on 2002 data from the the United Nations. See List of Countries by Carbon Dioxide Emissions, [http://en.wikipedia.org/w/index.php?title=List\\_of\\_countries\\_by\\_carbon\\_dioxide\\_emissions&oldid=40630248](http://en.wikipedia.org/w/index.php?title=List_of_countries_by_carbon_dioxide_emissions&oldid=40630248) (last visited Mar. 10, 2006).

<sup>230</sup> Mike Peacock, *Blair Fears Climate Change Disaster, Challenges US*, REUTERS, Sept. 14, 2004 (quotations omitted), <http://www.planetark.com/dailynewsstory.cfm/newsid/27129/story.htm>.

Writing of the divide in the world between rich and poor, Wolfgang Sachs and his colleagues contend that our "affluence is secure" only if the poor know nothing about it, accept their poverty as their fate, or have no chance to attain wealth.<sup>231</sup> In a globalized world, they write, none of these conditions exist.<sup>232</sup> They quote a Bangladeshi delegate to a climate change conference in Berlin who warned his developed country colleagues, "[i]f climate change makes our country uninhabitable, we will march with our wet feet into your living-rooms."<sup>233</sup> That brings us back to security, for if the United States does not act equitably and accept responsibility for its actions, others are prepared to act against such unfairness and unresponsiveness. As Sachs notes, peoples and governments of developing countries see the connection between their circumstance and the consumption patterns of developed countries. Consequently, our patterns of unsustainable consumption help foster that particular form of insecurity called terrorism.<sup>234</sup> Terrorism has some of its roots in inequities between the terrorists and their targets. Inequity here includes unequal distribution of wealth, but only to the extent that the wealth disparities are seen to be unfair. Disparities of power and hopelessness about legitimate means of redress or reform also play an important part. These arise where the aggrieved party believes that his or her powerful antagonist lacks sincere regard for the 'other.'<sup>235</sup> Dalby aptly summarizes the implications. "Northern consumption, its consequences for Southern security, and the shift in focus from environment to ecology are now fundamental to rethinking environmental security."<sup>236</sup>

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<sup>231</sup> GREENING, *supra* note 125, at 167.

<sup>232</sup> *See id.*

<sup>233</sup> *Id.*

<sup>234</sup> Although Ferraro, *supra* note 102, asserts that the link between poverty and terrorism is "tenuous," *id.* at 17, he comes to the strong conclusion that "[t]he real political threat is that the deepening divide between rich and poor states creates the illusion of separate worlds, one in which genuine cooperation among states becomes impossible." *Id.* at 18.

<sup>235</sup> GREENING, *supra* note 125, at 167.

<sup>236</sup> Simon Dalby, *Security and Ecology in the Age of Globalization*, Environmental Change and Security Program, ECSP REP. 8 (2002), available at [http://www.wilsoncenter.org/topics/pubs/Report\\_8\\_Dalby.pdf](http://www.wilsoncenter.org/topics/pubs/Report_8_Dalby.pdf).



The responsibility of the United States and other developed countries to change consumption behavior to alleviate the security threat from unsustainable patterns of consumption springs from both legal and moral sources, not to mention a selfish interest in our own national security. Legally, a duty is owed to other nations not to impinge disproportionately on their own environments and resources and their own security. For sixty years or more, international law has recognized, as stated in the Rio Declaration: "States have . . . the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States."<sup>237</sup> More aspirationally, the preamble to the Earth Charter declares that the peoples of the world should "decide to live with a sense of universal responsibility, identifying ourselves with the whole Earth community as well as our local communities."<sup>238</sup> Morally, our responsibility cannot be more eloquently stated than it was twenty-five years ago in a U.S. government report on climate change:

Whatever the consequences of the carbon dioxide experiment for humanity over the long term, our duty to exercise a conserving and protecting restraint extends as well to the community of life—animal and plant—that evolved here with us. There are limits beyond which we should not go in disrupting or changing this community of life, which, after all, we did not create. Although our dominion over the earth may be near absolute, our right to exercise it is not.<sup>239</sup>

## CONCLUSION

Sustainable development is fundamentally about a combination of economic development to lift the worlds' poorest people out of the harsh environmental conditions of their daily existence,

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<sup>237</sup> Rio Declaration, *supra* note 166, at princ. 2.

<sup>238</sup> The Earth Charter Initiative, *The Earth Charter*, [http://www.earthcharter.org/innerpg.cfm?id\\_menu=19](http://www.earthcharter.org/innerpg.cfm?id_menu=19).

<sup>239</sup> See SPETH, *supra* note 20 (quoting from a government report by the U.S. Council on Environmental Quality, GLOBAL ENERGY FUTURES AND THE CARBON DIOXIDE PROBLEM viii (1981)).

and environmental protection to ensure that human societies and their economies can continue to function for the indefinite future. The WCED underscored the social conditions necessary for a sustainable world.<sup>240</sup> In particular, they emphasized the need for equity—not only intergenerational equity, but more pertinently the idea of intra-generational equity, thus redressing the drastic imbalance in the opportunities available to individuals to realize their dreams and ambitions.<sup>241</sup>

A socially-grounded sustainable development policy, one that will enhance security for all countries, calls for community-based development in two senses. First, development should be founded or centered on ecological communities. In particular, resource extraction, to the extent that it is appropriate to continue, should be accompanied by the protection and restoration of ecological habitats in order to promote conservation of biological diversity. Second, development initiatives and investments should center on the sustenance of the human communities that live within the ecological communities. Only this development pattern can anticipate and avoid the social and political stresses that give rise to environmental violence and insecurity. In a very real sense, sustainable development is about fostering the social conditions for enduring societies. Protection and maintenance of the environmental resource base is only one of the necessary conditions for sustainability.

Several times in recent months, the world has been reminded that unspeakable devastation and loss of life can occur from natural causes as well as from human violence. Earthquakes and tsunamis involve natural forces which are almost entirely independent of human activity; we can only try to warn and assist the survivors in rebuilding their lives. Hurricane Katrina, other extreme weather events, and their particular patterns of destruction, on the other hand, are to some extent influenced by human changes to the environment.<sup>242</sup> The insecurity that Katrina has left in its wake is thus an environmental insecurity. The people of Nicaragua and Honduras know this as well; their individual and national securities

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<sup>240</sup> See *supra* notes 96-114 and accompanying text.

<sup>241</sup> See discussion *supra* note 111.

<sup>242</sup> See *supra* note 196.

have yet to recover fully from Hurricane Mitch a decade ago when Stan, Wilma, and Beta hit them again in 2005.<sup>243</sup>

Ecological politics, itself to some extent an outgrowth of environmental security analysis, teaches that patterns of security or insecurity are shaped by a multiplicity of interconnecting socio-political relationships involving culture, geography, power, environment, and governance.<sup>244</sup> Like all societies confronting change in our world, we will adapt to our changing environmental conditions. How well we make those adaptations will determine the level of security or insecurity in our lives. For the United States, we appear to be poised between opting for life in the splendid isolation of a metaphorical gated community or living interactively with the world community. However, the security of a gated community is illusory; we live in a globalized world. As Jared Diamond conveys in his description of contemporary Los Angeles, the only effective choice is to embrace the linkage between sustainable development and our own security, and to begin the serious work of restructuring our own society and economy, in cooperation with others around the world, on the basis of a shared commitment to the whole planet.<sup>245</sup> Addressing a European audience, Wolfgang Sachs and his colleagues make this plea most eloquently:

All of this signifies that political and military security, greater equity of chances of survival, sustainable economic activity, and protection of the natural foundations of life are interconnected worldwide. Anyone seeking sustainability for Germany and Europe must include the fate of the entire world in their considerations and actions—out of a sense of responsibility and self-interest.<sup>246</sup>

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<sup>243</sup> See U.S. Agency for Int'l Dev., Honduras, [http://www.usaid.gov/location/latin\\_america\\_caribbean/country/honduras](http://www.usaid.gov/location/latin_america_caribbean/country/honduras); Red Cross, *Hurricane Stan: Hondurans Try to Get Back on Their Feet*, Oct. 21, 2005, at [http://www.redcross.org/article/0,1072,0\\_312\\_4781,00.html](http://www.redcross.org/article/0,1072,0_312_4781,00.html).

<sup>244</sup> See *supra* note 122 and accompanying text.

<sup>245</sup> COLLAPSE, *supra* note 78, at 499-503.

<sup>246</sup> GREENING, *supra* note 125, at 167-69.